

Home Characteristics and Asthma Triggers

Checklist for Home Visitors

Using this Home Assessment Can Help Make Homes Healthier.

A trained home visitor can help find common asthma triggers in homes and discuss ways to reduce and remove triggers. Removing asthma triggers in the home, along with proper medical care can improve health.

The checklist is organized into a Core Assessment plus two appendices (Dust Mite Module and Mold and Moisture Module). The Core Assessment can be used for all types of housing and climates, but the additional modules can be used if dust mites or mold/moisture issues are suspected by the trained home visitor. The suggested action items in this checklist are generally simple and low cost.



Glossary of Asthma Triggers Commonly Found in Homes

Combustion by-products

Triggers: Particles and gases that are formed when fuel is burned.

Where Found: Gas cooking appliances, fireplaces, woodstoves, candles, incense, cigarettes, and unvented kerosene and gas space heaters.

Dust Mites

Triggers: Body parts and droppings.

Where Found: Mattresses, bedding, carpeting, curtains, upholstered furniture, and stuffed toys. Dust mites are too small to be seen with the naked eye. They can survive in a range of climates, but they prefer high humidity.

Mold

Triggers: Mold spores, fragments, and odors.

Where Found: Indoor mold growth is often found in areas with more moisture such as kitchens, bathrooms, and basements, or areas where water damage has occurred. There are many types of mold and they can be found in any climate.

Pests

Triggers: Cockroaches—Body parts and droppings.
Rodents—Fur, skin flakes, and urine.

Where Found: Areas with food and water such as kitchens, bathrooms, and basements.

Pets with fur

Triggers: Fur, skin flakes, and saliva.

Where Found: Throughout entire home.

Secondhand Smoke

Triggers: Mix of smoke from the burning end of a cigarette, pipe, or cigar and the smoke exhaled by a smoker.

Where Found: Anywhere that smoking is allowed.

Volatile organic compounds (VOCs)

Triggers: Chemical vapors that come from household items.

Where Found: Products such as cleaning agents, deodorizers, air fresheners, perfumes, paints, nail polish, and nail polish remover.



CORE ASSESSMENT



Building Information

Checklist Questions

Potential Action Steps

Are your living quarters in a:

- One-unit building, detached from any other building?
- One-unit building, attached to one or more buildings?
- Building with two or more apartments?
- Manufactured/Mobile Home?

Is your home:

- Owned?
- Rented?
- Occupied without payment of rent?

- If you live in a rental home, you might need to ask permission to make any changes, even minor repairs to the home. Renters often are protected under tenant's rights laws. Contact local social services agencies if you need their help.

How many stories are there in your home including attics and basements?

No. of Stories: _____

Home Interior

HEATING and COOLING

Checklist Questions

Potential Action Steps

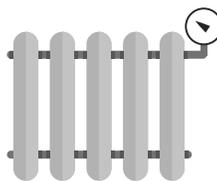
During the winter, what is the primary way your home is heated?

- Radiators
- Baseboard heater
- Forced hot air (vents)
- Space heater
- Fireplace/wood-burning stove
- Other: _____
- N/A

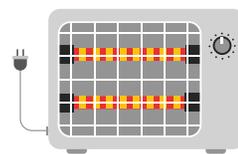
In addition to the main source of heat, do you use any other source(s)?

- Radiators
- Baseboard heater
- Forced hot air (vents)
- Space heater
- Fireplace/wood-burning stove
- Other: _____
- N/A

- Properly ventilate the room where a fuel-burning appliance is used and consider using appliances that vent to the outside whenever possible.
- Never use a gas-cooking appliance as a heating source.
- If using a fireplace, make sure it is properly vented to help ensure smoke escapes through the chimney.
- If using a wood-burning stove, make sure that doors are tight-fitting. Use aged or cured wood only and follow the manufacturer's instructions for starting, stoking, and putting out the fire.
- If using an unvented kerosene or gas space heater, follow the manufacturer's instructions for proper fuel to use and keep the heater properly adjusted.



Radiator



Space Heater



Baseboard Heater

Core Assessment *(continued)*

HEATING and COOLING

Checklist Questions

**How do you cool your home?
(check all that apply)**

- Central A/C
- Window A/C (or portable free-standing unit)
- Fans
- Evaporative cooler
- Other: _____
- N/A

Potential Action Steps

Central A/C units

- Replace the filters every 3 months or as recommended by the manufacturer.
- Use filters with higher efficiency than standard furnace filters, such as upgraded pleated filters, if heating or cooling system manufacturer's specifications allow.
- The Heating Ventilation and Air Conditioning (HVAC) system should have a professional inspection annually.
- Promptly repair damaged parts.

Window A/C units

- Keep drip pans clean and the drain lines flowing properly.
- Follow the manufacturer's instructions for cleaning or replacing filters.

Evaporative coolers (often used in very dry climates)

- Follow the manufacturer's instructions for cleaning.

COOKING

Checklist Questions

What type of stove do you have?

- Gas
- Electric
- N/A

Do you use an exhaust fan when cooking on your stove?

- Yes
- No
- N/A

Does the fan exhaust to the outside?

- Yes
- No
- Don't know
- N/A

Potential Action Steps

- Use your exhaust fan (if it exhausts to the outside) or open a window when cooking.

SMOKING

Checklist Questions

Do any members of your household smoke tobacco inside your home?

- Yes
- No

Do any visitors to your household smoke tobacco inside your home?

- Yes
- No

Potential Action Steps

- Make your home a smoke-free zone.
- Encourage household member(s) to stop smoking.

Regarding eCigarettes: eCigarette vapor can still contain toxic chemicals. Secondhand vapor might be a risk factor for triggering asthma symptoms.

Core Assessment *(continued)*

SMOKING

Checklist Questions

In the last 12 months, how often has secondhand tobacco smoke entered inside your home from somewhere else in or around the building?

- Daily
- Weekly
- Monthly
- A few times a year
- Never

Potential Action Steps

- Work with the building owner/manager and other occupants to start a smoke-free policy throughout the building.
- Use a portable air cleaner that is rated to remove tobacco smoke.

PETS

Checklist Questions

Do you have any pets in your home?

- Yes
- No

Potential Action Steps

If Yes, please check all that apply:

- Cat(s)
- Dog(s)
- Bird(s)
- Other furry pets (e.g., rabbits, guinea pigs, hamsters, mice)
- Other non-furry pets

Talk to your healthcare provider to see if testing for allergy to your pets might be helpful for you.

- If you are allergic to pets, the best way to decrease asthma symptoms is to remove the pet from the home and thoroughly clean all surfaces in the home.
- If you are allergic, and cannot remove the pet from your home, you can decrease exposure, but it might not be enough to decrease symptoms. The best way to decrease symptoms is to do all of these things:
 - » Keep pets out of your bedroom,
 - » Wash your furry pets,
 - » Use an air cleaner with HEPA filter,
 - » Use allergen-proof mattress & pillow covers.

PESTS

Checklist Questions

In the last 12 months, have you seen cockroaches inside your home?

- Yes
- No
- Don't know

Potential Action Steps

Use integrated pest management (IPM) described below. For those with asthma, especially avoid the use of sprays and foggers.

IPM concepts include:

- Keep counters, sinks, tables, and floors clean and free of clutter.
- Clean dishes, crumbs, and spills right away.
- Store food in airtight containers. This also applies to pet food.
- Seal cracks or openings in cabinets, walls, baseboards, and around plumbing.
- Keep trash in a closed container.
- Use pesticide baits and traps in areas away from children and pets. Follow manufacturer's instructions for correct use.

Core Assessment *(continued)*

PESTS

Checklist Questions

Potential Action Steps

If Yes, in the last 12 months, how often have you seen cockroaches inside your home?

- Daily
- Weekly
- Monthly
- A few times a year

In the last 12 months, have you or an exterminator used any pest control measures (pesticides, traps, etc.) to control cockroaches in your home?

- Yes
- No
- Don't know



In the last 12 months, have you or an exterminator used any pest control measures (pesticides, traps, etc.) to control other insects in your home?

- Yes
- No
- Don't know



In the last 12 months, have you seen evidence of mice or rats inside your home?

- Yes
- No
- Don't know



If Yes, in the last 12 months, how often have you seen evidence of mice or rats inside your home?

- Daily
- Weekly
- Monthly
- A few times a year

In the last 12 months, have you or an exterminator used any pest control measures (pesticides, traps, etc.) to control mice or rats in your home?

- Yes
- No
- Don't know

- Use integrated pest management (IPM) described above.

- Use IPM methods as described above.
- Use snap traps in areas away from children and pets.

Core Assessment *(continued)*

MOISTURE and MOLD

Checklist Questions

Is there evidence of water damage, moisture, or leaks (such as damp carpet or leaky plumbing)?

- Yes Don't know
 No

In the last 12 months, how often have you noticed any moldy/musty smells inside your home?

- Daily Monthly
 Weekly A few times a year

In the last 12 months, was there mold covering an area greater than or equal to the size of an 8" x 11" piece of paper in your home?

- Yes Don't know
 No

Do you use a dehumidifier?

- Yes N/A
 No

Do you use a humidifier?

- Yes N/A
 No

Potential Action Steps

- Dry damp or wet items within 24-48 hours to avoid mold growth.
 - Fix water leaks (such as leaky plumbing) as soon as possible.
 - Replace absorbent materials, such as ceiling tiles and carpet, if mold is present.
 - Use air conditioner or dehumidifier to maintain low indoor humidity.
 - Scrub mold off hard surfaces with detergent and water. Dry completely.
 - Empty and clean refrigerator and air conditioner drip pans regularly.
 - Run the bathroom exhaust fan or open the window when showering.
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- Keep relative humidity levels in your home around 30–50%.
 - Follow manufacturer's instructions and clean devices regularly to prevent mold growth.

Core Assessment *(continued)*

Key Points

Volatile organic compounds (VOCs): These chemicals are commonly found in cleaning products, perfumes, paints, and other household items. They can be harmful to all people with asthma.

- Limit exposure as much as possible by minimizing product use, using products only when person with asthma is not present, or trying alternative products.
- If products are used, carefully follow manufacturer's instructions on the label and make sure the area is well-ventilated.

Other safety hazards: Smoke and carbon monoxide can be deadly.

- Use smoke detectors and carbon monoxide alarms in the home. Follow manufacturer's instructions. For more information, go to www.nfpa.org/public-education/resources/safety-tip-sheets*

Outdoor air: Outdoor air pollutants and pollen can trigger asthma.

- Air pollutants and pollen can enter homes through open doors, windows, and other cracks or openings in the building.
- For current information about outdoor air quality, go to www.epa.gov/airnow

**The Centers for Disease Control and Prevention (CDC), the US Environmental Protection Agency (EPA) and the US Department of Housing and Urban Development (HUD) do not endorse the National Fire Protection Association. The National Fire Protection Association's website is suggested for informational purposes only.*

Other Resources About Asthma

CDC: www.cdc.gov/asthma/triggers.html

EPA: www.epa.gov/asthma/asthma-triggers-gain-control

HUD: www.hud.gov/program_offices/healthy_homes/healthyhomes/asthma

Summary Notes:

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DUST MITE MODULE

Answers in the **red checkboxes** (the first column) are associated with dust mites. The more checkmarks you have in the red column, the more likely you have high dust mite levels in your home. You can take actions shown at the end of this list.

Building

Are all your windows sealed shut or don't open? Yes No

Is any part of your living area below ground level? Yes No

If YES, does this area ever get wet or stay wet for long periods (more than 1 week)? Yes No

Heating, Ventilation, and Cooling

During winter, are some outside walls cold? Yes No Don't know

Does your air conditioner ever leak water onto walls or carpeting? Yes No N/A (no A/C)

Does your home sometimes smell "stuffy," "stale," or "musty?" Yes No Don't know

Bedroom Characteristics of Person with Asthma

Do you have upholstered furniture in the bedroom of the person with asthma? Yes No

Do you allow children to have stuffed animals/toys in the room? Yes No

Dust Reservoirs (overall home)

Do you have cloth sofa or chairs? Yes No

Do you have cloth curtains? Yes No

Can you see dust or dirt on your furniture, walls, ceiling, and curtains? Yes No

Do you have wall-to-wall carpeting in more than half of the rooms in your home? Yes No

Do you have wall-to-wall carpeting in your kitchen or bathrooms? Yes No

Do you vacuum less than once a week? Yes No

Dampness

In the last 12 months, have you noticed condensation on windows in your home? Yes No Don't know

If YES, does moisture regularly build-up on your windows/walls? Yes No

In the last 12 months, have you had any water leaks? Yes No Don't know

Do you use a dehumidifier regularly?* Yes No N/A

*Regular use of dehumidifiers may suggest that a home is humid (dust mites prefer humid environments).

Action Steps to Decrease Dust Mites

Talk to your healthcare provider to see if testing for dust mite allergy might be helpful for you.



If you are allergic to dust mites, you need to:

- Use a device to measure relative humidity in your home. Keep relative humidity levels in your home around 30- 50%.
- Cover mattresses and pillows in special allergen-proof covers. Clean these according to manufacturer’s instructions.
- Use washable bedding.
- Wash bedding weekly and dry completely
- Vacuum carpets, area rugs, and floors regularly. If possible, the person with asthma should stay out of rooms while they are vacuumed, swept, or dusted.

Summary Notes:

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MOLD AND MOISTURE MODULE

Answers in a **red checkbox** (first column) are associated with moisture and potentially mold. A **yellow checkbox** (second column) indicates medium potential for concern, and a **green checkbox** (third column) indicates low potential for concern.

The more checkmarks you have in red checkboxes, the more likely it is that you have moisture and mold in your home. You can take actions shown at the end of this list.

Building

Is there a crawlspace under the building? Yes No Don't know

Are any of the bedrooms in the basement Yes No

NOTE: Many crawl spaces and basements are damp and may have mold that can enter the home.

Heating , Ventilation and Cooling

In the bathroom where you shower or bathe, does the exhaust fan work? No Don't know Yes
 N/A

If YES, how frequently do you use it when showering or bathing? Never Sometimes All the time N/A

Does your kitchen vent exhaust outdoors? No Don't know Yes
 N/A

Does your clothes dryer exhaust outdoors? No Don't know Yes N/A

NOTE: Properly maintained exhaust fans that vent to the outdoors can reduce humidity levels. If there are no exhaust fans or the exhaust fans do not work or do not vent outside, high humidity can develop in the home and can lead to mold growth.

Carpet

Do you have wall-to-wall carpeting in your kitchen or bathrooms? Yes No

What kind of floor covering is in the bedroom? Wall-to-wall carpeting Some carpeting All smooth floor

NOTE: Carpeting in areas that are prone to water spills can be hard to dry. Damp carpeting can lead to mold growth and create a place where dust mites can thrive.

Dampness

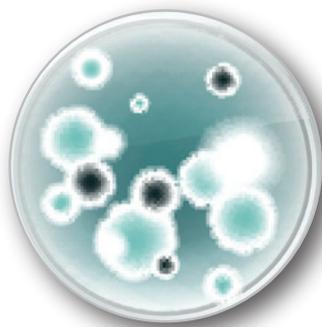
In the last 12 months, have you noticed condensation on windows in your home? Yes No

NOTE: Condensation (water droplets) on windows is a sign that moisture you may not see is forming on other surfaces. Even though you can't see this moisture, it can lead to mold growth.

Have any of your furnishings, clothes, possessions been in a building that had water damage? Yes Don't know No

NOTE: Anything that was water-damaged could have mold. Bringing those items into a new home could lead to more mold in the new home.

Action Steps to Decrease Moisture and Mold



- Dry damp or wet items within 24-48 hours.
- Fix water leaks (such as leaky plumbing) as soon as possible.
- Replace absorbent materials, such as ceiling tiles and carpet, if mold is present.
- Use an air conditioner or a dehumidifier to maintain 30-50% relative humidity indoors.
- Scrub mold off hard surfaces with detergent and water. Dry completely.
- Empty and clean refrigerator and air conditioner drip pans regularly.
- Use the bathroom exhaust fan or open the window when showering.

Summary Notes:

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For more information please contact

Centers for Disease Control and Prevention, 1600 Clifton Road NE, Atlanta, GA 33029-4027

Telephone: 1-800-CDC-INFO (232-4636) / TTY: 1-888-232-6348

E-mail: cdcinfo@cdc.gov

Web: www.cdc.gov/asthma

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Physical Controls

Sticky traps for insects and snap-traps for rodents are safe and good tools for catching the occasional invader. Be sure they are placed correctly for maximum benefit. Roaches and rodents run along the wall in concealed spaces, so make sure the traps are flush with the wall. Snap traps should snap toward the wall.



Chemical Controls: Less-Risky Pesticides

After using all of the above methods, you may need to consider using a pesticide. Try to select products that limit human exposures to the product. Aerosols, liquid sprays, mothballs or "bug bombs" all pose *more* risk of chemical exposure and cause lung irritation. Instead, look for pesticides in tamper-resistant bait stations or a "gel" formula. Boric acid dust can be used, if *carefully* puffed gently and in small amounts *behind* wall voids and socket covers to eliminate insects hiding behind these areas. Avoid spreading any kind of pesticidal dust in and around the rooms of the home.



Eliminating pests safely will help reduce the number one asthma trigger in the home!



Breathe Safely

Safety First

ALWAYS read the entire label on any pesticide product **BEFORE** you buy and use them in your home. Ask yourself: Does this product control the pest I have? Can I use this product without exposing myself and/or my family to the pesticide? If pesticides are stored in the home, store in a **locked** cabinet at least 4 feet up and out of the reach of children. **NEVER** buy pesticides in unmarked containers or that do not have an EPA registration number on the container. These products are **illegal** and potentially very dangerous to your family.



This fact sheet adapted from the original by Safer Pest Control Project
www.spcpweb.org

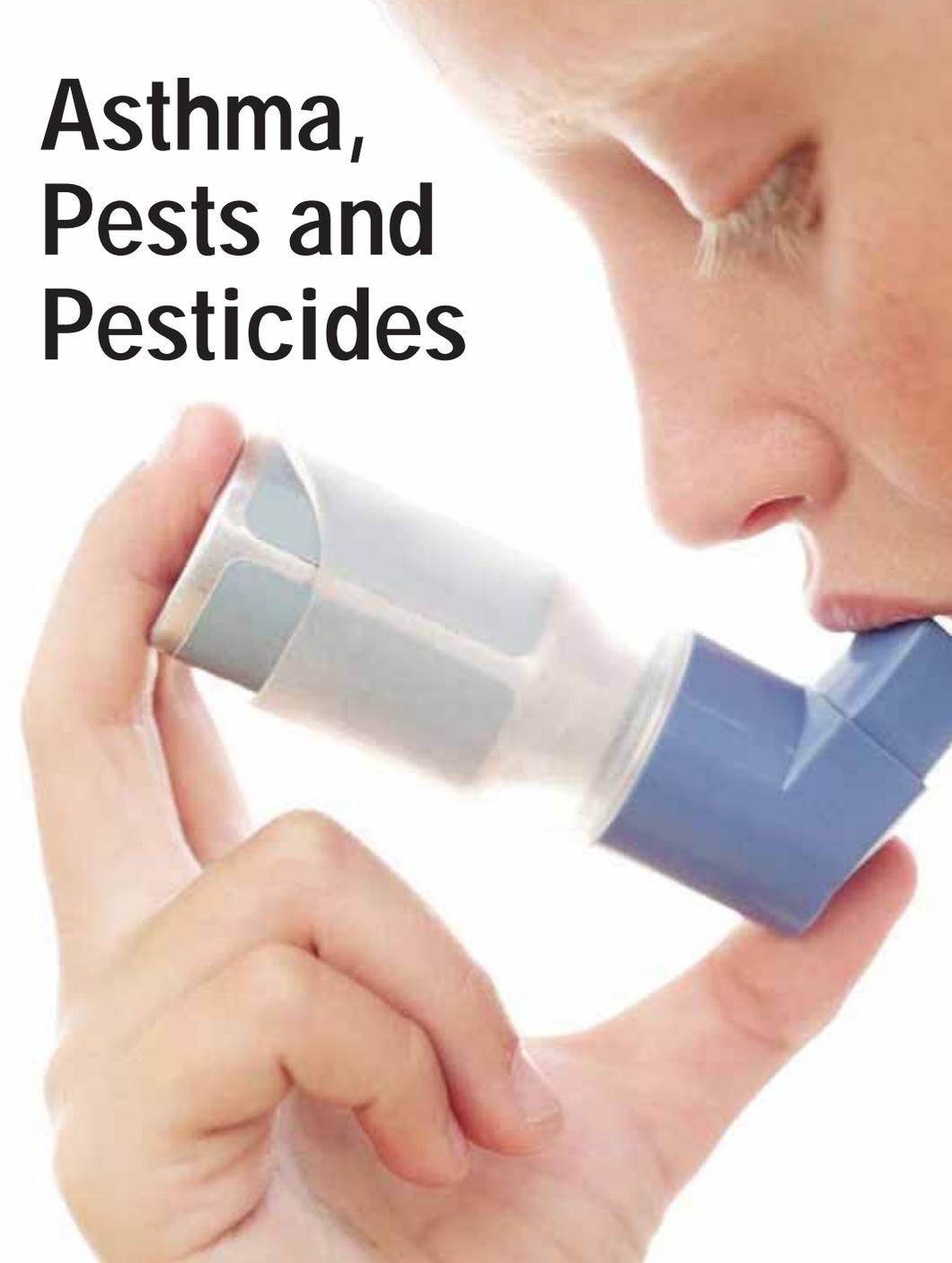
For more information please contact us at either location listed below.

Pennsylvania IPM Program at Penn State
501 ASI Building
University Park, PA 16802
Phone: 814-865-2839 • Email: paipm@psu.edu
<http://www.paipm.org>

Pennsylvania IPM Program in Philadelphia
Philadelphia School and Community IPM Partnership
Penn State Philadelphia Outreach Center
111 N. 49th St., Ste. KN3-100, 3rd Fl. North
Philadelphia, PA 19139
Phone: 215-471-2200 Ext. 109 • Email: pscip@psu.edu
<http://www.pscip.org>

*The PA IPM Program:
Empowering individuals and communities to safely manage pests through education and training.
Providing education and training for: Healthy Homes, Healthy Schools, Healthy Communities,
and Healthy People.*

Asthma, Pests and Pesticides



The Pennsylvania Integrated Pest Management Program
Philadelphia School & Community IPM Partnership



Asthma

Asthma is a long-term condition causing inflammation of the lung's airways. Symptoms of asthma include wheezing, coughing, feeling of tightness in the chest, difficulty breathing, and itching neck, throat and ears. While the causes of asthma are not fully understood, a combination of genetic susceptibility and environmental factors are involved. Although we cannot control our genetic make-up, we *can* help prevent asthma attacks by paying attention to the environmental conditions that irritate lungs and set off an attack.

Why be Concerned?

As of 2009, approximately 20 million Americans have been diagnosed with asthma, and it is the most common chronic childhood disease – afflicting over 6 million children nationally and over 100,000 children in Southeastern Pennsylvania. In Philadelphia, the asthma rates among school-aged children are more than twice the rates for Pennsylvania and the nation as a whole. Asthma is the leading cause of school absences. Parents, in turn, must miss work to stay home with their sick children. In Philadelphia, 16,000 children visit emergency rooms each year. African-American and Hispanic/Latino children have asthma rates 2-3 times that of white or Asian children. A bad asthma attack can be fatal.



Asthma Triggers

Asthma attacks are usually started by exposure to certain substances called *triggers*. Triggers are either allergens or lung irritants. Airborne allergens are substances such as pollen, animal dander, cigarette smoke, aerosols, or mold that cause an allergic reaction. Chemical lung irritants include pesticides, perfumes, air fresheners and household and industrial cleaning products. Repeated exposure to allergens or irritants, such as cockroach and/or mouse allergens, can “sensitize” people - making them more likely to experience allergic reactions. Awareness of asthma triggers can help you take steps to reduce them, and thereby preventing asthma symptoms or attacks.



Pests Trigger Asthma

Pests are unwanted creatures that invade our homes. Once they have gotten inside, some of these pests, notably, mice, rats and cockroaches, can contribute to an asthma attack. In fact, research is going on to determine whether or not these pests can actually cause asthma to develop.



The **single major factor** contributing to asthma in urban-dwelling children in the Northeastern US has been found to be **exposure to cockroach allergens**. Cockroaches shed skins, leave behind feces, and when cockroaches are dead, their bodies turn into dust – all things that can trigger an asthma attack. To make matters worse, when pesticide sprays or “bug bombs” are used to combat roaches, they can also irritate lungs and potentially cause an attack. Rodents, such as rats and mice, can trigger asthma as well. These rodents shed hair and produce waste products that can trigger attacks if someone with asthma breathes them in.

Pesticides and Human Health

Pesticides are substances designed to kill, control or repel pests, including insects, rodents, weeds, and molds. The US Environmental Protection Agency lists pesticides as one of four environmental pollutants that may influence the induction and exacerbation of asthma symptoms. Pesticides do this by irritating the lungs as they are breathed in. In laboratory tests with animals, commonly used pesticides have been linked to cancer, birth defects, reproductive disorders, and neurological, kidney and liver damage. To be safe, it is important to limit children's exposures to toxins of all kinds, including pesticides.



What Can You Do to Safely Control Pests?

Integrated Pest Management (IPM) is an approach to pest control that focuses on *eliminating the root causes of pest problems* and *using the safest, most effective methods available* to get rid of active infestations. IPM prevents pest by using a combination of physical and chemical methods. Because **IPM focuses on prevention**, it is more effective than a reactive, spray-based approach to pest control, and it reduces the need to use pesticides.

Pest Prevention

These methods are at the heart of an IPM program:

- **Keeping watch:** Certain areas of the house are more susceptible to pests such as the kitchen, basement or bathroom. Small sticky traps or glue boards can be used in these areas as an “early warning” system. The goal is to quickly find any pests and how they are getting in, *before* they become a big problem.
- **Prevent pest access:** Caulk the cracks and crevices pests may use to move or hide in. For larger holes, use stainless steel or copper mesh to plug the holes, and then use a silicone caulk to seal it. Pay special attention to areas where pipes and wires come in through the wall. Make sure to use window screens and that they are in good repair.
- **Prevent shelter:** Reduce clutter – get rid of the things you do not need such as old clothes, newspapers, magazines and cardboard boxes where pests can easily hide.
- **Prevent food sources:** Store food in plastic or glass containers with tight-fitting lids to prevent pests from eating it. Keep dirty dishes in soapy water so that pests cannot eat the scraps. Clean thoroughly, with particular attention to the floor under the refrigerator, stove/oven and other places where food crumbs and spills may be collecting. Remove and store pet foods in pest-proof containers at night. Use a trash can with a tight-fitting lid and empty regularly.
- **Prevent water sources:** Fix any water leaks, wipe up spills and remove pet's water dishes at night.



Visual Survey Instructions

I. Talk with the resident before you begin:

- Explain that you will draw floor and site plans, take notes, take photographs, collect samples, and possibly leave roach traps, a carbon monoxide alarm, or radon detectors for more than one day.
- Explain what kinds of samples you plan to take after you finish the visual survey.
- If a tenant, ask whether the resident received lead hazard disclosure information from the landlord and note the response in the space provided at the bottom of the **Visual Survey Report**.

2. Survey the exterior and grounds and draw the Site Plan:

The Site Plan is a sketch of the area around the home where you will not any problems you identify and where you collect soil samples. See CEHRC's website for the Site Plan form and an example.

- Walk around outside the building to look at the overall layout of the property.
- On the **Site Plan**, draw the outline of the building and where it sits on the property.
- Label important features on the **Site Plan**:
 - The location of the street and other landmarks
 - Play areas
 - Trash areas (dumpster, trash collection area)
 - Outdoor parking areas
 - Garages or other buildings

3. Note hazards on Site Plan and Visual Survey Report:

- Note the following hazards, (1) on the Site Plan, AND (2) by making a check mark next to the name of the problem in the “exterior” column on the **Visual Survey Report**:

- **Bare soil (no grass, mulch, or wood shavings) in the yard around the home or in a common outdoor area:** in play areas (in sand boxes, under swing sets, in areas where kids play), along the “dripline” within three feet of the building, and in other areas of the yard.

- **Deteriorated Paint (peeling, flaking, chipping, cracking):**

- Deteriorated in any way
- Paint coming loose from the surface or substrate (wood, plaster, metal, drywall)
- On the home, fences, etc.

- **Holes in the walls of the building.** Look for openings around windows and doors.

- Indicate the extent of the problem for **deteriorated paint and water damage** by noting on the following on the Visual Survey Report:

- N = None

- L = Low (less than 2ft²)

- M = Moderate (2 - 10ft²)

- H = High (10ft² or more)

- E = Extreme (structural damage caused by this problem)

- Note the following hazards on the **Visual Survey Report** only:

- **Rodents or evidence:** Note if you see, or the resident reports seeing, rats or mice, or very small pellets that may be rodent droppings.

- **Other physical conditions that seem hazardous,** such as standing water, woodpiles near exterior walls, accumulated trash, obvious water damage or wood rot, and damaged gutters, downspouts and other

building components.

4. Draw one Floor Plan for each floor of the home:

The Floor Plan shows the layout of the rooms (as seen from above). The Floor Plan makes it easy for you to note where you identify problems. You will also use the Floor Plan to show where you collect samples, leave testing materials for collection, and take photographs.

The Floor Plan does not have to be drawn using exact measurements. It should show the general relationships between rooms in the home and exterior walls. See CEHRC's website for the Floor Plan for and an example.

- Walk through the home to get a good understanding of the overall layout of the rooms.
- Draw the overall outline of the entire home.
- If the home has more than one floor, note which floor each **Floor Plan** represents before you draw it. If the home has two floors, one copy of the floor plan will be marked "**1 of 2**" and the other will be "**2 of 2**". If you draw a plan for an unoccupied basement, mark it "**0**".
- Draw the walls between rooms, then the doors and windows:
 - a. Draw a rectangle for each door. 
 - b. Draw a circle through the line of the wall for each window. 
 - c. Mark the walls of closets to help you keep the walls in perspective and avoid confusion about the doors.
- Label each room using the same names and abbreviations as listed on the **Visual Survey Report**
- Draw an asterisk (*) in rooms where children sleep or play.
- Be sure to note entryway of the home.

5. Perform the Visual Survey: note hazards on both the Floor Plan and Visual Survey Report

- Fill in the top of the **Visual Survey Report** and cross out columns for rooms that are not present. Add names or areas if necessary. If you

do not have enough columns, use a second copy of the report and write "1 of 2" on the first sheet and "2 of 2" on the second.

- Draw a star/asterisk (*) next to the names of rooms where children sleep or play.
- In each room, look for the problems listed below. For each, (1) note the location of each problem on the floor plan using the abbreviation from the key below, AND (2) make a check mark () next to the name of the problem in the column for that room on the **Visual Survey Report**.

a. Deteriorated paint (peeling, flaking, chipping, cracking paint):

- Deteriorated in any way
- Paint coming loose from the painted surface (wood, plaster, metal, drywall)
- Teeth marks on the painted surface.

b. Cockroaches or their remains: Note the location if you see any cockroaches, their shells or debris, or if the resident reports seeing them.

c. Holes in walls between the inside and outside of the building and between rooms. Look for openings around windows and exterior doors.

d. Unvented gas oven, clothes dryer, or heater: An appliance that burns natural gas, kerosene, wood, or other fuel is "unvented" if it does not have a pipe or ductwork that sends the exhaust outside.

e. Mold or fungus or similar stains on the wall, on the carpet, under sinks, outside of showers, or around windows. On the Visual Survey Report, check "obvious source of moisture" if the mold is near a source such as a dripping drain or moisture around a window. If there is no obvious moisture source for the mold, check the other box.

- Indicate the extent of the problem for **deteriorated paint and water damage** by noting on the following on the Visual Survey Report:
 - N = None
 - L = Low (less than 2ft²)
 - M = Moderate (2 - 10ft²)
 - H = High (10ft² or more)
 - E = Extreme (structural damage caused by this problem)

- On the **Visual Survey Report** only, note the following potential problems:
 - a. Walls appear wet or newly stained, or the plaster or drywall is bulging.**
 - b. Rodents or evidence:** Note if you see, or the resident reports seeing, rats or mice, or very small pellets that may be rodent droppings.
 - c. Strong musty smell like mold or fungus.**
 - d. Natural gas or sewer gas smell.** If you think you smell natural gas, advise the resident to call the gas company immediately.
 - e. Old or worn-out carpeting if in poor condition or extremely dirty.**
 - f. Other:** write in additional physical conditions that seem problematic (such as other odors, water leaks, etc.)

6. Double-check the Visual Survey Report, Floor Plan, and Site Plan:

- The resident's name, address, and unit number, and your name should be filled in.
- Make sure the names of the rooms on the **Floor Plan(s)** match those on the **Visual Survey Report**.

7. Determine further testing needs and locations:

Plan to take samples if you have identified any of the following:

- Deteriorated paint (lead)
- Bare soil (lead)
- Water damage (lead, mold and moisture)
- Unvented appliances (carbon monoxide)
- Cockroaches or evidence

8. Provide follow-up instructions, schedule the next visit, and thank the resident:

- Explain approximately when and how the **Summary Results Report** will be presented.

Schedule a time when someone will be home if you need to return to collect tests for carbon monoxide, cockroaches or radon, and note this on the Visual Survey Report.

Visual Survey Report

Resident: _____

Alternate Contact: _____

Address: _____

Unit # _____ Unique ID _____

Resident Phone: _____

Visual Conducted by:

Date:

Make a checkmark (✓) if the problem appears in the room or area. For deteriorated paint and water damage, indicate the extent of the problem (see instructions) Use the extra rows to identify any other hazards you notice. Put an asterisk (*) above any room(s) where a child sleeps or plays. Circle (○) where you photograph a problem.

ROOM OR AREA

PROBLEM		Exterior	Porch	Entryway	Living Room	Dining Room	Kitchen	Bedroom 1	Bedroom 2	Bedroom 3	Bathroom 1	Bathroom 2	Basement			
Deteriorated paint	Walls															
	Windows, door, or trim															
	Paint chips on floor															
Soil with no grass or mulch																
Cockroaches																
Rodents																
Holes in wall																
Mold/ Mildew	Obvious source of moisture															
	No obvious source of moisture															
Water Damage: walls wet/newly stained																
Strong musty smell																
Natural gas/sewer gas smell																
Unvented gas oven/dryer/heater																
Worn-out carpeting																
Other:																
Other:																
Other:																
Other:																
Other:																

If renting, received lead hazard disclosure information from landlord? Yes No
Follow-up visit scheduled for: Date _____ Time: _____

Action Plan

Resident: _____

Address: _____

Phone: _____

Date: _____

Contact Person: _____

Phone: _____

PROBLEM	ROOM(S) OR AREA(S)	ACTION TO TAKE
Deteriorated paint		
Soil with no grass or mulch		
Cockroaches		
Rodents		
Holes in wall		
Mold/mildew		
Water damage		
Strong musty smell		
Natural gas/sewer gas smell		

Unvented gas oven/dryer/heater		
Worn-out carpeting		
Other		

Doctor AL and the Sneeze 'n Wheeze Busters

The Good Guys



The Bad Guys



AMERICAN ACADEMY OF ALLERGY
ASTHMA & IMMUNOLOGY

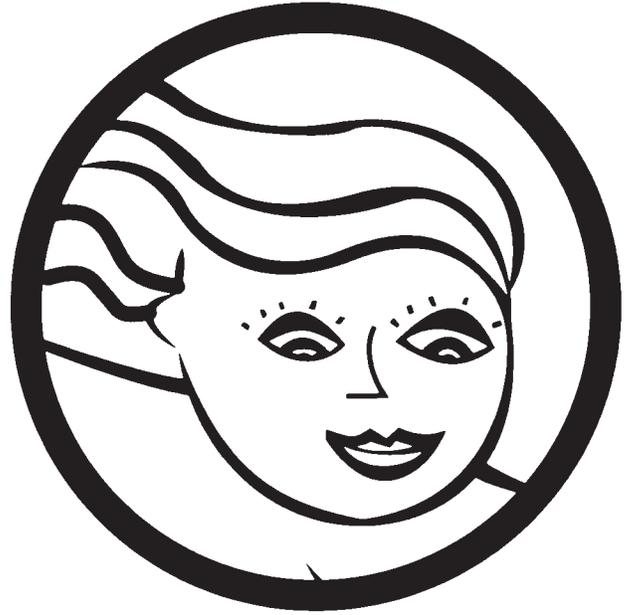
If you have asthma or allergies, you're not alone. At least 17 million Americans have **asthma**, and more than five million of them are kids. Nearly 36 million American have "**allergic rhinitis**" (**hayfever**), and millions more get skin allergy conditions called **hives** and **dermatitis** if they're allergic to certain things. With proper treatment, most adults and kids with these conditions can lead normal, active lives. Specially trained doctors called **allergists** can be very helpful in suggesting the best treatments for people with allergies or asthma.

In this coloring book you'll find superheroes like Dr. Al Lergist, and his partners, Annie Histamine, Buster Bronchodilasaurus and Duel Action (a.k.a. Double Whammy). Their job is to help kids and grown-ups feel better when their allergies or asthma bother them.

The bad guys like Darth Mite, Big Bad Roach, Meeyowa Monstera the Cat Haireess, Count Igor von Pollen, and Scuzzbucket, can be big troublemakers. People with allergies and asthma should try to avoid them as much as they can. People try, but it's almost impossible to avoid these things completely.

That's when Dr. Al and his super pals come to the rescue. They fight hard, morning, noon and night trying to wipe out allergies and asthma so kids can learn, play, sleep and breathe easier. You can help them win the fight by taking care of your allergies or asthma and doing what your doctors tell you to do.



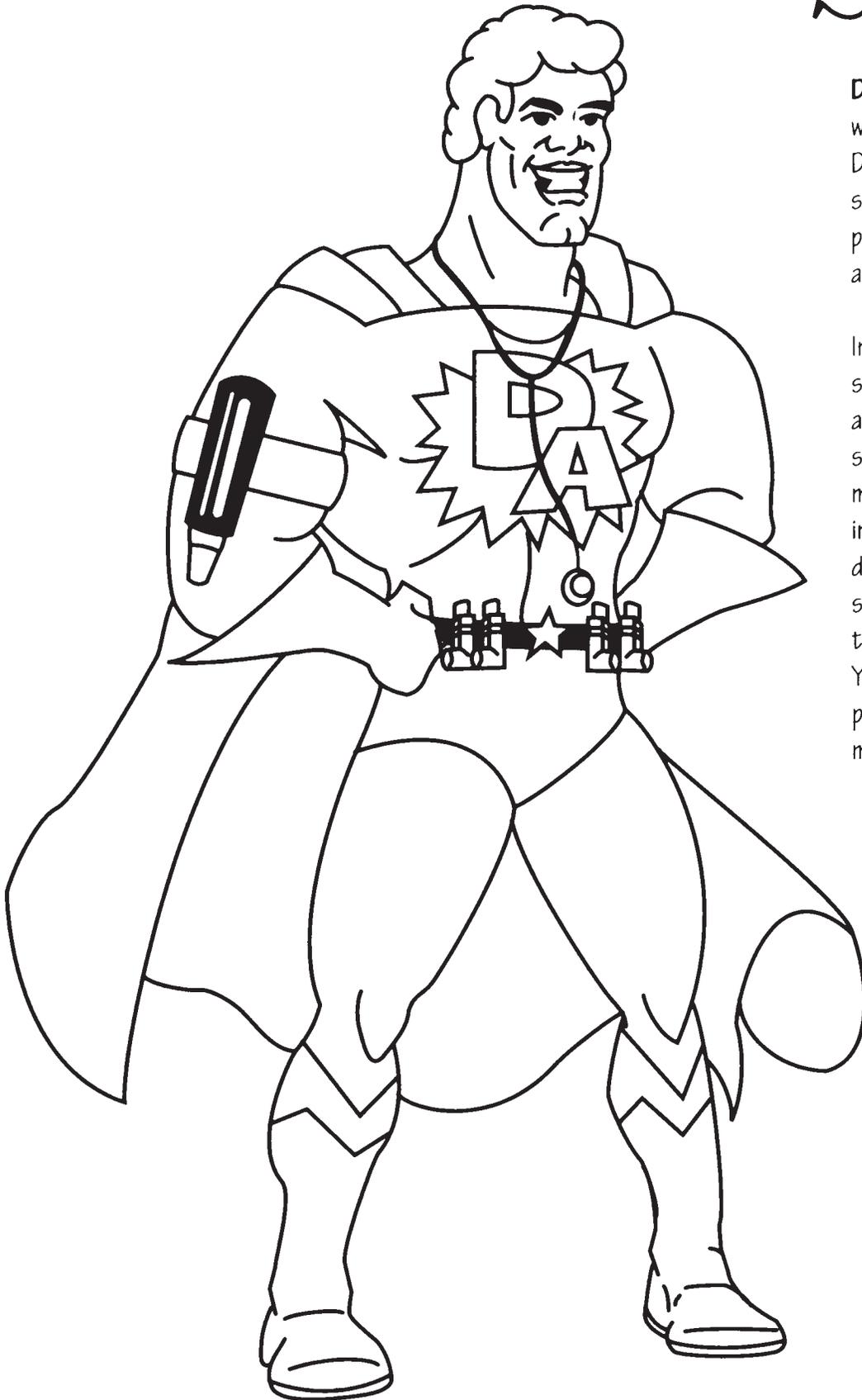


The Good Guys



AMERICAN ACADEMY OF ALLERGY
ASTHMA & IMMUNOLOGY

Dr. Al Lergist



Dr. Al Lergist helps children and grown-ups who have asthma and allergies feel better. Dr. Al, as his friends call him, has had special training to learn as much as possible about treating allergies and asthma.

In this picture, he has a **peak flow meter** strapped to his arm and several **inhalers** attached to his belt. People with asthma should use a peak flow meter often to measure how easy it is for them to breathe in and out. They should also follow their doctor's advice and use their inhalers -- sprayers that deliver important medicines to their lungs -- as the doctor suggests. Your doctor can show you and your parents how to use these asthma medicines.

Annie Histamine

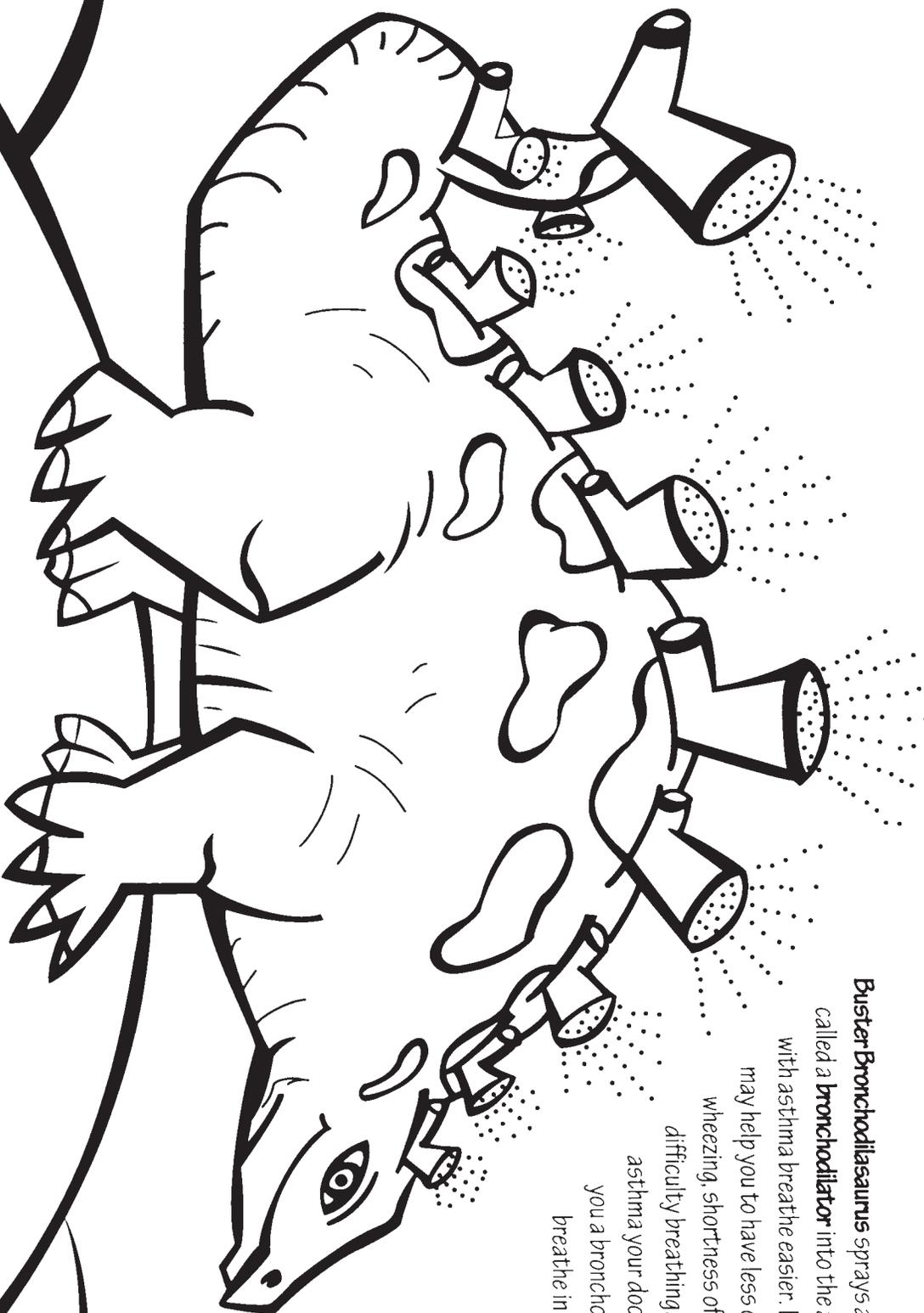


Annie Histamine is one of Dr. Al's helpers. Although she looks mild, Annie is a real dynamo when it comes to fighting "histamine."

Some people's bodies make histamine when they come in contact with certain things like dog or cat hair or pollen. You can't see histamine, but you can feel its effect if you have allergies. You might get sneezy or wheezy, or get very itchy eyes or skin. Your doctor might tell your Mom or Dad to give you an **antihistamine** if you have allergies. Antihistamines fight histamine to make you feel better.



Buster Bronchodilatorsaurus



Buster Bronchodilatorsaurus sprays a special thing called a **bronchodilator** into the air to help kids with asthma breathe easier. Bronchodilators may help you to have less coughing, wheezing, shortness of breath and difficulty breathing. If you have asthma your doctor might give you a bronchodilator to breathe in or take as a pill.



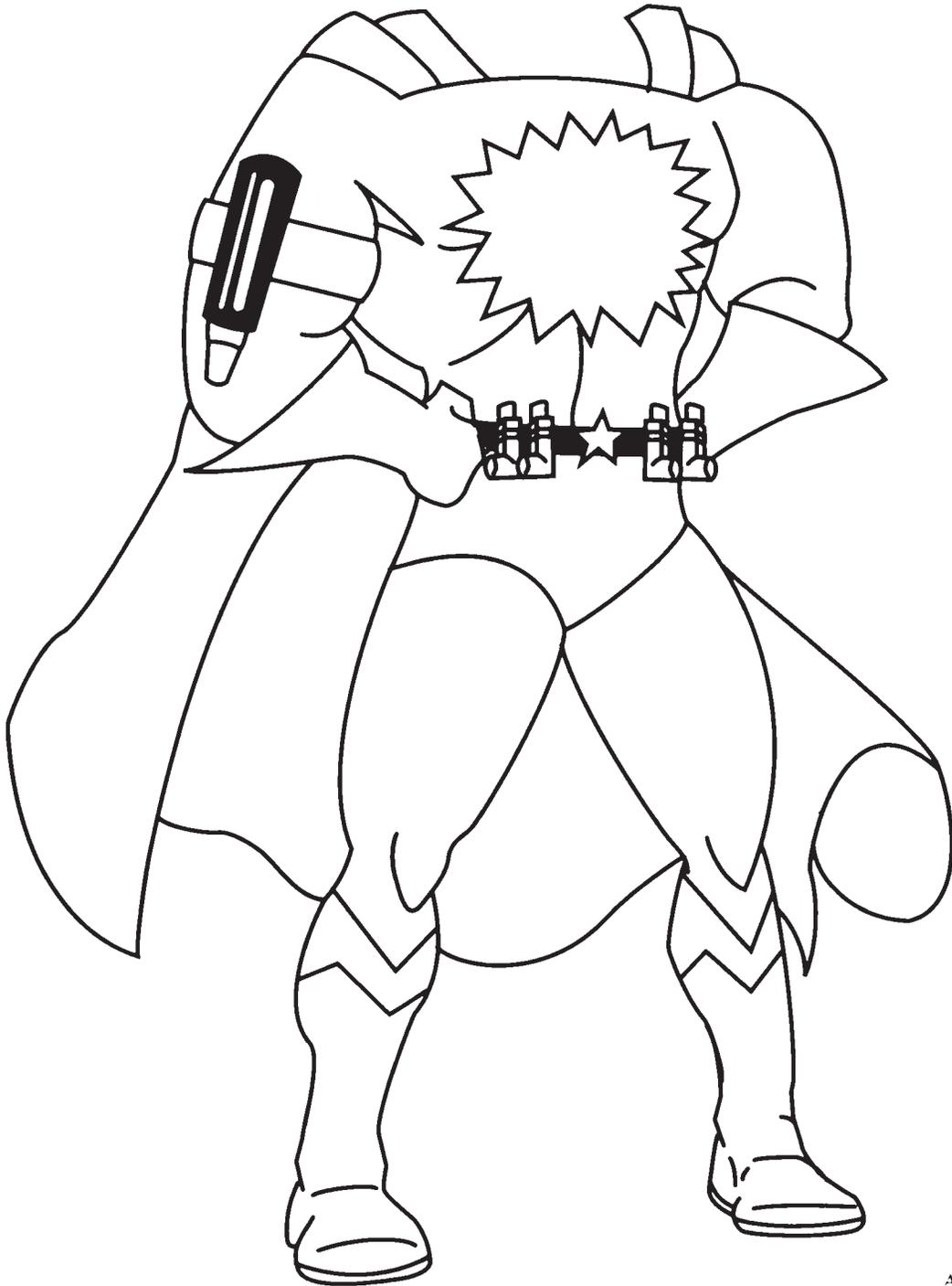
AMERICAN ACADEMY OF ALLERGY
ASTHMA & IMMUNOLOGY

Duel Action

Duel Action (a.k.a. Double Whammy) fights asthma with two kinds of **inhalers**. The one on the left contains a short-acting medicine that should be used when you're having an asthma attack. The one in Duel Action's right hand is a long-acting asthma medicine. If your doctor prescribes this kind, you should use it on a regular basis -- even when you're feeling good -- so you won't get as many asthma symptoms.



As a Sneeze 'n Wheeze Buster, draw your own face and name here!



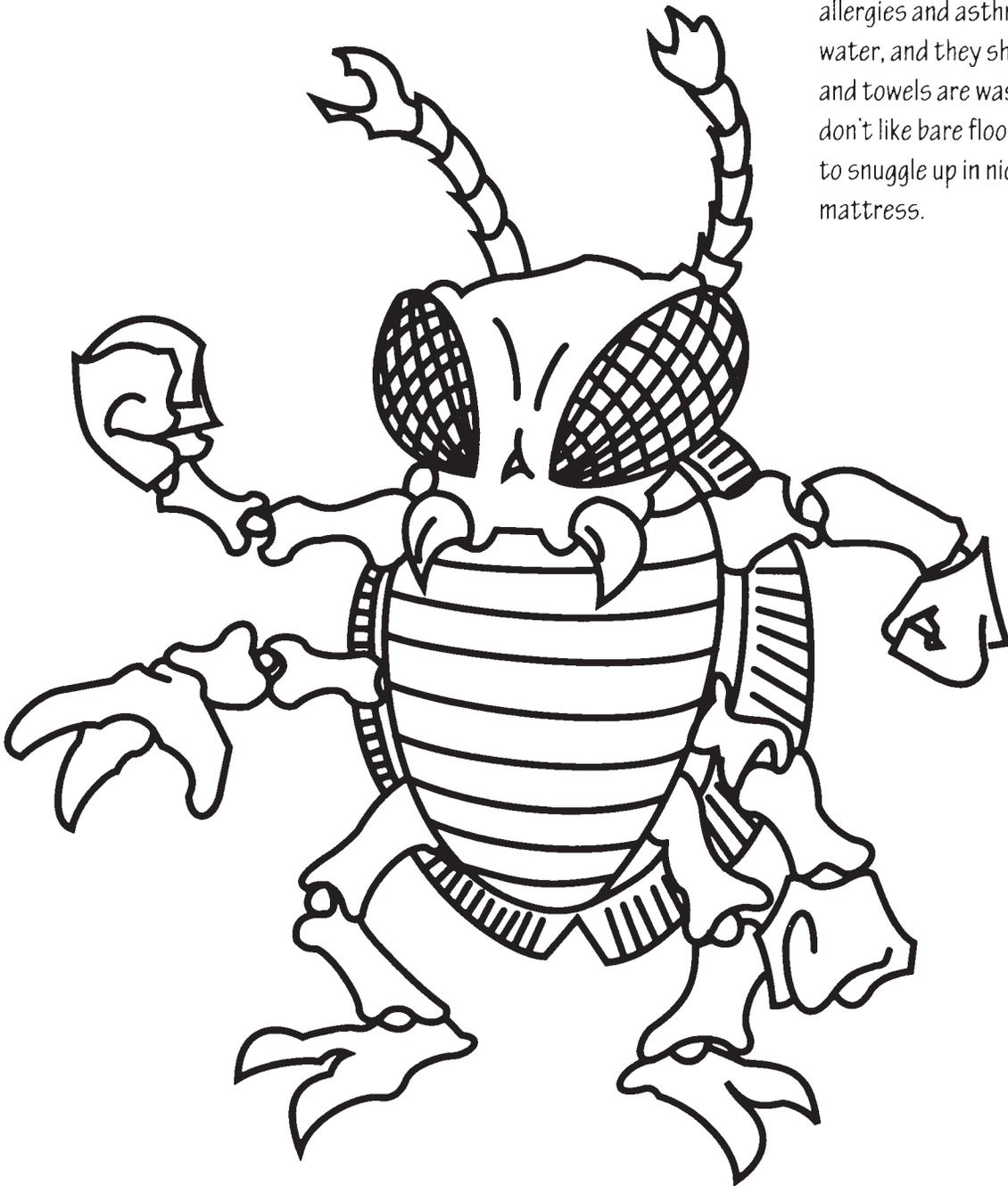


The Bad Guys



Darth Mite

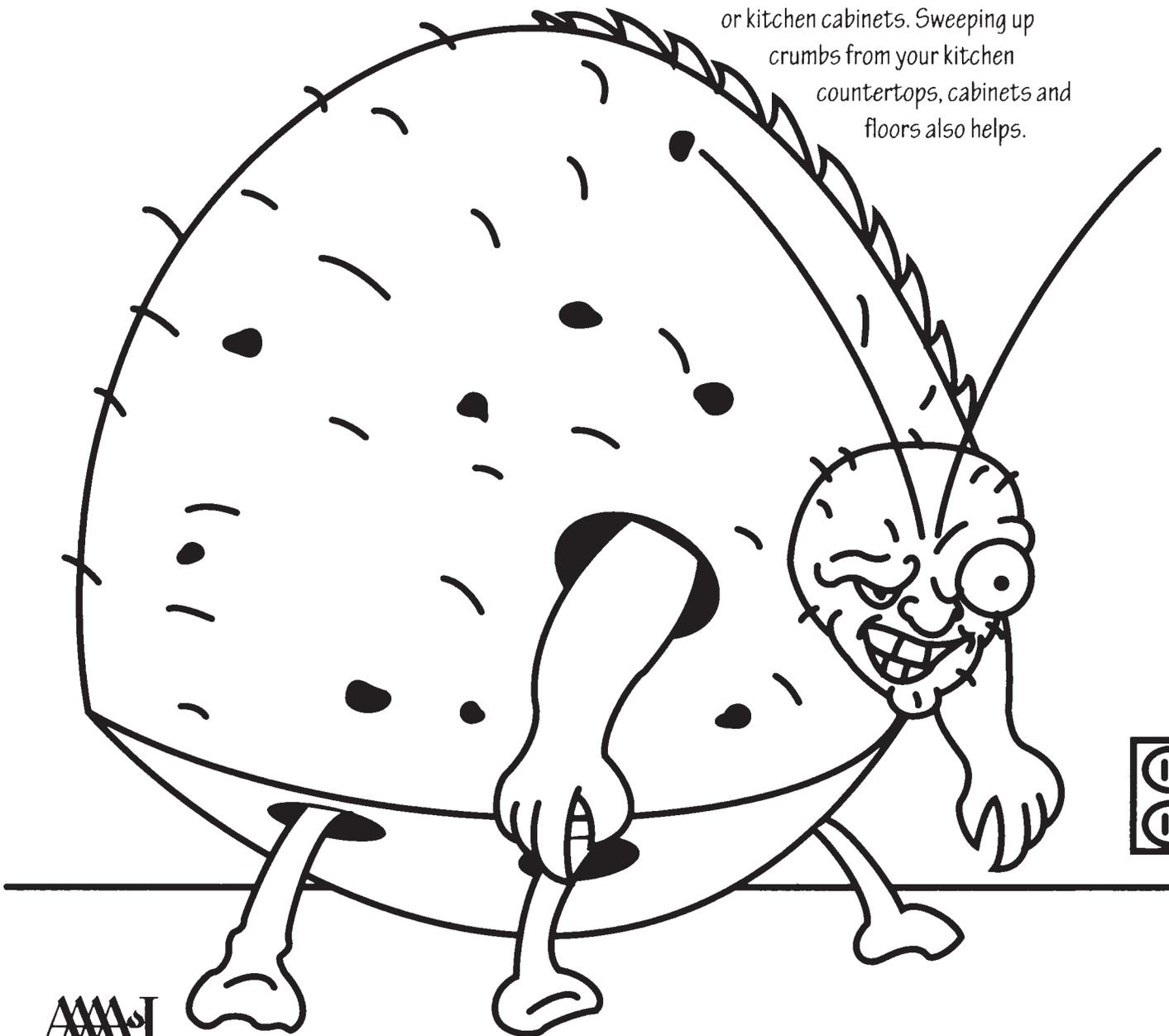
Darth Mite is the leader of the 100 zillion-strong army of evil **dust mites** that live in many places indoors, but especially in bedsheets and carpeting. Although you can't see them, these critters are a main cause of allergies and asthma. These guys hate hot water, and they shrivel and die when sheets and towels are washed in hot water. They also don't like bare floors very much. They'd prefer to snuggle up in nice soft carpeting, or in a mattress.



Big Bad Roach

Yuck! Cockroaches like **Big Bad Roach** are another villain that can trigger asthma symptoms. Big Bad Roach got to be so big because he **LOVES** food. These bugs are real tricky, because they like to hide where they can't be seen. But kids and grown-ups can still breathe in fumes from roach and dust mite poop (remember -- **everything** that eats also poops!) and that can be bad news if you have asthma.

Roaches won't feel as welcome in your home if you wrap leftover food tightly and put it away in your refrigerator or kitchen cabinets. Sweeping up crumbs from your kitchen countertops, cabinets and floors also helps.





Count Igor Von Pollen

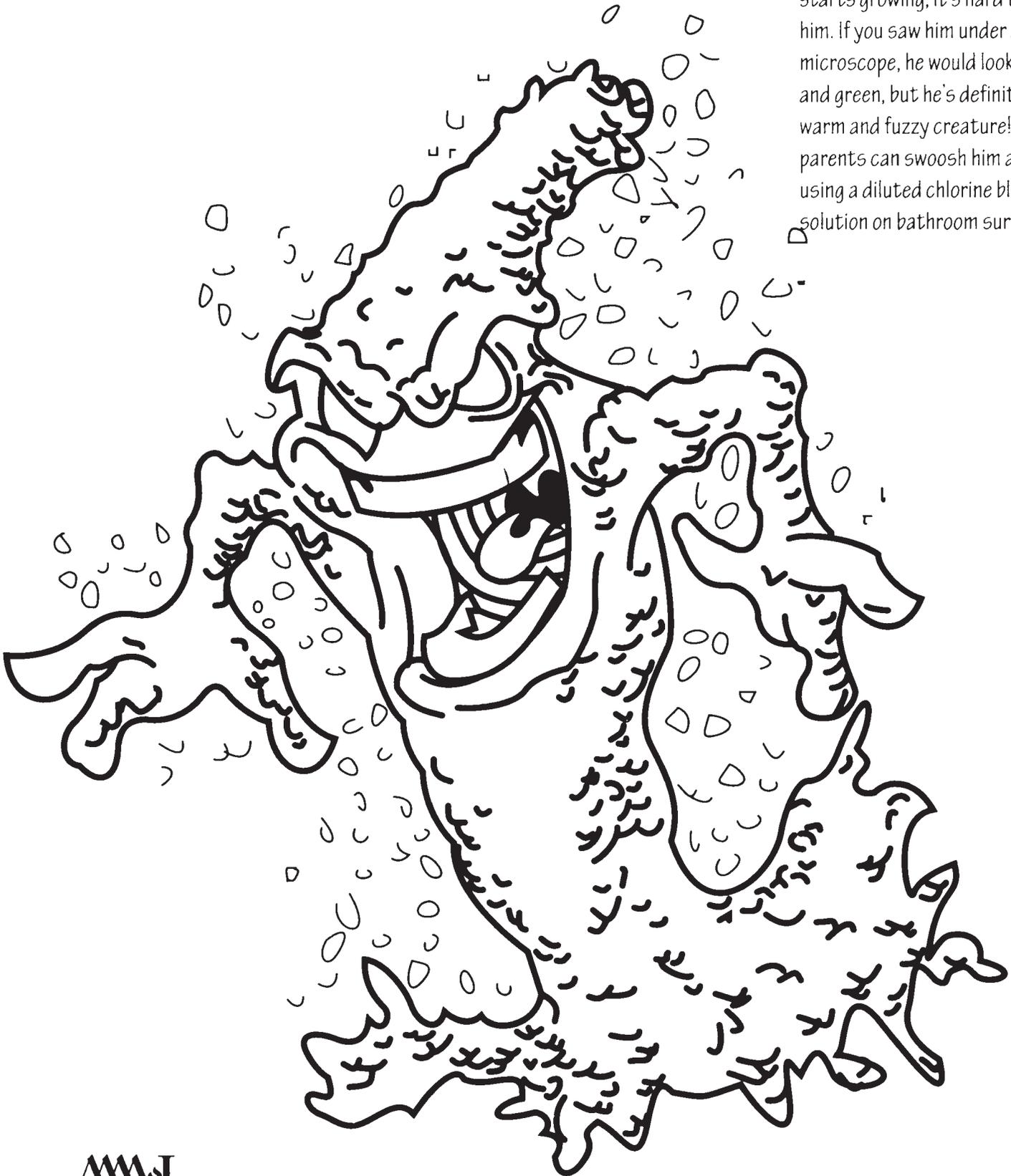
Count Igor von Pollen sends his **pollen** armies to strike in the warm weather months, when kids are often playing outside. His favorite thing to do is to make people who have allergic rhinitis (hay fever) sneeze 10 times in a row.

Pollen comes from things that grows outdoors: trees, shrubs, flowers, weeds, and grass. Some pollen, though, like ragweed, causes more allergies than other pollens. Your doctor might give you some medicine to help your hay fever when there's lots of pollen around.

During pollen season, people with pollen allergies should take a shower and wash their hair as soon as possible after coming in from outside.

Scuzzbucket

Scuzzbucket thinks he's cool, but he's nothing more than slimy **mold** that grows in damp places indoors such as basements and around tubs and showers. Once he starts growing, it's hard to stop him. If you saw him under a microscope, he would look fuzzy and green, but he's definitely not a warm and fuzzy creature! Your parents can swoosh him away by using a diluted chlorine bleach solution on bathroom surfaces.



Meeyowa Monstera the Cat Hairress

Beware of **Meeyowa Monstera, the Cat Hairress**. For people with cat allergies, a nine-pound cat like Meeyowa is nearly as bad as having a tiger living in the house, but she can sure make you feel sick, causing sneezing and wheezing. Your doctor might suggest medicines, including allergy shots to help you. Allergy shots can also be used to control allergies to other bad guys, like dust mites. Your doctor may also suggest some medicines and will tell you how to avoid those things that cause problems for you.

If you visit someone who has a cat at their house, take a shower and wash your hair and clothes as soon as you get home.



**Don't let those bad guys get you down!
Draw a picture of how you manage your
allergies and asthma.**



For parents of children with allergies and asthma

Following are some tips on what you can do to keep your child's (and possibly your own) allergies or asthma under control.

Cockroach Control:

- Clean very well and remove garbage/trash daily
- Store food in tightly sealed containers (Zip-lock bags, Rubbermaid-type)
- Place roach bait in pathways

Dust Mite Control

- Wash ALL bedding in hot (>130 degree F) water weekly
- Encase pillows and mattresses with allergen free coverings
- Remove all dust catchers: stuffed animals, extra clothes
- Avoid upholstered furniture if possible, especially in the bedroom
- Use washable curtains and drapes in the bedroom
- Remove all carpeting if possible
- Maintain <50% humidity

Animals

- Keep pet(s) outdoors if possible
- If you allow your pet indoors, keep it in a room that is easy to clean
- Never allow pet(s) in the bedrooms
- Clean house very well, then use a HEPA room air cleaner if the animal is kept in the house
- Change clothes and shower completely after being around furry animals
- In addition to dander, urine from some pets can be an allergen source

Pollen Exposure

- Check pollen counts by calling 1-800-9-POLLEN
- Use air conditioning. Closing the house keeps pollen out and cleans and dries out the air.
- Dry clothes in a dryer, not outside where pollen can collect on them
- Take a shower and wash hair as soon as possible after being outside on high pollen days

Indoor Mold

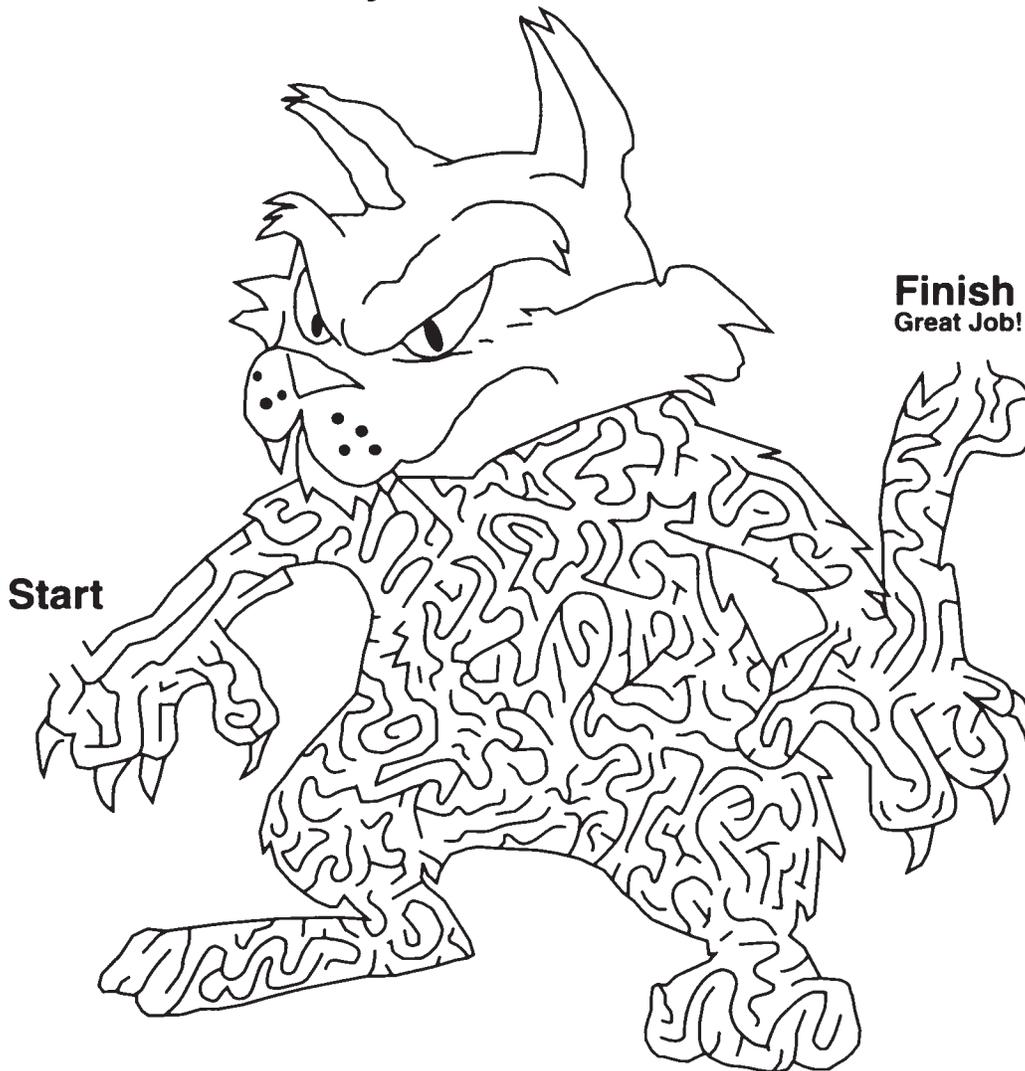
- Dehumidify with an air conditioner and/or dehumidifier
- Use bleach or fungicide to clean all areas that have increased water content, e.g., dehumidifiers, drip pans, showers
- Wrap pipes in insulation if wet
- Dry clothes thoroughly before putting away



Free resources from the American Academy of Allergy, Asthma and Immunology

The Academy's Web site, www.aaaai.org, has plenty of information for children and parents, including story books, tips for managing asthma and a patient newsletter. Visit the Patients & Consumers section of the Web site to find out more, and to see other fun puzzles like this one:

Meeyowa Monstera Maze



www.aaaai.org



AMERICAN ACADEMY OF ALLERGY
ASTHMA & IMMUNOLOGY

Leader. Educator. Advocate.



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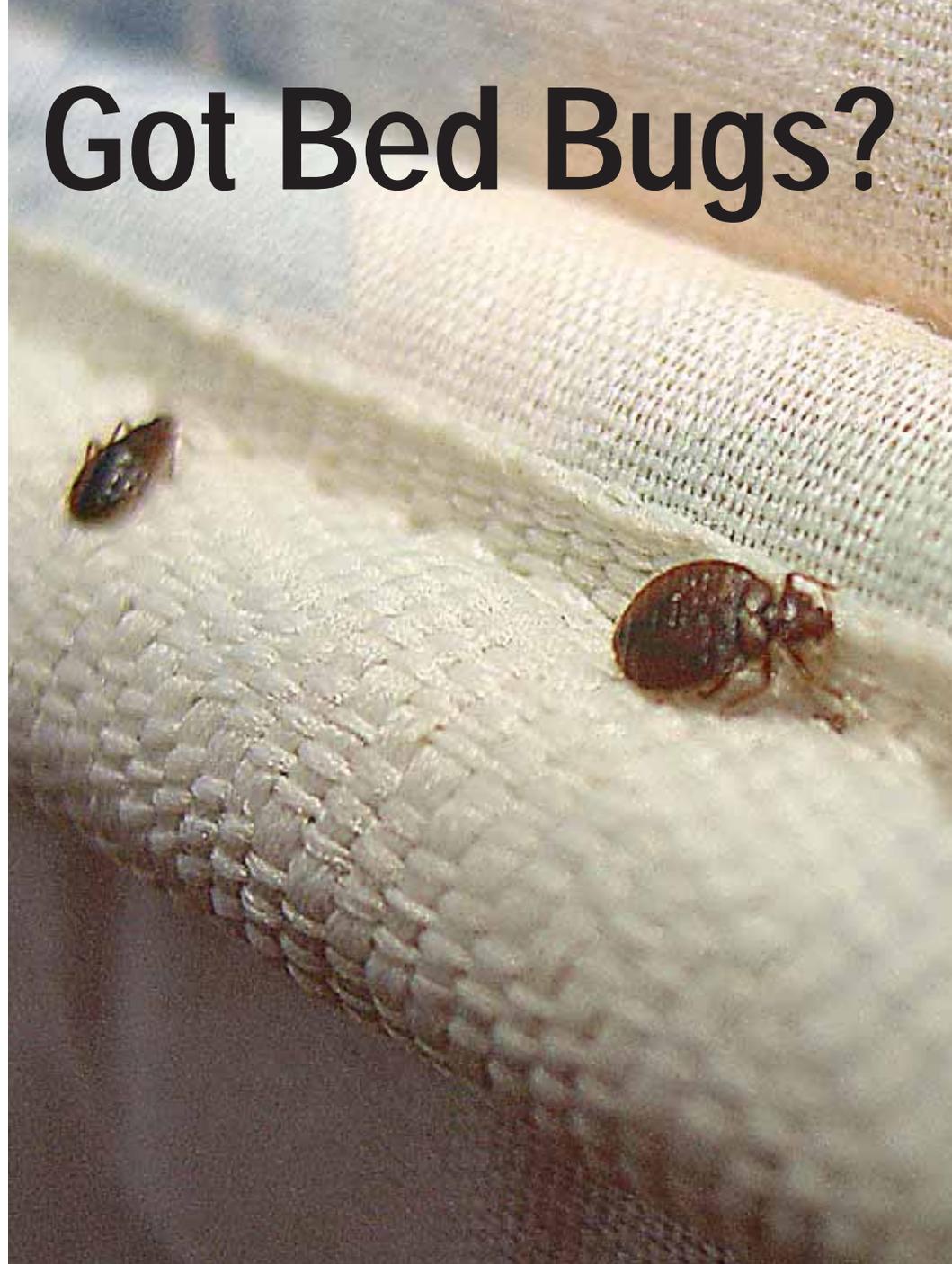
Unfed

After a blood meal



Various life stages shown on a human hand

Got Bed Bugs?



When choosing a pest control company, make sure the company meets all the legal requirements that qualifies them to service your home, including a Pennsylvania Pesticide Applicator Certification or Registered Technician card, a business license and general liability insurance coverage. Also ask for a list of local references so you can learn about their past performance in treating bed bugs.

For more information, go to our bed bug resources link
<http://extension.psu.edu/bedbug>
or please contact us at either location listed below.

Pennsylvania IPM Program at Penn State
501 ASI Building

University Park, PA 16802

Phone: 814-865-2839 • Email: paipm@psu.edu

<http://www.paipm.org>

Pennsylvania IPM Program in Philadelphia
Philadelphia School and Community IPM Partnership

Penn State Philadelphia Outreach Center

111 N. 49th St., Ste. KN3-100, 3rd Fl. North

Philadelphia, PA 19139

Phone: 215-471-2200 Ext. 109 • Email: pscip@psu.edu

<http://www.pscip.org>

The PA IPM Program:

Empowering individuals and communities to safely manage pests through education and training.

*Providing education and training for: Healthy Homes, Healthy Schools, Healthy Communities,
and Healthy People.*

The Pennsylvania Integrated Pest Management Program
Philadelphia School & Community IPM Partnership



Bed bugs are making a comeback in apartment buildings, dorm rooms, hotels, hospitals and homes. Why now? Both people, and the things they buy, are traveling greater distances and more frequently, causing hitchhiking bed bugs to spread more rapidly. Follow the steps below to learn how to identify, prevent, and control them safely and effectively.

Step 1 - Pest Identification



Adult bed bugs compared to a dime

What exactly are bed bugs? Bed bugs are blood-feeding parasites that bite people at night and hide during the day. They are tiny, less than 1/8 inch, wingless, chestnut brown in color, with flattened, generally oval-shaped bodies. They become swollen, elongated, and dark red after a blood meal. Bed bug bites may cause itchy welts on their victims. They often leave small dark spots on sheets and other surfaces. Bed bugs do not cause or spread any diseases but **do** cause mental anguish – no one wants to “let the bed bugs bite”!

They are difficult to control because their small size enables them to hide almost anywhere in and around their feeding sites on mattresses and bed frames, cracks and crevices in walls, under peeling paint or behind wall sockets. Unlike head lice that remain on human heads, bed bugs only stay long enough to feed before moving away to hide.

Step 2 - Prevention

Bed bugs cannot fly so they infest homes by being transported in clothing, backpacks, suitcases, mattresses or other furniture. They can also walk in from adjacent apartments or rooms through cracks or conduits for electrical wiring or plumbing. They search for a sleeping human by moving up walls, bed linens, bed legs or anything touching the bed.

Prevent bed bugs from gaining a foothold in your home!



- Carefully inspect clothing and baggage after you have travelled. Place clothes in sealed plastic bags until they can be laundered.
- Avoid acquiring used furniture and mattresses – these may be infested.
- Remove clutter from the home, especially the bedrooms where bed bugs can find added places to hide.

- Seal cracks and crevices, especially those that lead to other rooms/floors.
- Keep beds clear above and below. Do not pile coats or “foreign” clothing on beds.
- Use solid, light-colored sheets – these make early detection of bed bugs easier.
- If you live in an apartment building and are concerned about bed bugs, keep them from climbing up the bed by pulling the bed away from the walls, making sure no

bedding touches the floor. Around each bed leg, spread a thick layer of petroleum jelly (e.g. Vaseline®) in a band at least 2 inches wide and about 6 inches off the floor. Bed bugs cannot crawl through this barrier. You can also use small, nested dishes of soapy water (in the outer dish) under each leg, or commercial devices such as the CLIMBUP® Insect Interceptor.



Step 3 - Controlling Bed Bugs Safely

To control bed bugs effectively a **combination of actions** will be needed. Control is difficult and because of this, it is best to consult a licensed and experienced pest management professional (PMP) to help rid your home of these pests.

For safe and effective control:

- An initial assessment of the severity of infestation is key. The PMP must conduct a thorough inspection of the home to look for bed bugs and their harborage sites for targeted cleaning and treatments.
- Inspect and vacuum mattresses, box springs, and bed frames, as well as carpets, and crack and crevices that bed bugs may hide in during the day.
- After vacuuming, enclose the mattress and the box springs in zippered encasements that are rated to prevent piercing by bed bug bites or their escape through zippers (e.g. Protect-A-Bed®). Any bed bugs remaining on the mattress and box spring will be trapped inside the cover. Leave the covers in place for a year or more because bed bugs can live that long without a blood meal.
- Wash bedding, pillows and clothing in hot water (140°F), or dry in the dryer on the hottest setting for at least 20 minutes.



Using Pesticides on Bed Bugs

If bed bugs have been found in your home, resist the urge to use household bug sprays! Bed bugs are resistant to most commonly-used pesticides. Using bug bombs and sprays on mattresses and in bedrooms will only increase YOUR exposures to more toxins, and will NOT control bed bugs. Since pesticides are poisons, they should be used sparingly and carefully. If chemicals are to be used, you should seek assistance from a **licensed** and professional pest control company, trained to deal with bed bugs.

Why you need help!

- Common household products generally will not kill bed bugs and can cause them to spread and infest other parts of the home.
- “Bug bombs” do not reach into the tiny cracks and crevasses, or into clutter where bed bugs can hide.
- Insect repellents such as OFF® sprayed on persons or mattresses will not stop bed bugs from biting, or kill the bed bugs. Repeated use of these products in this way can pose health threats to you and your family.
- The insecticides that are most effective, are those used by trained and licensed professionals and may require specialized equipment to apply. These are not readily available as household products and require state certification to purchase and use safely.
- Experienced companies know where to look for bed bugs, are schooled in proper techniques, and have an assortment of management tools at their disposal.

Everyone Deserves a Safe and Healthy Home



A stakeholder guide for protecting the health of children and families

Lead
Mold and Moisture
Asthma and Allergies

Radon
Carbon Monoxide
Indoor Environmental Quality

Unsafe Drinking Water
Household Chemicals
Pests

Home Safety
Home Comfort
Asbestos



United States Department of Agriculture
National Institute of Food and Agriculture



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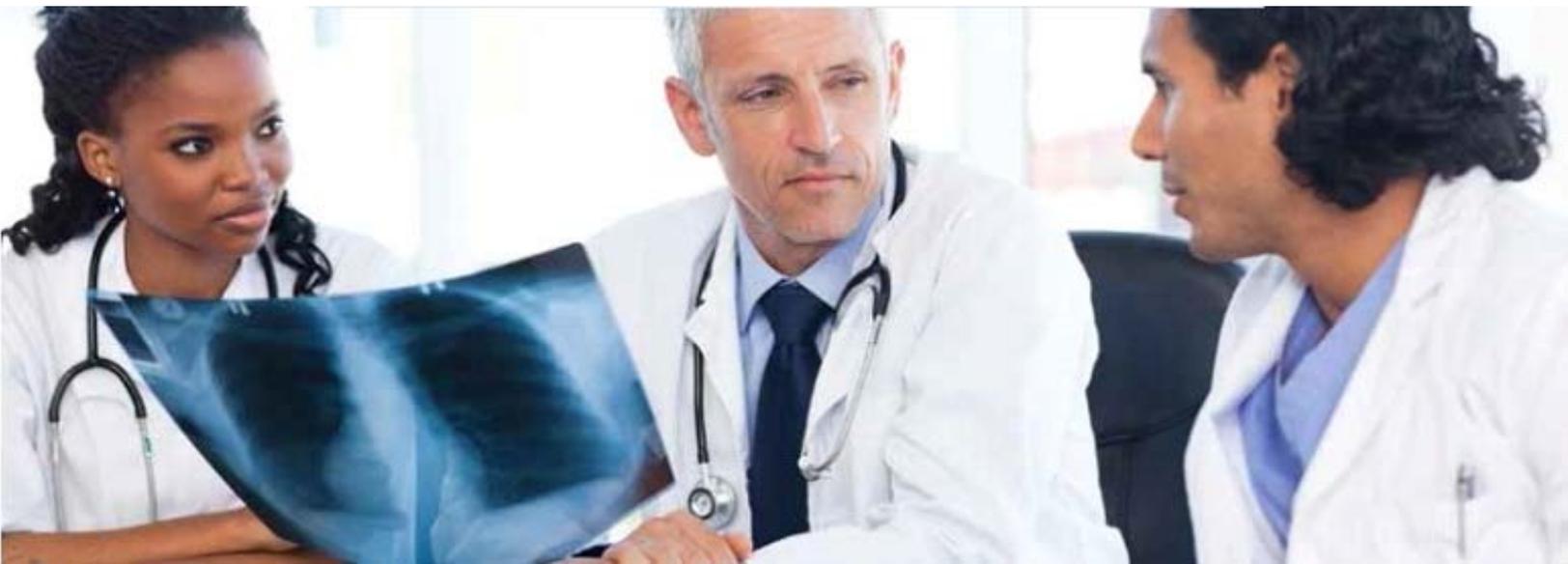
Introduction

To Safe and Healthy Homes

Everyone deserves to live in a safe and healthy home. It's important for people of all ages, especially children, adults, and seniors, because their health can be affected most by their environment. Most people spend 70 percent or more of their time inside their home. Millions of homes, however, have hidden hazards that can affect the health of the family and their visitors.

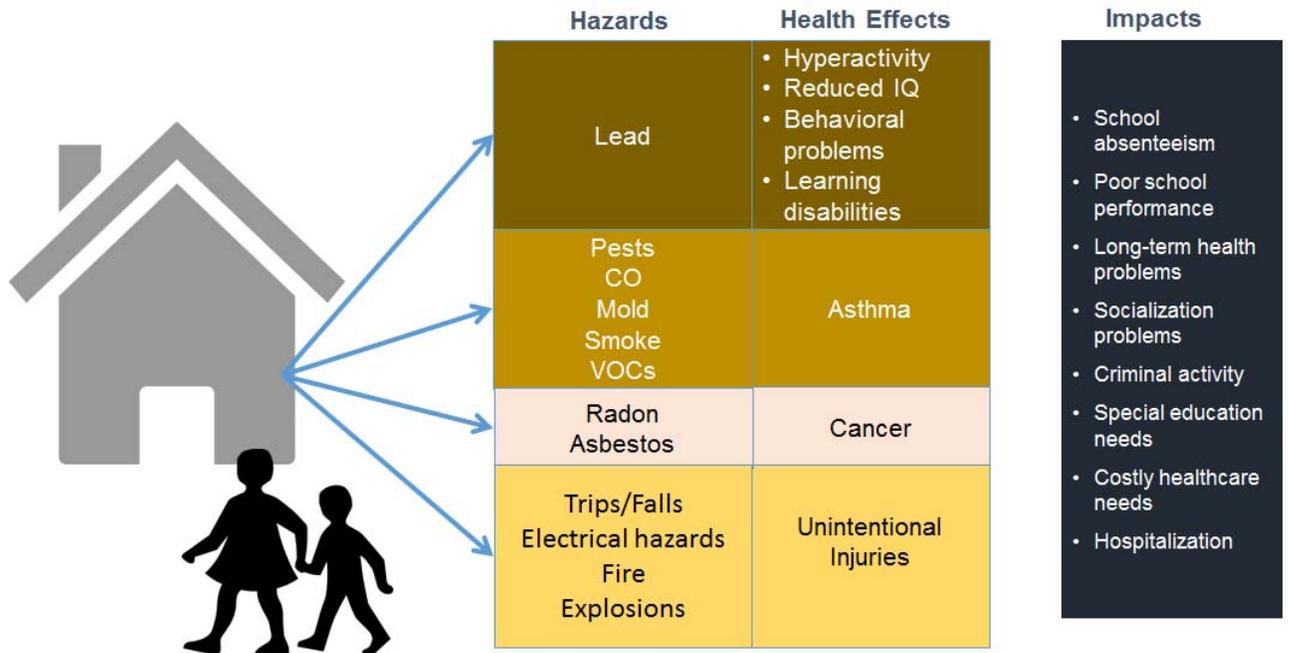
Scientific research has revealed that many homes contain one or more hazards that adversely affect human health. A 2013 federal government task force and the National Center for Healthy Housing found that these home hazards pose a wide range of risks:

- Mold and pests can cause and worsen asthma, allergies, and other respiratory illnesses. Poor housing conditions play a significant role in the respiratory health of vulnerable family members. The Centers for Disease Control and Prevention (CDC) estimates that 1 in 12 adults and 1 in 10 children in the U.S. suffer from asthma.
- Toxins such as lead, asbestos, and many household chemicals harm human health in a variety of ways. Lead poisoning in children causes reduced IQ and attention span, hyperactivity, impaired growth, reading and learning disabilities, hearing loss. The U.S. Department of Housing and Urban Development (HUD) estimates that almost 24 million homes have lead hazards from the paint, dust, or soil, and the CDC says that there are about 500,000 children in the U.S. with elevated blood lead levels.
- Invisible poisonous gases such as carbon monoxide and radon also pose serious threats to family health. Carbon monoxide poisoning results in more than 200 accidental deaths a year and, at much lower levels, causes flu-like symptoms, which often go undiagnosed. Radon can increase the risk of cancer, and is responsible for approximately 21,000 lung cancer deaths per year.
- Falls are the leading cause of accidental injuries for people aged 65 and older. Older adults are more likely to be victims of falls, and the resulting injuries can affect their ability to lead an active life.



Anyone can suffer from these housing-related illnesses and injuries, however, certain groups such as children, the elderly, and people with chronic illness are more at risk. Besides increases in illness and injury, an unhealthy home can also be a financial burden to an individual or family, as shown by this diagram:

Impact of Poor Housing Quality on Children



24 million homes
have significant lead-based paint hazards.
Lead poisoning effects
535,000
U.S. children ages 1-5

18,000 deaths
related to injuries occur annually in U.S. homes.
12 million nonfatal injuries
occur annually in U.S. homes.

6.8 million homes
have radon exposures above the current EPA action level.
Lung cancer
from radon exposure causes
21,000 deaths

Guiding Goals

For Safe and Healthy Homes

Keep it DRY

Damp homes provide an environment for dust mites, roaches, rodents and molds. All of these can cause or worsen asthma, and pests can transmit disease. In addition, moisture can damage the building materials in homes, including lead-based paints.

Keep it CLEAN

Clean homes reduce pest infestation and exposures to contaminants.

Keep it PEST FREE

Exposure to pests such as roaches and rodents can trigger an asthma attack or cause other illnesses.



Keep it SAFE

Injuries such as falls, burns and poisonings occur most often in the home, especially with children and seniors.

Keep it CONTAMINANT FREE

Levels of contaminants such as lead, radon, carbon monoxide, asbestos, secondhand smoke and other chemicals are often much higher indoors.

Keep it WELL VENTILATED

Having a good fresh air supply in homes is important to reduce exposure to indoor air pollutants and to increase respiratory health.

Keep it WELL MAINTAINED

Poorly maintained homes are at risk for moisture, pest problems, and injury hazards. Deteriorated lead-based paint is the primary cause of children being harmed by lead.

Keep it TEMPERATURE CONTROLLED

Homes that do not have balanced and consistent temperatures may place families at increased risk from exposure to extreme cold, heat, and humidity. Young children, older people, and those with chronic medical conditions are at most risk.

Adapted from the National Center for Healthy Housing at www.nchh.org



LEAD

What are the Health and Safety Risks?

Lead is a metal. Before 1978, lead was used in paint, water pipes, gasoline, pottery, consumer goods and objects. Millions of older homes still have lead paint and lead and copper solder water pipes. There are industries in many countries outside the United States that still utilize lead components and ingredients in making of consumer items such as toys, decorative art and jewelry, and cultural display pottery. Many of these items are brought into the country. Home hobbyists may use lead in stained glass making, fishing sinkers or lead shot, or reloading ammunition, but many of them are unaware of the range of risks the hobby has on their home from the transfer of dust from those hobbies onto their clothes, shoes, and car, and the effect the lead has on their families.

If a home was built before 1978, paint on both the inside and outside may still contain lead. Lead in outside paint can get into the soil around a home and can eventually be brought inside a home.

Where Do Lead Risks Come From?

The paint or varnish on walls, doors, windows, and elsewhere in a pre-1978 home could have lead in it. Lead based paint was commonly used on surfaces that received a lot of wear. Household dust from old, worn paint could contain lead. Drinking water could have lead in it from original or repaired plumbing.



Lead paint that is intact is not a direct hazard, but a potential one. Lead paint that peels, flakes, or is disturbed (for example, by sanding) is a health risk. To reduce lead exposure, from paint and the lead dust it creates, it is very important to advise a family to look for damage or wear to the paint, conduct regular paint assessments (preferably by a lead certified assessor), and maintain the paint in good condition when living in an older home. When hiring a contractor for painting or remodeling a pre-1978 home, federal law requires that up-to-date safety procedures be followed by certified contractors if lead based paint is present or the contractor assumes it is present. A contractor must do this to prevent lead dust and chips from being spread but homeowners should be advised to use safe work practices to protect themselves and their family from lead hazards created by working with lead paint. A good resource for these practices can be found at the website for the EPA lead in renovation rule:

<https://www.epa.gov/lead/renovation-repair-and-painting-program> .

Older houses are much more likely to have lead in various locations. Homes built before 1940 are most likely to have lead in their paint and possibly in any original plumbing to the house. If a family has young children, it is very important to consult with them to find out if their home has lead in it, especially if their home was built before 1978. In general, lead pipes are more likely to be found in homes built before 1986. There are certified and licensed lead risk assessors and lead based paint inspectors in each state and information on lead risks, assessments, and safe practices can be found at www.epa.gov/lead.

Why is Lead Dangerous?

Whether the lead-based paint is inside or outside the home (including an apartment if a family is renting), if it is not intact, it is dangerous. When lead paint starts to wear off, it creates lead dust and/or small paint chips. Outside, these can then settle into the soil outside the home, and be tracked into the home. Inside, they can get on the floor, onto windows, or in places where children can touch them. Lead that is on the hands of young children can get into their bodies as children often put their hands, toys or other objects in their mouths. Lead can permanently damage a family member's nervous system, including their brain. It can cause permanent learning and behavior problems. Lead poisoning is one of the most preventable health risks for children at home.

Children with lead exposure might not even look sick. A blood lead level test is the only way to know if a child has a high level of lead in his or her body. It is up to parents and health care providers to recommend and complete a blood lead screening tests on all children ages 0-6 years old to ensure that the family is fully aware and educated about the risk of lead from the community they live in. Contrary to the information in the media, lead exposure is not limited to specific neighborhoods: children of all backgrounds and resources can be exposed to lead hazards at their day care, relatives, and friend's homes where they spend significant amounts of time.



What can you do to help the families and communities you serve? *Actions for Living in a Healthy Home*

Family Health

For each family served, healthy homes stakeholders should:

- Encourage health screenings for blood lead levels in children of all ages, but especially ages 1-6. This test is free at many clinics and health departments. It only takes a small blood sample to tell if a child has a high level of lead in their system.
- Encourage families to facilitate frequent hand washing, especially before eating, using soap and water.
- Encourage families to feed their children a healthy diet. Foods with vitamin C, calcium and iron can help lower the amount of lead the body takes in if exposed.

Healthy Housekeeping and Habits

For each family served, healthy homes stakeholders should:

- Encourage families to wipe window sills and other surfaces with paper towels, warm water, and soap once a week and rinse well. Families should not allow children to chew or put their mouths on window sills or casings.
- Reduce dust levels on floors. Wet washing is very effective for removing lead-contaminated dust
- Keep cribs away from windowsills and walls that have deteriorated paint.
- Suggest they wash work clothes separately and don't mix them with the rest of the family's laundry. Adults working in certain jobs can often bring lead dust home on their clothing, skin, or shoes.



- Encourage them to test for lead first if they plan to do any repair or remodeling, and their home was built before 1978. Also inform the family to:
 - Never scrape, sand, or burn lead paint.
 - Keep children and pregnant women away while the home is being remodeled.
 - Hire only lead-safe certified firms for painting and home renovations.

If there is Lead in a Home

If lead paint is intact, encourage the family to leave it in place and make sure it stays intact. If lead paint is deteriorated, the family should be encouraged to ask their local or state health department for a list of certified lead paint abatement companies. If their home was built before 1978, or it was near an industrial site that used lead, the soil could also be lead contaminated. In that case, the family should be warned to keep their children from playing in or near bare soil. The family might also consider placing ground covers or mulch, gravel, or plants to create a barrier in play areas.

Encourage the family to use cold water for cooking, drinking, or making baby formula, whether or not they know if there is lead plumbing in a home.

If there is Lead Plumbing in a Home

If a family's home has lead water pipes or faucets, they should be:

- Warned to use only cold water for drinking, cooking and making baby formula, and reminded that boiling water DOES NOT remove lead from water.
- Encouraged to run water for 30 seconds to 2 minutes before drinking it, especially if they have not used their water for a few hours.
- Reminded to regularly clean the screen in the faucet (also known as an aerator).
- Encouraged to use a filter on the tap that is certified to remove lead.
- Reminded to read the directions to learn when to change the cartridge.
- Reminded not to use a filter after it has expired can make it less effective at removing lead.
- Encouraged to determine if the pipe that connects their home to the water main (the lead service line) is made from lead by contacting their water company.
- Informed that they can find out who their water company is by looking at their latest water bill.
- Encouraged to contact a local plumber if they have lead pipes and are interested in replacing them.
- Encouraged to call their local health department or water company to find out about testing their water, or to visit www.epa.gov/safewater for EPA's lead in drinking water information.

For more information about lead in drinking water, contact [EPA's Safe Drinking Water Hotline](https://www.epa.gov/safewater/hotline) at 1-800-426-4791. Persons with hearing or speech impairments may access this number via TTY by calling the Federal Relay Service at 1-800-877-8339.

Remember – How could children get poisoned with lead-based paint?

The majority of children contaminated with lead comes from detached dust, almost *invisible*, that has become loose from lead-based paint. The dust sits on floors and other surfaces around a house, where it reaches the hands of children, their toys, and finally to their mouths. If a family is renting, the property owner is responsible for maintaining the paint in good condition.



ASTHMA and ALLERGIES

What are the Health and Safety Risks?

More than 7 million children in the United States have asthma, a lung disease that makes it difficult for them to breathe. Another 40 to 50 million people have allergies. They may be allergic to anything like certain foods, plants, or something in the air. Symptoms include runny nose, watery eyes and sneezing. Allergies can also affect a person's skin. Symptoms include a rash or itching. Sometimes allergies can actually cause asthma attacks. Prevention is the key for families.

With the right knowledge and assistance, a family member can control their asthma and allergies. A knowledgeable stakeholder or provider could help avoid or reduce doctor visits from family members by identifying changes in the home environment that could positively impact the recurring health issues that may be occurring. There are tools and training to teach about how to guide clients through a home assessment and educate families to learn how to make their home healthier so they will feel better. Family members should always be encouraged to see their health care provider if they believe they have asthma or allergies, where they can then get a diagnosis and proper medical advice.

Where Do Asthma and Allergy Risks Come From?

Asthma Triggers

Lots of things cause asthma attacks; these are called "triggers." Some people have only one or two triggers while others have many triggers. Some triggers are things that people are allergic to, called "allergens." An example of a trigger that is also an allergen is pollen from trees and flowers. Other allergens that are triggers come from dogs and cats, cockroaches, mice, mold and dust mites. Some of these allergens are very small and they float around in the air in a home. Dust mites are tiny "bugs" that cannot be seen. They live everywhere in carpets, bedding, furniture, and stuffed animals and they are more plentiful when the indoor air is humid.

Other asthma triggers have nothing to do with allergies. Extreme cold or hot weather, exercise, and strong emotions (laughing, crying, fear, and stress) can all trigger an asthma attack. Cigarette smoke is another common asthma trigger. Nitrogen dioxide gas produced by gas stoves, or other irritants, can also be a trigger.

Common Asthma Triggers

- Dust
- Pollution
- Pets
- Smoking
- Pests
- Mold
- Pollen
- Respiratory Infections like colds and flu
- Chemical irritants



Allergies

An allergy is an unusual reaction to something that is usually harmless, like a food, a plant, or something in the air. The good news for families is that most allergies can be treated. If a family member has allergies, it's important for them to find out what causes the problem and possible solutions including medication or reducing exposure to the risks. A health care provider can test a patient to find out what allergens they are sensitive to.

Common Allergens

Many of the asthma triggers listed above can also cause allergic reactions for people who don't have asthma. Some additional common allergens are listed here. A family member should talk to their health care provider if they have a reaction to any of these:

- **Foods:** milk and dairy products; eggs; gluten; citrus fruits like oranges and lemons; artificial colors and flavors; nuts; shellfish like shrimp or clams.
- **Medicines:** penicillin; some heart medicines.
- **Insect stings or bites:** bee stings from yellow jackets, honeybees, wasps, or hornets; bites from fire ants. Sometimes reactions to insects get more serious as a person gets older. Eventually, only one sting could kill someone. A family member should always talk to their health care provider if they have had a serious reaction to a sting or bite.
- **Contact allergens:** when these touch a person's skin, they could get a rash or another reaction. These include plants like poison ivy and others, cosmetics or personal care products, jewelry, latex, and household chemicals.
- **Inhaled allergens:** when a person breathes these, they could have a reaction. They include cockroach droppings, dust mites, saliva and dander from cats and dogs, tree or plant pollen, and chemical irritants from cleaning products.



**What can you do to help the families
and communities you serve?**
Actions for Living in a Healthy Home

Family Health

Stakeholders and providers (health care and family agencies) should assist and encourage families to identify their risks for asthma and allergies and what their triggers are. They can also help provide training and education on home assessment tools and how to integrate them into a holistic approach to health, including a focus on education, assessment, and maintenance tips on allergens, pets, smoking, mold and moisture.

Housekeeping and Maintenance

As part of a holistic approach to reducing asthma triggers and allergies in the home, families should be encouraged to:

- Use zippered mattress covers and pillow covers under sheets and pillowcases and discouraged from using feather or down pillows. They should look for "hypoallergenic" bedding.
- Routinely wash blankets, sheets, pillowcases, and mattress pads in hot water and detergent weekly and use high heat in clothes dryers.

- Change the filter on their furnace and air conditioner at least a couple of times each year. The “MERV” rating on the package for air filters should be at least 8, if the equipment manufacturer allows such filters to be used; if not, filters with the highest allowable MERV rating should be used.

Pets

A family that has pets, should be advised to:

- Keep furry and feathered pets out of sleeping areas and off of furniture, and keep bedroom doors closed to them.
- Clean pet beds, litter boxes and cages frequently.
- Damp dust with a microfiber cloth and vacuum often, preferably with a HEPA vacuum. This will reduce pet hair and dander, or feathers.
- Never leave pet food out overnight.

Pollen, Pollution and Fragrances

Families should be encouraged to:

- Shower or wash hair at night before going to sleep when they have spent time outdoors, and wear clean clothing daily. This is especially important when the pollen count is high.
- Ventilate their home and be sure appliances are vented to the outside. They should use exhaust fans in the kitchen and bathroom and avoid smoke from fireplaces, fire pits and charcoal grills.
- Avoid having air fresheners, incense, scented candles and fresh flowers in their home. They should use “fragrance free” laundry and cleaning products. Perfume and scented personal care products can trigger allergic reactions.

Smoking

If a family member smokes and they would like to quit, encourage them to look for help. Many programs can provide help for free. Good resources for smoking cessation help include the American Lung Association hotline at 1-800-LUNG-USA, and the website smokefree.gov. Until the family member has quit, they should be counseled to smoke outside and away from children, as smoke in the air can give other family members, especially children, asthma and other lung diseases.

Mold and Moisture

In order to avoid substantial mold growth in a home, a family should be coached to:

- Fix all water leaks quickly as mold needs water or damp conditions to grow.
- Make sure clothes dryers are vented to the outside.
- Turn on kitchen fans when cooking; these should be exhausted to the outside.
- Use exhaust fans that are vented to the outside or open a window when showering.
- Use a dehumidifier if the humidity in the home is above 50%.

MOLD and MOISTURE

What are the Health and Safety Risks?

Mold is everywhere inside and outside of a home, including the interior surfaces and air, but is typically not a problem until it affects the health of the occupants. Mold can affect the health of all family members, and it is important for stakeholders, especially healthcare and service providers, to understand that many homeowners and renters do not have a clear understanding of what causes mold, how to treat it, or that it could be impacting their family's health.

Molds produce allergens and irritants. Inhaling or touching mold or mold spores may cause allergic reactions in sensitive individuals. Allergic reactions to mold are common. Molds can also cause asthma attacks in people with asthma who are allergic to mold. In addition, mold exposure can irritate the eyes, skin, nose, throat, and lungs of family members. Stakeholders should note that these symptoms could also be attributed to other toxins or hazards in a home.

Where Do Mold and Moisture Risks Come From?

Mold is a fungus that is alive and grows in wet or damp places. It is usually gray or black, but can also be white, orange or green. Mold can grow on walls, ceilings, furniture, clothes, or appliances, and it can also grow in hidden places such as behind walls, in attics, and under carpet. In significant quantities, mold usually makes a home smell musty and that smell can identify a potential health hazard. Mildew is a common name for mold that grows in a thin layer on surfaces. Mildew is typically found in and around high-humidity areas of a house. If a family lives near water or in a humid climate, then mold is more likely to grow in their home.

Some common places in a home where mold can be found, if the interior environmental conditions are favorable for mold growth:

- In bathrooms, especially around the shower or tub
- In humid or leaky basements and crawl spaces
- Around leaky sinks
- On windows and walls where moisture builds up from condensation or where there is moisture intrusion
- In attics, especially those that are not properly vented or under leaking roofing
- On wet clothes that are not dried quickly
- In closets, or other areas without air circulation
- Under wallpaper or carpets
- In an air conditioner or ductwork
- Inside of kitchen or vanity cabinets
- Around cooktops and countertops

Should a Family Test for Mold in the Home?

In most cases, if visible mold growth is present, testing is unnecessary. Since the EPA and other federal agencies have no recommendations on safe levels for mold, testing is not helpful or encouraged. However, surface sampling may be useful to determine if an area has been adequately cleaned or remediated after mold has been removed. Sampling for mold should be conducted by professionals who have specific experience in designing mold sampling protocols, using sampling methods and interpreting results.



What can you do to help the families and communities you serve?

Actions for Living in a Healthy Home

Family Health and Housekeeping Habits

A stakeholder should always advise families that it is important to fix any moisture problem in their home right away, including using dehumidifiers, fixing plumbing and roof leaks, and ventilating kitchens, bathrooms, and dryers to the outside. In addition to these recommendations, stakeholders should encourage families to talk to their health care provider if they think mold is affecting their health. If a family member's asthma or allergies are worse when they are at their home than away, mold may be a trigger. Encourage them to check for mold and moisture problems in each room of their home.

Stakeholders and service providers can also educate families in the community by:

- Encouraging healthcare providers and community assistance organizations to help families to assess their homes for asthma/allergen triggers that could include mold and other healthy home hazards.
- Assisting community agencies and health care providers in identifying and advocating for actions families can take to reduce allergens and mold in their home.
- Focusing education, training, and assessments on moisture prevention and safe cleaning of suspected mold areas.

Preventing Significant Moisture and Mold Inside a Home

For each family served, healthy homes stakeholders should recommend that families:

- Repair any water leaks in their home right away.
- Keep an eye out for mold and mildew or water stains in the home, including on ceilings, walls, around windows, floors and fabrics.
- Avoid letting water sit in drip pans, basements or air conditioners.
- Find and correct the moisture problem and dispose of moldy materials if mold is suspected, seen, or smelled.
- Avoid letting damp laundry stay wet in the laundry basket or machine.
- Use exhaust fans to move any moist air outside especially from kitchens and bathrooms.
- Make sure clothes dryers are vented to the outside.
- Use a dehumidifier or air conditioner to dry out damp areas.
- Throw away any moldy items that can't be cleaned.
- Store items in basements on shelves above the floor and in sealed plastic containers instead of cardboard boxes.

Preventing Significant Moisture Outside a Home

For each family served, healthy homes stakeholders should recommend that families:

- Make sure gutters and downspouts are working and aren't clogged, and rainwater drains away from the house to prevent wet basements or crawl spaces.
- Keep trees and bushes trimmed away from the home. This will allow air movement to deter mold growth.

Recommended Procedures for Cleaning Up Mold

Before a family attempts to remove mold, the first thing they should do is to figure out the source of the moisture problem. For example, if they have mold on a ceiling, it could be from a leaking pipe or roof above. If they don't fix the leak, then the mold will most likely return.

A healthy family member may be able to clean up a small area with mold, but should always wear protective gear including a respirator rated "N-95" or higher. The family member should wear long sleeves and pants, shoes and socks, gloves made of rubber, neoprene, polyurethane, or PVC, and goggles for eye protection. A mix of water and either an all-purpose cleaner, laundry or dish soap will usually be sufficient to remove mold with a stiff scrub brush. The surfaces should be rinsed with clean water and dried. After cleaning up the mold, mold removal guidelines recommend the use of a High Efficiency Particulate Air (HEPA) vacuum for final mold removal and HEPA air cleaners for continued use, to help reduce mold spores in the air. Any fabrics or porous materials contaminated by mold should be discarded.



Stakeholders should note that a professional mold remediation specialist is highly recommended when the mold surface exceeds 100 square feet or more, and the use of bleach to remove mold in these large projects is not acceptable because of safety concerns. Families should be instructed to keep small children, older and sick people and anyone with allergies or asthma away from the home during cleanup as the cleaning procedure usually makes mold spores more airborne and more easily inhaled.

Health departments and the Cooperative Extension Service in a community can also provide more information to families on mold and mold remediation. For additional "how to" guides to inform families about on how to safely clean up mold, especially after a flood or other disaster, visit the Rebuild Healthy Homes guide and App at www.hud.gov/healthyhomes. To find a cooperative extension office in a state, a family can visit the U.S. Department of Agriculture's Partners and Extension Map web page at <https://nifa.usda.gov/partners-and-extension-map>.



CARBON MONOXIDE

What are the Health and Safety Risks?

Carbon monoxide (CO) is a toxic gas. No amount is safe to breathe. CO cannot be seen, tasted, felt, or smelled. CO can make a person sick and can be fatal. Over 400 people in the United States die every year from CO poisoning.

Signs and symptoms of CO poisoning may include:

- Headache
- Nausea
- Vomiting
- Dizziness
- Confusion
- Weakness
- Sleepiness
- Tightness in the chest
- Trouble breathing
- Changes in sight, hearing, touch, taste or smell

Breathing low levels of CO can harm brains, hearts, and other organs. When a person breathes high levels of CO, they don't get enough oxygen, may not be able to think clearly, and can lose control of muscles. In severe cases, the person might not be able to move to safety. High level CO poisoning can cause loss of consciousness, coma, and death. High CO levels from a fire can kill someone in less than a minute.

Where Do Carbon Monoxide Risks Come From?

Fuel burning appliances are the main source of CO in the home. Common fuels are natural gas, gasoline, kerosene, coal, propane, oil, or wood. CO can be produced at dangerous levels if fuel burning appliances aren't vented to the outside or working right. Most fuel burning appliances are safe if they have been correctly installed and maintained. All fuel burning appliances need to be vented outside as unvented appliances are not safe. For example, a fireplace burns wood and smoke escapes out through the chimney. Likewise, other fuel appliances have chimneys or flues for the dangerous gases to escape. Electric appliances don't burn fuel and don't make CO.

Specific home sources of CO include:

- Furnaces, boilers, and water heaters that burn gas or oil
- Wood burning fireplaces and stoves
- Blocked chimneys and vents
- Gas appliances like ovens, stoves, and dryers
- Gas and kerosene space heaters
- Gas and charcoal grills
- Cars, trucks, campers, tractors, and other vehicles
- Gasoline powered equipment: lawn mowers, portable generators, snow blowers, chainsaws, or pressure washers
- Generators in campers and houseboats
- Tobacco smoke
- House fires



What can you do to help the families and communities you serve?

Actions for Living in a Healthy Home

Family Health and Safety

To ensure safety in a home from the dangers of carbon monoxide, it is essential to advise families to:

- Go outside right away if they hear a smoke or CO alarm, or if they smell natural gas. Families should be taught to treat any alarm as an emergency and never ignore it. They should then call 911 from a phone outside of their home and seek medical attention as needed.
- Read the manuals for all appliances, and follow all instructions.
- Engage the services of a company that services home furnaces, chimneys, and appliances at least yearly.
- Vent all heating appliances outside and avoid blocking air openings or exhaust vents.
- Turn off any appliance that is not working right and call a qualified contractor or repair company.
- Never operate grills, generators or anything with an engine inside a home, garage, or basement.
- Always start lawn mowers, snow blowers and all yard equipment outdoors.
- Never use the kitchen stove or oven to heat their home. *There may be programs to help families get or keep heat on in their home during cold weather days. Have them contact their local health department, community action agency, or city housing office to inquire what services may be available locally.*
- Turn on the kitchen exhaust fan when using a gas oven or stove, and leave it on after it's done for a half hour or more.

Carbon Monoxide Alarms

CO alarms are essential to protecting families from CO poisoning. An alarm will make a loud noise if CO is in the air. Alarms are sold as plug-in or battery operated and can be purchased online or at a home improvement or hardware store. If a CO alarm sounds, everyone in the home must go outside immediately and then call 911 from a phone outside of their home and seek medical attention as needed.



CO Poisoning Prevention

Stakeholders should advise families to:

- Put CO alarms on every level of a home and in sleeping areas.
- Never leave a vehicle running in the garage with the garage door closed. Doing so can cause CO poisoning, even if it is for just a couple of minutes.

Bad weather or disasters can cause the power to go out. Some people use portable generators indoors or close to windows or doors to the outside during these emergencies, which is a high risk activity for CO poisoning for families unfamiliar on how to operate them safely. Families should only use portable generators OUTSIDE and at least 20 feet away from the home or garage. Also, for explosion safety reasons, families should never refuel a generator when it is hot.



RADON

What are the Health and Safety Risks?

Radon is a gas that cannot be seen or smelled or tasted. As a result, it may be present at a hazardous level without the family's being aware of it. Radon is estimated to cause many thousands of deaths each year. That's because when a person breathes air containing radon, they increase their chances for lung cancer. In fact, the U. S. Surgeon General has warned that radon is a leading cause of lung cancer in the United States. If a family member smokes and the home has high radon levels, their risk of lung cancer is especially high.

Families can reduce their risk of lung cancer by lowering the amount of radon in their home. The good news is that a radon problem can be fixed, and in most cases, radon levels can be reduced significantly. Nearly 1 out of every 15 homes in the U.S. is estimated to have an elevated radon level. Radon has been found in every state in the U.S. and any home can have a radon problem.

Where Do Radon Risks Come From?

Radon comes from the natural breakdown of uranium in soil, rock and water. Radon typically enters a building through cracks and holes in walls and floors closest to the surrounding soil. Radon can be found all over the U.S. and it can get into any type of building — homes, offices, or schools. But a family is most likely to get the greatest exposure at home, where they spend most of their time.

Testing for Radon

Testing is the only way to know if a family is at risk from radon. The EPA and the Surgeon General recommend testing all homes for radon at the lowest livable level. It's easy to find out if a home has high levels of radon. Families can do a radon test on their own or they can hire a professional. There are two main types of radon tests that are do-it-yourself:

- A long-term test lasts 3 months to a year. These tests are more likely to give a home's year round average radon level. Radon levels vary throughout the year. These longer lasting tests are recommended.
- A short-term test lasts 2-4 days. This is the quickest way to check a home; this is often done during home inspections as part of buying a home.

A family can purchase a radon kit in a hardware store, a discount store or online. Testing does not require any protective equipment. Because testing improperly can make a significant impact on the results of the test, families should be advised to read all directions and label the test kit completely as described on the package, and to avoid moving the test kit around after it is originally placed in a room.

Understanding Radon Test Results

The amount of radon in the air is measured in "picocuries per liter of air" or "pCi/L". The average indoor radon level in the U.S. is about 1.3 pCi/L. The EPA and the U.S. Surgeon General recommend a radon mitigation system if the indoor radon level is 4 pCi/L or higher. Families may also consider taking action even if the level is between 2 and 4 pCi/L.



What can you do to help the families and communities you serve? *Actions for Living in a Healthy Home*

Family Health and Safety

It is not possible to get rid of the uranium in the soil that is causing the radon problem in a home, but there are other things that families can do. The goal is to reduce the radon levels in the home by stopping it from entering. The most important points to communicate to a family is that they need to be informed and educated about the dangers of radon, how to test homes, and remedial measures available to them when radon levels are too high.

A Radon Problem Can Be Fixed

Radon reduction systems work and they are not too costly. Installing a radon mitigation system will help reduce (“mitigate”) radon indoors. Some radon reduction systems can reduce radon levels in a home by up to 99%. Even very high levels can be reduced to acceptable levels with an appropriate installation.

The first step is to seal and caulk all openings, cracks, and crevices in the concrete foundation floor (including the slab perimeter gap) and walls with polyurethane caulk. Before deciding to install a mitigation system, the area should be retested for its radon level. The retesting should start at least seven days after the sealing and caulking is done.

The most common mitigation system is a pipe that goes from under the lowest floor - basement or first floor - of the home and continues straight through the roof. For higher radon levels, a motorized fan is attached to the pipe (often in the attic or basement) to help remove the radon gas to the outdoors. The EPA recommends that a homeowner have a qualified radon mitigation company install the mitigation system. There is help available to install these systems by contacting a state radon office for qualified radon mitigation companies in the area.

Fixing a Radon Problem with a Mitigation System

There are several proven methods to reduce radon in a home, but the one primarily used is a vent pipe system and fan, which pulls radon from beneath the house and vents it to the outside. This system does not typically require major renovations to a house, as it can often be placed in closets or between rooms. Sealing foundation



cracks and other openings is often completed with the installation of the vent pipe to make the mitigation system more effective and cost-efficient.

A licensed radon mitigation specialist can recommend what system is best for a home. Homeowners should check with their state health department website for more information on how to find certified radon mitigation contractors. Retesting a home after a radon mitigation system has been installed is always recommended to verify the efficiency of the work completed and to make sure the radon level has been reduced to less than 4 pCi/L.



DRINKING WATER

What are the Health and Safety Risks?

Every day, Americans drink more than a billion cups of water and use water to cook and clean. Most people trust that their water is safe, and this is usually true. Public drinking water in the United States is routinely tested for safety, but if a home has a well or other private water supply, it's the homeowner's responsibility to test it.

No matter where water comes from, families need to make sure it's safe. Family members can get sick from drinking, cooking, and bathing in unsafe water even though it may still look, smell and taste fine.

Drinking unsafe water can cause an upset stomach, diarrhea, or more serious problems. It can be worse for children, pregnant women, those who are sick and older people. Unsafe water can be more dangerous for children than adults because children drink more than adults for their size and their bodies are still growing.

Unsafe drinking water may contain bacteria and viruses that can cause diseases as well as heavy metals and chemicals that can cause other health problems. Contaminated water can damage kidneys, liver, and other organs. Some chemicals in unsafe water may cause cancer.

Lead in water can cause permanent learning and behavioral problems in children. Babies who get too much copper can get colic and spit up their formula if these metals are in the water used to make formula. Older children and adults may get upset stomachs or diarrhea from copper.

Nitrates in water may also cause birth defects and miscarriages. Too much nitrate in drinking water can also cause blue baby syndrome in babies less than six months old. Blue baby syndrome is when a baby's blood doesn't get enough oxygen and their face can turn blue or purple. If this happens, they need medical attention right away.

Where Do Drinking Water Risks Come From?

Nitrates are chemicals that get into water from animal and human waste or from fertilizers. Nitrates can seep into drinking water from a lawn or a sewage system, and water from wells in farming areas are at greatest risk. Testing tap water annually for nitrates is important before giving it to babies and children.

Lead and copper are metals that can get into water from plumbing pipes and fixtures. Other harmful chemicals can get into drinking water such as pesticides that wash off lawns or leak from storage containers, and gas or oil that has seeped into the ground and into wells used for drinking water.

Public Water Supplies

The water in most U.S. homes comes from a public water supply. Public water typically comes from groundwater or from a nearby river or lake. If the drinking water is from a public water supply, it is tested for over 80 chemicals. The water company determines if the water meets EPA safety standards for drinking water and they are required to notify customers if it is unsafe.

Every year, water companies are required to give their water test results to customers. Reports are available online or by mail. Families can also call their water company to ask what chemicals are in the water and also ask how they treat it to make it safe. Even public water can still become unhealthy if the home has lead or copper water pipes or faucets, or the pipe solder contains lead.

Lead Pipes: Older homes or apartments may have lead pipes. Lead is a dull gray color and scratches easily. Brass faucets (especially those purchased before 1998) also contain lead.

Copper Pipes: Copper pipes are reddish brown in color.

Private Water Supplies

Nearly 15% of Americans have private water supplies mostly from a well on their property. A well is a deep hole in the ground that fills with water and has a pump and pipes which transport water into a home. There are many different types of wells.

Types of Wells

A dug or bored well has a hole about 2 feet across and are typically less than 50 feet deep. A drilled well has a narrow hole and is 6 to 8 inches around and can be hundreds of feet deep. A driven point or sand-point well is 2-3 inches around and may not be very deep. If a homeowner doesn't know what kind of well is on the property, a local well driller can be of assistance. If the well is more than 20 years old, it should be checked for contaminants often.

Testing Well Water

Stakeholders should recommend that homeowners and renters have well water tested every year by a state certified laboratory. They should be sure the test includes bacteria and nitrates. Families can go online or call a local or state health department or Cooperative Extension Service (www.nifa.usda.gov/extension) to find out what tests are needed.



**What can you do to help the families
and communities you serve?**
Actions for Living in a Healthy Home

Family Health

Families should be advised never to use hot water from the tap for cooking, drinking, or making baby formula if lead is present in the water. If the home has lead or copper plumbing with lead solder, or if the family is unsure if it does, family members should be instructed to:

- Use cold water instead of hot water and heat it on the stove or in the microwave to warm it up, and test it to be sure it is not too hot before feeding a baby or toddler.
- Let the cold water run for a few minutes when the water hasn't been used for at least 3 hours. This will help clear out any water that is sitting in the pipes which might collect lead or copper.

Community Health and Safety

Keeping water clean in public water supplies and from private wells requires community-wide outreach so that everyone is doing their part to keep the water safe to drink for all families. In order to help keep local water safe, healthy homes stakeholders should advise families in proper care and disposal of household and yard chemicals to avoid adding contamination to the surrounding groundwater and wells. Families need to:

- Ask the water company for the most recent water quality report, and then check the report for contaminants harmful to family members, especially children and pregnant women.
- Follow all directions on the label when using poisons to kill bugs or weeds.
- Store chemicals safely and be sure containers are labeled and sealed.
- Avoid putting chemicals in the garbage or down the drain and reading labels for disposal instructions.
- Give leftover chemicals to someone who will use them, or call a local or state health department to find out how to get rid of them safely.
- Make sure to clean up after pets. Don't leave droppings on the ground. Rain can wash germs into storm drains, rivers and lakes. Flush pet waste down the toilet, or put it in a plastic bag and throw it in the trash.

Housekeeping and Maintenance

To protect a private water supply, homeowners and renters should be advised to:



- Test their well water every year. (see the Testing Well Water section above)
- Have a professional plumber check the well if it is having problems or has high levels of contaminants.
- Make sure the well is not in a low area of the yard where rainwater can collect. Rainwater can carry germs and pollutants into well water.
- If the well is in a low lying area, consult a well installation company for advice.
- Avoid keeping gas, oil, weed killer, or other chemicals near the well or uphill from it.
- Ask the local or state health department how to seal an unused well if it is abandoned. Cap or fill unused wells to prevent ground water contamination.
- Put “back-flow prevention devices” on outdoor faucets to keep water from flowing backwards into the water

supply. These devices help keep germs and pollutants from washing back into a home's drinking water.

When a family moves into a new house or apartment that uses water from a well, they should always be advised by a professional well installation company or cooperative extension agent to find out where the well is located and place a well marker to designate the exact location of the well.



HOUSEHOLD CHEMICALS

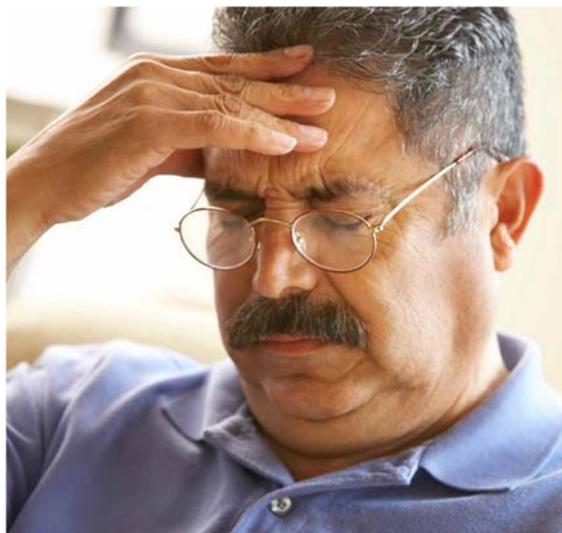
What are the Health and Safety Risks?

Some household chemicals and products are more dangerous than others. Some can be used safely if the directions are followed on the label. Hazards from household chemicals include using too much of a product or misusing a product, such as mixing two products together that are dangerous when they are combined.

Children and adults can be injured or poisoned by accident. This can happen if products are misused, stored or disposed in the wrong way. Eating or drinking a hazardous product is very dangerous, sometimes deadly. Children have smaller bodies that are growing so hazardous chemicals can harm them more.

Some hazardous products can burn just by touching them and some can poison through the skin if they are touched. Others can also poison a person when they breathe them in. Exposure to these chemicals might make a person feel sick to their stomach or dizzy and their eyes might water, sting or hurt. Other common reactions are headaches or nasal congestion.

Sometimes a person can know right away if a family member has been poisoned by a hazardous product. But some problems don't show up for a long time. Some chemicals can also change how a child grows and develops. Long-term contact with some products can cause cancer or damage to lungs or other organs.



Where Do Household Chemicals Risks Come From?

Hazardous household chemicals are products for use around a house or yard that can be harmful or poisonous. They can hurt someone if they are not used the right way. Here are some common examples:

- All-Purpose, surface and floor cleaners
- Detergent
- Medicine
- Glass cleaner
- Batteries
- Bleach
- Bug spray
- Toilet and drain cleaners
- Furniture polish
- Oven cleaner
- Rat poison
- Mothballs
- Charcoal lighter fluid
- Dishwasher pods
- Mercury thermometers
- Gasoline
- Oil
- Paint
- Shoe polish
- Glue and epoxies



What can you do to help the families and communities you serve? *Actions for Living in a Healthy Home*

Family Health

The stakeholder should remind all families they serve that if they think a family member has been poisoned they should call the poison control center number immediately. If a family member is exposed to, breathes in, or swallows a dangerous household chemical, they can reach a local Poison Control Center by calling **(800) 222-1222** toll free from anywhere in the United States at any time. Families should store this number in a mobile phone or speed dial and also put it where hazardous products are stored.

Some persons can have allergies to strong chemicals which could be affecting their health and work. If a family member identifies sensitivity to chemicals during cleaning they should notify their health care provider.

Housekeeping and Maintenance

Most families can create a healthier home environment by changing some of their everyday practices so they don't routinely use hazardous products for cleaning. Some suggestions for them include:

- Use only the amount of the product that is recommended.
- Steam cleaning of clothes and upholstery is a good alternative for people who want to reduce their exposure to hazardous chemicals.
- Look for products that are less toxic: Look for products that list all ingredients and that have been tested for safety by a reliable third party, such as: EPA Safer Choice, Green Seal and EcoLogo.
- Keep a doormat by every entrance to the home to encourage "wipe your feet" habits.
- Removing shoes worn outside the home when entering it.

A stakeholder should encourage the families they work with to take the following precautions to protect the most vulnerable family members:

- Always keep hazardous products in their original containers.
- Recycle products at approved locations. Oil, antifreeze, and products with mercury can be recycled in many parts of the U.S.
- If they have with young children, always buy products in child-proof containers and only get medicines with child-proof caps.
- Keep all hazardous products and chemicals in locked cabinets away from children who live in or visit the home.

Use Safely as Directed

Family members should always follow directions on the labels of household chemicals. That is one of the most important steps in using hazardous products. They should also take extra care if a label has any of these words:

- Caution
- Harmful
- Warning
- Danger
- Poison
- Flammable
- Toxic

Safe Housekeeping Habits

Healthy homes stakeholders should recommend that families:

- Always put the cap back on a product tightly and put everything away right after use.
- Do not eat, drink, or smoke when using a hazardous product, and wash hands thoroughly after use.
- Never mix products together unless directed to do so by the product label.
- Keep children, pets, and pregnant women away from the area where the hazardous products are being used.
- Store laundry and dishwasher pods away from children. They are very dangerous for children as they are brightly colored and may look like candy.
- Keep products in the original package, can, or bottle. Never put products in another container. Keep containers and packages dry. Close containers tightly.
- Keep household products away from heat, sparks, and fire. Don't store anything near the furnace.
- Store batteries and flammable chemicals like gasoline out of direct sunlight.
- Find out where to recycle products with mercury, as it is quite toxic, even in small amounts. Some items that contain mercury are: fluorescent bulbs, thermometers, thermostats, and blood pressure meters.

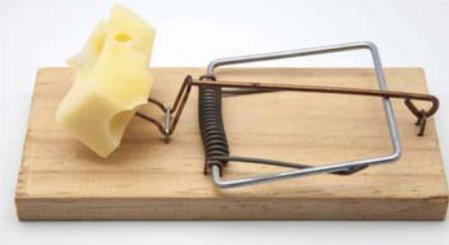


Learn as much as you can about home health and safety,
and get your community involved.

Healthy Homes Basics App

- Download the app to learn more:
<https://itunes.apple.com> or <https://play.google.com/store>
- Connect to resources you need
- Take quizzes to test your awareness
- Check each room in a house





PESTS

What are the Health and Safety Risks?

Pests are unwanted living creatures in or around a home. Pests can act as asthma and allergy triggers in sensitized family members and those with asthma or who are chronically ill. Inside of homes, mice, rats, and cockroaches may also trigger asthma attacks. Pests can be a health and safety hazard because they can carry bacteria in on their skin or fur, can bite humans, or damage home structures or components making the home unsafe.

Indoor pests include bugs or rodents that get inside and into food; mice and rats which can chew on electrical wires and cause fires; rats and certain spiders which can bite and make people very ill; and fleas and ticks which can be carried into a home on pets or clothing and can cause disease.

Bedbugs are tiny insects that feed on blood of humans and animals. They are hitchhikers and they can crawl onto children and adults or their belongings. Bed bugs are very difficult to get rid of once they have infested a room or area. Common bed bugs are not known to transmit disease but some people have allergic reactions to their bites.

Where Do Pests Risks Come From?

Pests travel into a home looking for places with food, water and shelter. Removing their access to these things can greatly reduce pest problems. Families should be advised to ask these questions in order to identify the problem and possible solutions:

- Are there gaps or openings in the walls, doors or windows?
- Are pets bringing in pests?
- Is there spilled or open food anywhere in the home?
- Is there a water leak in or around the house?

Bedbugs can be carried home in luggage, bags or on clothing. They are most common in public places or where people sleep (homes and hotel rooms). They can be found in homes, apartments, dorm rooms, hotels, cruise ships and in public transportation. Bed bugs tend to hide during the day in bedding, furniture, cracks, and tight places and come out at night. If a family thinks they have bed bugs they will need to confirm it with a cooperative extension agent or pest management professional. If a family is renting the home they should immediately contact their landlord, and check with state or local laws regarding bedbugs.



**What can you do to help the families
and communities you serve?**
Actions for Living in a Healthy Home

Preventing or Controlling Pests Safely

Identifying pests and fixing the causes of pest problems is the first step families should take. First, families should try pest prevention and mechanical tools like traps that do not use toxic substances.

Next, families should try to remove the conditions that allowed the pest(s) to enter and live. This system of removing pests is called **Integrated Pest Management** or **IPM**. IPM is an effective and environmentally sensitive approach to pest management that relies on a combination of commonsense practices. IPM programs use information on pests and their interaction with the environment. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.

IPM in Multifamily Housing

If a family lives in an apartment, a condominium, or any kind of unit in a multi-family housing complex, there are special measures that should be considered to prevent or solve pest problems. To keep pest numbers down, each resident needs to do his or her part, keeping individual apartments clean to discourage pests throughout the building. The stakeholder should advise apartment residents to:

- Prepare units for visits from a pest management professional or exterminator such as clearing clutter from rooms hallways.
- Follow leases regarding housekeeping, sanitation, trash removal and storage.
- Report the presence of pests, leaks and mold to the landlord.
- Monitor common areas for problems.

Housekeeping and Maintenance

The stakeholder should encourage families to be diligent in finding out how pests are getting into their home and advise them to walk around the house from outside, and:

- Look for openings in walls, doors and windows, and seal gaps where pipes and wires – and pests - come inside.
- Use screens on windows and repair holes in screens.
- Make sure doors and windows are tight and well- sealed. (Mice can get in a hole the width of a pencil). Repair damaged doors and windows.
- Trim plants so they don't touch the exterior walls,
- Do not collect large amounts of trash.
- Keep gutters clean and use downspouts to direct water away from the home.
- Get rid of standing water in watering cans, toys, wading pools, buckets, cans, tires, and plant containers. Standing water breeds mosquitoes.
- Repair openings in the roof and eaves which may let bats, bees and squirrels inside.



After an inspection from the outside, the family should be advised to inspect the conditions of the interior, and routinely:

- Clean countertops, floors, window sills, and other surfaces often.
- Clean up spills and crumbs and dirty dishes right away.
- Keep a tight lid on trash cans and empty the trash daily.
- Store food in tightly sealed containers. Pests are attracted to food in open bags, boxes or containers.
- Keep pests from getting water by fixing plumbing leaks and not leave dishwater in the sink overnight.
- Get rid of clutter, especially newspaper, bags, papers, and cardboard boxes. Paper makes a good home for pests. Also, roaches like the glue in paper bags and cardboard boxes.
- Never leave pet food out overnight.

Safe Pest Control Methods

Once clutter is removed, cracks and crevices are sealed, and a home is clean, THEN a family may be further advised on pest control methods that may still be needed. Families should always choose less toxic methods first; mechanical methods of pest control are safest. Other suggestions to help families with pest management include:

- Snap (not sticky) traps for mice. Mice or rats may stick to the traps but not die and remain a bite hazard.
- “Child resistant” traps for roaches, ants or mice.
- Avoiding the use of pesticides or rodenticide pellets. Rodents can eat them and die inside walls and hidden places. Dead rodents smell bad and the smell can last for months. Also, children or pets may eat the pellets.
- Fly swatters to kill flies, spiders or roaches. A vacuum cleaner can also remove them but the vacuum bag should be thrown away as soon as possible so the pests don’t get out.
- Sealant, steel wool or other pest-proof materials to plug cracks. An “escutcheon plate” keeps pests out around pipe openings.
- Not using products designed to be used outdoors inside a home.

Methods That Use Pesticides

Pesticides can cause health problems if not used properly. If the mechanical methods do not work, it’s best for a family to call a certified pest management professional. Family members should only use pesticides according to the label directions, and choose products that cannot be easily breathed, swallowed or touched by babies, children and adults. Children could easily become sick from contact with pesticides. If they have to keep pesticides in the home, families should always keep them in a locked cabinet and out of reach. It is vital that the person applying the pesticide uses only the amount of product that the instructions say to use. More is not better and can be very dangerous to persons and pets.



Stakeholders should advise residents planning on using chemical pesticides to review important information on recommended protection, which may include using:

- Plastic or rubber gloves
- Long sleeves
- Long pants
- Safety glasses or goggles
- Dust mask or respirator

Families using pesticides should always be advised to wash hands after use and never smoke, eat, or drink while using the products. For more information on pesticide safety, the Environmental Protection Agency’s Office of Pesticide Programs supports the National Pesticide Information Center. Their toll-free number is (800) 858-7378 and their website is: www.npic.orst.edu. People with hearing or speech impairments may access the number above through TTY by calling the toll-free Federal Relay Service at (800) 877-8339.

Bed Bug Prevention and Removal

When returning home from travel or somewhere that may have had bed bugs, families should be advised to store belongings in sealed bags until they can be carefully inspected with a flashlight or magnifying glass. If bedbugs are found, non-flammable items and clothing should be immediately put in the clothes dryer on the highest heat setting for 30 minutes to kill them. Flammable items should be discarded, if possible. Clothing from a suitcase should be unpacked and put directly into a clothes washer and hot dryer.

Regular maintenance in a home to reduce the possibility of bed bug infestation includes recommendations to regularly wash and dry bedding and any clothing that touches the floor and routinely throwing away the vacuum bag or contents.



HOME SAFETY

What are the Health and Safety Risks?

When it comes to safety, preventing injuries at home is important for people of all ages. A family member's chances of getting hurt at home are much higher than at work or school. Very young children and older adults are the most likely to get hurt. The leading causes of death and injury in the home are:

- Falls
- Poisoning
- Fires or burns
- Blocked airway
- Drowning
- Weapons

Where Do Home Safety Risks Come From?

Falls are the leading cause of deadly and non-deadly accidental injuries for people aged 65 and older. Most falls happen at home and can be inside or outside. Most people trip and fall at floor level, not going up or down stairs. Older adults are more likely to be victims of falls, and the resulting injuries can affect their ability to lead an active life, or worse.

Young children can get into everyday items that can poison them. Children like to play with things that they find because they can look or smell good and by nature they are curious. Children may find new things appealing such as medicine, makeup, household chemicals, alcohol or plants. Babies and toddlers will put items in their mouth as they crawl or run around.

Fires and burns are a main cause of death in the home. Older adults are most at risk. They might not be able to hear an alarm or get out of their home or apartment quickly. Older adults also may have difficulty seeing, smelling or hearing.

When a person is choking, a blocked airway can cause them to stop breathing and can be fatal. Children under age 4 and older adults are the most likely to die from choking. People usually choke on food although children can choke on something they find, like a button or a coin.

Sheets, blankets, and plastic bags can suffocate people or pets who get caught in them. Strangulation deaths and injuries can occur anywhere in the home. For example, corded window coverings are a risk for young children and pets.

Drowning is a major safety risk at the home. Children aged 1 to 4 have the highest drowning risk. Weapons are also a major safety concern.





What can you do to help the families and communities you serve? *Actions for Living in a Healthy Home*

Stakeholders and service providers should be aware that many families live in blended and extended home situations where multiple families are joined in one residence, causing space to be cramped, and trip and fall injuries to be a higher risk. Encourage and facilitate families to be aware of home hazards and to take action for those family members at highest risk of injuries in all rooms of the home.

Some actions that families can take to increase the safety of their home include:

Help Prevent Trips, Slips and Falls

- Keep floors clear of anything that could cause someone to trip. This includes: clothing and shoes, papers and newspapers, and clutter.
- Use night lights in bedrooms, hallways, stairs, landings, and bathrooms to increase visibility.
- Don't use chairs or tables as ladders.
- Use safety gates to prevent falls down stairs. Repair any stairs that are cracked or worn. Install secure handrails on steps and ramps.
- Use anti-slip mats around and in tubs and showers.
- If an older adult or someone with mobility or balance concerns is present in the home, install grab bars at toilets, showers, and tubs.
- Supervise children and keep their play area away from windows and stairways.
 - Be aware that screens alone cannot prevent children from falling. Use window guards and window stops. Window guards prevent children from falling out of windows. Adults and older children should know how to open these easily in case of fire. Window stops prevent the window from opening more than 4 inches.
 - If possible, open windows from the top to get fresh air, not the bottom.

Help Prevent Fires and Burns

- A smoke/fire alarm should be located on every level of a home and an additional one in or near every sleeping area.
- An adult should always be in the kitchen during cooking in ovens or on stoves. Family members should never put or leave flammable items on or near the stove or cooktop.
- Store matches, lighters, and other heat sources in a safe place like a locked drawer.
- Talk about fire safety with children. Talk about how to prevent fires and what to do if there is a fire.
- Plan and practice a fire escape route.
- Keep a fire extinguisher on each level of the home.
- Keep pathways clear of tripping hazards.
- Keep portable heaters out of doorways, halls, and other busy areas and away from curtains, bedding, and anything that could catch on fire.

Help Prevent Choking and Suffocation

Small children, older adults or other people that need help eating should not eat food that they could easily choke on. Everyday foods like nuts, popcorn, hard candy, or other small foods can easily get stuck in the throat.

- Have children drink while sitting up. Drinks like formula, milk, and juice can make babies choke if they are drinking while lying down, especially when drinking from a bottle.
- Balloons are a choking hazard. Infants and toddlers are most at risk for choking on items like small toy parts, coins, marbles, buttons or anything that can fit in their mouths.
- Do not tie toys or pacifiers to children's clothes. Small children should not wear jewelry around their necks.
- Read every toy package to make sure it's safe for children in the home. Small toy parts are a choking hazard. Only allow children to play with toys that match or are recommended for children below their age.

Help Prevent Strangulation

- Corded window coverings can accidentally strangle infants, children and pets. In 2012, new standards were approved for corded window coverings. If a home has older window coverings, it is best to replace them. Children can accidentally wrap window cords around their necks and become entangled.
- Drawstrings on children's clothing can be hazardous – they can attach to playground equipment, vehicles, or furniture, and may cause strangulation. Children shouldn't wear jackets, hoodies or sweatshirts with drawstrings longer than 3 inches. Drawstrings must be stitched to the back of clothing. Do not purchase clothing with toggles or attachments on drawstrings.



Help Prevent Tip-Over Hazards

Furniture and appliances such as televisions that are not well secured represent tip-over hazards, which can crush and cause head injuries, especially to young children. Parents or caregivers should ensure that furniture and appliances are stable and not prone to tipping.

- Large appliances and furniture (e.g., bookcases) should be anchored to the wall.
- Televisions should be on sturdy, low bases and should be pushed as far back on stands as possible.
- Remote controls, toys, and other items that might attract children should be kept off of TV stands or furniture that represents tip-over hazards.



Help Prevent Drowning

- Parents or other adults should always supervise children and older adults by the water. Life jackets or vests should be worn on docks, at beaches, rivers and by the pool.
- Make sure pools, hot tubs, and spas have a fence around them. Make sure the fence is at least 5 feet high or the height required by the local building code, if higher. Openings in the fence should be no larger than 1/4 inch. Select a pool fence with a self-closing gate and install pool and gate alarms near pools. Surface wave and under water alarms are also available. Make sure pool and spa covers are in good condition.
- Young children should never be alone in the bathtub. Use toilet lid locks when you have toddlers in the home to prevent drowning in the toilet. Remember, children can drown in only a couple inches of water.



TEMPERATURE CONTROL

What are the Health and Safety Risks?

Every home needs to be temperature controlled in order to ensure that families and the house structure are safe from extreme temperatures and is comfortable. A temperature controlled home has balanced temperature and humidity levels. Older homes were constructed with materials and methods that are not very energy efficient. On the positive side, most have good ventilation from infiltration (leaks) of air, which reduce the concentration of indoor air pollutants. However, homes that are not energy-efficient cause increased monthly utility bills, so homes should have a balance of high energy efficiency and adequate ventilation, both of which have to be intentionally part of the design and operation of the home.

Homes that are not temperature controlled may place a family – especially its elderly and ill members - at increased risk from exposure to extreme cold and heat. High temperature and humidity in a home can make asthma, mold, and other indoor pollution worse, as well as cause general discomfort for the family. Having high monthly utility bills can also lead to financial stress for families.

Where Do Temperature Control Risks Come From?

A home's heating and cooling system should provide a stable temperature that also prevents excessive moisture, heat and cold. When it doesn't, families will sometimes go to extreme measures to improve their comfort. To avoid extreme temperatures in their homes, families will sometimes do what they can, such as:

- Turning on the oven, even if it is a gas oven
- Using portable heaters that burn fuel and electric
- Using generators
- Adding fans and window air conditioners
- Overcompensating with heat or cold air to avoid extreme temp during loss of energy or service

There are times when resources are not available for long periods and these temporary fixes above become the only form of heating and cooling they have available to them. However, families should be warned that:

- Long term use of an oven, fuel burning portable heaters, and generators to heat a home creates a fire and burn risk as well as, if the oven burns fuel, a CO poisoning risk to the occupants of the home. These measures may also not prevent excessive cold from impacting the most vulnerable populations, because they heat only small portions of the home.
- Long term use of window air conditioners, or their improper installation or maintenance, can create mold and moisture issues especially beneath the unit, including the window sill trough, siding and all components in the "water run-off" path that these units create.
- Some older people have a very low tolerance to cold and keep their home at very high levels of heat year round. Although this is understandable in that their circulatory system is working hard to keep their body strong and balanced, other occupants may be compensating by opening windows or adding window air conditioners in certain parts of the home. The mixture of heat and cold will start to create condensation in the home building materials and structure. Excessive moisture can rot wood based materials; also paper, fabrics, and gypsum materials are ideal environments for mold and mildew growth. Mold and mildew growth can occur quickly and may hide behind walls, under flooring and wallpaper.



What can you do to help the families and communities you serve? *Actions for Living in a Healthy Home*

Family Health and Housekeeping Habits

Stakeholders and providers should encourage families to assess ways to improve their heating and cooling system and their maintenance. A home energy audit can assess a home's energy use and can suggest strategies that a family can implement to find a healthy compromise to temperature and humidity levels that meet the needs of all of their family members. See www.energy.gov/energysaver for more information.

Insulation

Insulation acts like a blanket around a home and slows heat from escaping the home in the winter and from entering the home in the summer. It is installed throughout homes in the walls, floors, attics, and sometimes basements and crawl spaces. When adding or removing insulation, caution should be taken by the homeowner to look for possible existing **asbestos insulation** (such as having an easily crumbled (“friable”) grainy texture) or **vermiculite** insulation (pellets). These types of insulation were popular at one time but are known to have harmful health effects if the material is disturbed and the fibers become airborne. It is best for homeowners to have a certified insulation contractor or home inspector identify the risk of any material that is suspected of containing asbestos.

Air Ducts

Some homes use forced air systems to provide heating and cooling. In these homes, air travels through a system of supply and return ducts. These may be made of rigid and/or flexible materials. Ductwork can be found in attics, in walls, above ceilings, and under floors. Heated and cooled air leaking from out of ducts should be fixed by sealing the leaks - otherwise the homeowner is wasting energy and money. Homeowners should be instructed to:

- Check air ducts for leaks and repair them, especially in places like attics and crawl spaces, using mastic or foil tape to seal the leaks.
- Keep air outlets and registers open and not block them, such as with furniture or draperies.

General Heating and Cooling Tips

Stakeholders should encourage families to take the following low- or minimal-cost steps to balance energy efficiency with heating and cooling requirements:

- Add a programmable thermostat, or use small room or ceiling fans during the summer, to keep the home cooler in winter and warmer in the summer.
- Change the temperature on the thermostat by 2° to reduce utility bills by about 5-10%.
- Install curtains and/or shades: open them to let the sun shine in during the winter and close them in the summer to keep the heat out.
- Use caulk and weather stripping around windows and doors to stop air drafts. Replace old, cracked or peeling material with new material and seal cracks around pipes.

Indoor Environmental Quality

For Safe and Healthy Homes

Indoor environmental quality refers to the quality of the home's environment in relation to the health and well-being of the family. There can be gases and particles in the air that are dangerous or unhealthy for various family members. It is not always easy to tell if a home has good indoor environmental quality. The air inside a home can actually be worse for a person's health than the air outdoors. Most people spend more than half their lives inside their homes, which is why good indoor environmental quality is so important. The following is a summary of indoor air quality issues in a home for stakeholders and service providers:

Lead

Homes or apartments built before 1978 could have lead paint. Dust from deteriorating lead paint can get into the air, where it can be breathed in, and onto floors, windowsills, and other surfaces, which can be touched and then have the lead dust swallowed. Lead exposure is especially hazardous to children under the age of 6.

Asthma and Allergies

Asthma is a lung disease that can be triggered by indoor air pollution. An asthma attack is when a person with asthma has extra difficulty breathing. An allergy is an immune response or reaction to substances usually not harmful. Many people have allergies to pets dander pollen, and mold.

Mold and Moisture

Mold is a kind of fungus. It grows in wet or damp places and it often makes the indoor air smell musty. It produces spores that float in the air and adhere to surfaces in humid or moist areas of a home. Mold is an asthma and allergy trigger.

Carbon Monoxide

Carbon monoxide (CO) is a deadly gas that is invisible and undetectable without a CO detector. CO can come from fireplaces, fuel burning appliances such as a furnace or gas stove that are not working right, and car exhaust.

Radon

Radon is poisonous gas that can cause lung cancer. It cannot be seen or smelled. It comes from the ground below a home. It enters a home through cracks in floor slabs and basement or foundation walls.

Pests

Pests are unwanted living things in or around a home. Pesticides can help fight pests, but they can also be dangerous to use at home, especially if used incorrectly, and can contribute to poor indoor air quality. It is best to use other, preventive approaches, – part of integrated pest management – such as cutting off pests' access to food and water, before considering using pesticides, and even when they are being used.

Household Chemicals

Many household products can pollute the indoor air if they are not used correctly. Chlorine bleach, cleaning products, alcohol, thinner, and varnish are a few examples. Hobbies and projects like sanding, painting, welding or gluing can pollute the air with dust or harmful chemicals.

Asbestos

Asbestos was used in homes in the past because it has great thermal and fire-resistance. Asbestos fibers are dangerous if they get into the air and are inhaled because they can cause serious long term health problems including lung cancer. Asbestos is commonly found in materials such as roofing shingles and siding; floor tiles and vinyl flooring, backing and mastic; textured and spray-on ceilings and paints; pipe coverings, thermal insulation, and fireproofing. Asbestos should be removed or repaired only by a licensed asbestos abatement professional and not by a homeowner or renter. More information is available by visiting the EPA Asbestos information website at: www.epa.gov/asbestos

Checklist

For Safe and Healthy Homes

This room-by-room checklist is based on one developed by the Healthy Homes Partnership at www.healthyhomespartnership.net and www.extensionhealthyhomes.org. It is useful for establishing a healthy home assessment protocol with the families you serve.

1. Living, Dining, and Family Rooms

- If the home was built before 1978, check painted doors, windows, trim, and walls for lead
- Vacuum carpets regularly to reduce asthma triggers
- Move window blind cords out of reach of children to prevent strangulation
- Check lighting and extension cords for fraying or bare wires
- Avoid having lighting and extension cords in floor pathways
- Purchase children's toys that do not have small parts for choking and do not contain lead
- Secure heavy items (televisions, bookcases) to walls to prevent tip overs

2. Kitchen

- If the home was built before 1978, check painted doors, windows, trim, and walls for lead
- Use a range hood exhausted to the outside (or open window) to ventilate while cooking
- Clean up liquids and foods right after spills
- Keep matches, glassware, knives, and cleaning supplies out of reach of children
- Avoid leaving food and water, whether for people or pets, out overnight
- Mop floors at least weekly
- Place Poison Control Hotline number **(800) 222 – 1222** on the refrigerator and in every room
- Do not allow children to be in kitchen unsupervised when the range or oven is on

3. Bedroom(s)

- If the home was built before 1978, check painted doors, windows, trim, and walls for lead
- Move window blind cords out of reach of children to prevent strangulation
- Make sure room has a working smoke detector
- Make sure the hall outside of bedrooms has a working carbon monoxide detector
- Use mattress and pillow covers, and vacuum carpets regularly to reduce asthma triggers

4. Entry

- Use floor mats by entry doors to reduce bringing in lead dust and other toxins into the home
- Remove shoes at entry if lead is present in the soil or paint
- Repair or install weather seals around the perimeter of doors

5. Bathrooms

- If the home was built before 1978, check painted doors, windows, trim, and walls for lead
- Use an exhaust fan to ventilate after shower or bath use
- Use slip resistant mats in showers and tubs
- Clean up water from floors right after spills
- Move window blind cords out of reach of children to prevent strangulation
- Keep medicines and cleaning supplies locked away and out of reach of children
- If an older adult or someone with mobility or balance concerns is present in the home, install grab bars at toilets, showers, and tubs

6. Laundry

- Vent clothes dryer to the outside (through roof or wall, not into the attic)
- Keep laundry soaps and detergents out of reach of children
- Wash sheets and blankets weekly to reduce asthma triggers
- Regularly remove lint from dryer screen

7. Attic

- Clean up clutter to prevent rodents and insects from finding places to nest
- Check exposed attic insulation for asbestos and consult with an asbestos professional for removal
- Make sure eave and roof vents are not blocked with insulation

8. Basement (or Crawlpace)

- If the home was built before 1978, check painted doors, windows, trim, and walls for lead
- Seal holes in walls and around windows and doors to keep rodents and pests out of living spaces
- Clean up clutter to prevent rodents and insects from finding places to nest
- Test the home for radon. If test shows radon above EPA action levels, seal slab and foundation wall cracks, and if the problem persists, consider installing a radon mitigation system
- Keep pesticides and cleaning supplies locked away and out of reach of children
- Seal all cracks in slabs and foundation walls for moisture, radon, and pest protection

9. Garage

- Never run lawnmowers, cars, or combustion equipment inside the garage with garage door closed
- Keep gasoline, pesticides, and cleaning supplies out of reach of children
- Clean up oil, gasoline, and other spills immediately
- If a floor drain is present, make sure it drains to well beyond the outside of the home

10. Outside

- If the home was built before 1978, check painted doors, windows, trim, and walls for lead
- If painted walls, doors, windows, or trim may contain lead, keep children away from peeling or damaged paint and prevent children from playing around the ground next to the walls
- Remove leaves and debris from gutters regularly and extend downspouts to drain away from the house
- Replace missing or broken shingles or flashings
- Clean window wells of trash and debris
- Install and maintain fences completely around pools with openings less than 1/4 inch
- If the home was built before 1978, check hardboard siding for asbestos
- Make sure private wells are sealed and capped
- Consider testing well for pesticides, organic chemicals, and heavy metals before you use it for the first time
- Test private water supplies annually for nitrate and coliform bacteria
- Do not leave open garbage containers near the home
- Repair broken glass in windows and doors
- Seal holes in walls and around windows and doors to keep rodents and pests out of living spaces

11. General

- If the home was built before 1978, use lead-safe work practices for all renovation and repairs and test children in the home for lead exposure
- Check piping connecting the home to the water main and the piping in the home for lead (lead pipes are dull and can be scratched easily with a penny). Lead pipes are more likely to be found in homes built before 1986
- No smoking inside the home, especially with children in the same home
- Have a professional maintain yearly all gas appliances and check for carbon monoxide leaks and proper venting
- Do not use candles or incense in the home when adult supervision is not present
- Secure balcony and stair railings, and install no-slip nosings
- Replace burned-out bulbs in lights over stairs and landings
- Run a dehumidifier if indoor humidity is above 50 percent or there is condensation on windows
- Make sure all gas burning appliances, furnaces, heaters, and fireplaces ventilate to the outside
- Replace the furnace filter with a MERV 8 or higher every three months
- If mold is visible in any room, refer to mold removal guidelines from the EPA, CDC, or HUD
- Install child-proof locks on cabinets and child-proof covers on electrical outlets
- Keep water temperature at less than 120 degrees
- Keep firearms in locked safes
- Use pest management recommendations or safer alternative products before applying pesticides
- Keep all cleaning products in original containers and do not mix two products together
- Keep all hazardous products and chemicals in locked cabinets away from children.

Room by Room Checklist for a Heathy Home

To help connect the room, steps, and hazards please look for the following icons:



Lead



Pests



Indoor Air Quality



Carbon Monoxide



Asthma and Allergies



Home Safety



Radon



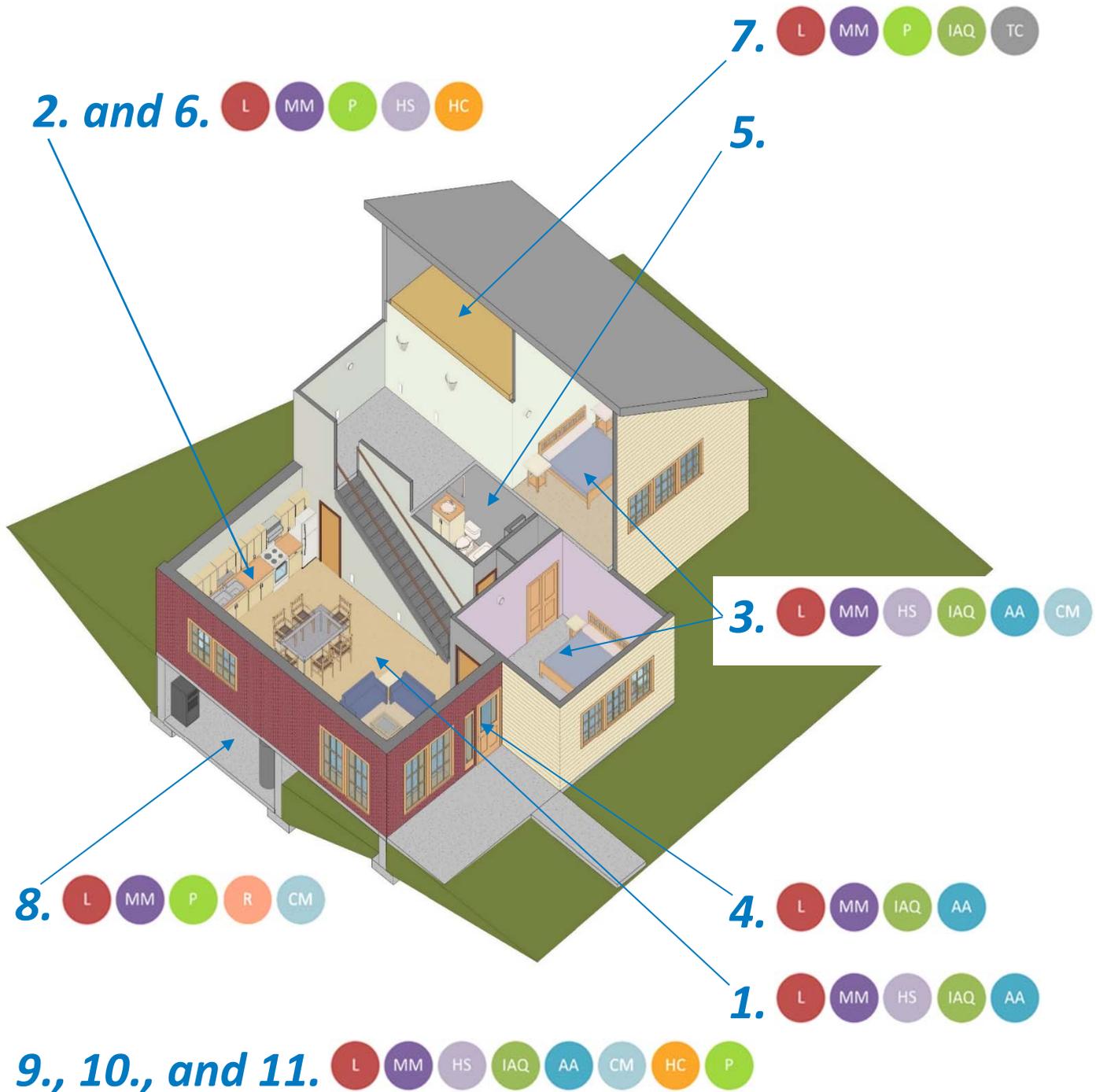
Household Chemicals



Mold and Moisture



Home Temperature Control



Resources

Persons with hearing or speech impairments may access the federal government numbers below through TTY by calling the toll-free Federal Relay Service at (800) 877-8339

General Safe and Healthy Homes Information

U.S. Department of Housing and Urban Development www.hud.gov

Office of Lead Hazard Control and Healthy Homes www.hud.gov/healthyhomes

Office of Education and Outreach, Fair Housing and Equal Opportunity www.hud.gov/fairhousing

U.S. Department of Agriculture, National Institute of Food and Agriculture www.nifa.usda.gov

Cooperative Extension Service for your state land grant university:

www.nifa.usda.gov/extension or www.eXtension.org or your telephone book

U.S. Environmental Protection Agency www.epa.gov

U.S. Centers for Disease Control and Prevention (800) CDC-INFO/(800) 232-4636 www.cdc.gov

U.S. Consumer Product Safety Commission (800) 638-2772 www.cpsc.gov

U.S. Department of Energy www.energy.gov

Local or state health department: Look in your telephone book or online

National Healthy Homes Partnership www.healthyhomespartnership.net

National Center for Healthy Housing www.nchh.org

Children's Environmental Health Network www.cehn.org

National Safety Council www.nsc.org

Pediatric Environmental Health Specialty Units www.aoec.org/pehsu.htm

Lead Poisoning

U.S. Department of Housing and Urban Development

Office of Lead Hazard Control and Healthy Homes www.hud.gov/healthyhomes and lead.regulations@HUD.gov

Environmental Protection Agency (800) 424-LEAD / (800) 424-5323 www.epa.gov/lead

Safe Drinking Water Hotline (800) 426-4791 www.epa.gov/drink

Centers for Disease Control and Prevention www.cdc.gov/nceh/lead

Asthma & Allergies

American Lung Association (800) LUNG-USA www.lungusa.org

American Cleaning Institute (202) 347-2900 www.cleaninginstitute.org

Allergy and Asthma Network: Mothers of Asthmatics (800) 878-4403 www.aanma.org

The Food Allergy and Anaphylaxis Network (800) 929-4040 www.foodallergy.org

U.S. Environmental Protection Agency www.epa.gov/asthma

Mold & Moisture

U.S. Environmental Protection Agency www.epa.gov/mold

U.S. Centers for Disease Control and Prevention www.cdc.gov/mold

Health House www.healthhouse.org

Carbon Monoxide

U.S. Centers for Disease Control and Prevention (800) CDC-INFO/(800) 232-4636 www.cdc.gov/co

U.S. Consumer Products Safety Commission (800) 638-2772 www.cpsc.gov/co

Radon

U.S. Environmental Protection Agency www.epa.gov/radon

State Radon Contacts www.epa.gov/radon/whereyoulive.html

National Radon Program Services (KSU) (800) SOS-RADON / (800) 767-7236 www.sosradon.org

Drinking Water

U.S. Environmental Protection Agency (800) 426-4791 www.epa.gov/drink

U.S. Centers for Disease Control and Prevention www.cdc.gov/healthywater/drinking

Household Chemicals

U.S. Environmental Protection Agency www.epa.gov/pesticides/regulating/labels/consumer-labeling.htm
and www.epa.gov/saferchoice

Poison Control Center (800) 222-1222

Household Products Database www.householdproducts.nlm.nih.gov

Pests

U.S. Environmental Protection Agency www.epa.gov/bedbugs and www.epa.gov/pesticides/controlling

National Pesticide Information Center (800) 858-7378 www.npic.orst.edu

Home Safety

National SAFE KIDS Campaign (202) 662-0600 www.safekids.org

National Safety Council (800) 621-7615 www.nsc.org

Temperature Control

U.S. Department of Energy www.EnergySaver.gov

Energy Information Administration www.eia.gov

U.S. Environmental Protection Agency

Indoor airPLUS www.epa.gov/indoorairplus

Mercury cleanup and disposal www.epa.gov/cfl

Energy Star www.energystar.gov

Residential Energy Services Network www.resnet.us

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Everyone Deserves a

Safe and Healthy Home



Protect the health of children and families



a consumer action guide

www.hud.gov/healthyhomes



Good health starts at your home.

Why do we care?

Everyone deserves to live in a healthy home. A home can support the health of your family as much as a healthy lifestyle and diet. It's important for people of all ages to know how to make their home safe and healthy for their own health concerns. It is always worth taking the time to make the place you call home a healthier and safer place to live. Here are some simple steps to get you started!

How can I have a Healthy Home?

- ✓ **Keep it DRY**
Damp homes provide an environment for dust mites, roaches, rodents and molds. All of these can cause or worsen asthma. In addition, moisture can damage the building materials in your home.
- ✓ **Keep it CLEAN**
Clean homes reduce pest infestation and exposures to contaminants.
- ✓ **Keep it WELL MAINTAINED**
Poorly maintained homes are at risk for moisture, pest problems, and injury hazards. Deteriorated lead-based paint is the primary cause of children being harmed by lead.
- ✓ **Keep it WELL VENTILATED**
Having a good fresh air supply to your home is important to reduce exposure to indoor air pollutants and to increase respiratory health.
- ✓ **Keep it TEMPERATURE CONTROLLED**
Homes that do not have balanced and consistent temperatures may place your family at increased risk from exposure to extreme cold, heat, or humidity.
- ✓ **Keep it CONTAMINANT FREE**
Levels of contaminants such as lead, radon, carbon monoxide, asbestos, secondhand smoke, and other chemicals are often much higher indoors.
- ✓ **Keep it PEST FREE**
Exposure to pests such as roaches and rodents can trigger an asthma attack.
- ✓ **Keep it SAFE**
Injuries such as falls, burns, and poisonings occur most often in the home, especially with children and seniors.

Learn as much as you can about home health and safety, and get your family involved.

Healthy Homes Basics App



- Download the app to learn more: <https://itunes.apple.com> or <https://play.google.com/store>
- Connect to resources you need
- Take quizzes to test your awareness
- Check each room in your house





Lead

Hazard Lead poisoning is one of the biggest health risks for young children at home.

Health Effects Lead can permanently damage your nervous system, including your brain. It can cause permanent learning and behavior problems in children. It can also permanently affect your hearing.

Source Before 1978, lead was used in paint, water pipes, gasoline, pottery, consumer goods and objects. Lead is no longer used in house paint, but a lot of older homes still have lead paint and lead in water pipes, or in old materials that contain lead.

When in doubt, check it out: www.hud.gov/lead and www.hud.gov/healthyhomes or call (800) 424 - LEAD

- Test your drinking water, paint, and soil around your house (use a certified lead risk assessor)
 - Run water for 30 seconds to 2 minutes before drinking it, especially if you have not used your water for a few hours
 - Regularly clean the screen in your faucet (also known as an aerator)
- Have your children tested for lead
- If your home has lead paint, or your drinking water contains lead:
 - Have your children wash their hands and face often, especially before eating
 - Clean floors and surfaces with a wet mop and cloths
 - Do not remodel, renovate, or repair without learning about lead-safe practices
 - Keep children away from areas where there is flaking or chipped paint
 - If you use a vacuum, use one with a HEPA filter
 - Use cold water for cooking and install a water filter certified to remove lead
 - Remove shoes before entering your house



Asthma and Allergies

Hazard Asthma is a lung disease. More than 7 million children in the United States have asthma. Another 40 to 50 million people have allergies. An allergy is an unusual reaction to something.

Health Effects Asthma makes it hard to breathe. If you have asthma, your chest often feels tight, your breathing sounds raspy, and you are wheezing and coughing. Allergies can make you have a runny nose, watery eyes and sneezing. Allergies can also affect your skin with a rash or itching.

Source There are many items in the home environment that can cause asthma attacks, and they are called “triggers.” An example of a trigger is pollen from trees and flowers. Other triggers come from chemicals, dogs and cats, cockroaches, mice, mold, and cigarette smoke. Some of these triggers are very small - dust mites are tiny “bugs” that you can’t see and they live everywhere - in carpets, bedding, furniture, and stuffed animals.

When in doubt, check it out: www.hud.gov/healthyhomes and www.epa.gov/asthma

- Wash bedding in hot water and detergent every week
- Use the highest dryer heat the clothing care label recommends and make sure the clothing is dry
- Use a zippered mattress and pillow covers
- Use a good (MERV 8 or higher) filter for your furnace and replace it every three months
- Don’t allow anyone to smoke inside your home or car
- HEPA Vacuum and dust your home with a damp, disposable cloth regularly
- Keep pets away from bedrooms and off of furniture
- Clean pet beds and litter boxes frequently
- Avoid air fresheners, incense, and candles
- Ask your doctor about a home assessment to find and control asthma triggers in your home
- Use a dehumidifier in damp or humid areas of your home



Mold and Moisture

Hazard Molds are part of nature, but inside your home mold growth should be avoided. Mold spreads in tiny spores and the spores are invisible to your eyes. The spores float through the indoor air of your home. Mold may begin growing indoors, and be seen when these mold spores land on surfaces that are wet or in rooms that are humid. Damp and humid areas of your home can also be a hazard, even without mold.

Health Effects Many people are allergic or sensitive to mold. If you have allergy problems or asthma at home, but not when you're away, you may have mold growing in your home. If you have mold in your home, you may have trouble breathing, or have wheezing, runny nose, headaches, itching, or

watery eyes. Damp or humid areas of your home can also cause these symptoms in people with asthma.

Source Mold is usually found in areas of high humidity (kitchen, bathroom) or moisture (roof and pipe leaks). Mold can grow on walls, clothes or appliances. It also grows in hidden places like behind walls, in attics, and under carpet. Mold can smell musty. A musty odor sometimes means mold is alive and growing.

When in doubt, check it out: www.hud.gov/healthyhomes and www.epa.gov/mold and www.cdc.gov/mold

- Keep the humidity in your home less than 50 percent. Use a dehumidifier if your home is too humid
- Install and use exhaust fans in bathrooms and kitchens
- Clean up water and puddles from leaking pipes, ceilings or walls, and fix leaks right away
- Make sure your dryer vents to the outside
- Keep gutters and downspouts free of leaves and clogs
- If you have mold that you can see:
 - Identify the water source or leak and fix the problem first
 - Throw away any cardboard, carpeting, insulation, foam padding, or fabrics if they have been wet for more than 2 or 3 days or if they have mold
 - Remove small areas of mold using the steps listed at www.epa.gov/mold or www.cdc.gov/mold, otherwise consult a professional



Radon

Hazard Radon comes from the natural radioactive breakdown of uranium and other radioactive elements in soil, rock, and water and can get into the air you breathe. Radon is estimated to cause thousands of deaths each year.

Health Effects When you breathe air containing radon, you can get lung cancer. The Surgeon General has warned that radon is the second leading cause of lung cancer in the United States. Smokers have a higher risk from the impacts of radon.

Source Radon typically moves up through the ground to the indoor air in your home through cracks and other holes in the foundation, basement, or crawl space. Your home traps radon inside, where it can build up. Testing is the only

way to know if you and your family are at risk from radon. Some areas of the country have higher levels of radon than others.

When in doubt, check it out: www.hud.gov/healthyhomes and www.epa.gov/radon or call (800) SOS-RADON

- Have your home tested for radon
- If your home tests high for radon (a reading of 4 or higher), consult with a licensed radon professional or state radon office to learn about options for making your home safer



Household Chemicals

Hazard A hazardous household chemical is a product you use around the house that can be harmful or poisonous if not used properly. Accidents can happen if products are misused, stored or disposed in the wrong way.

Health Effects Some hazardous products burn you or poison you through your skin if you touch them. Other products poison you when you breathe them. You might feel sick to your stomach, dizzy, or your eyes might water, sting or hurt. Common reactions are also headaches or a stuffy nose.

Source Examples of hazardous household chemicals include cleaning supplies, pesticides, fertilizers, polishes, glues, batteries, paint, mercury thermometers, oil, and gasoline.

When in doubt, check it out: www.householdproducts.nlm.nih.gov/ and www.hud.gov/healthyhomes

- Use safer (non-toxic) cleaning products
- Always keep household chemicals in their original containers and stored out of reach of children
- Follow the instructions on the label including wearing proper clothing and protection such as eye goggles and gloves
- Do not mix bleach and ammonia products
- Do not eat, drink, or smoke when using household chemicals
- Dispose of household chemicals safely by taking them to a hazardous waste collection site
- Do not mix chemicals or products unless the label says it is safe



Pests

Hazard Pests are unwanted living things in or around your home and include bugs or rodents that get inside. Pests may also include bed bugs which are tiny insects that feed on the blood of humans and animals.

Health Effects Inside your home, mice, rats and cockroaches may trigger asthma attacks. Insects and rodents can also get into your food. Mice and rats can chew on electrical wires and cause fires. Bites of rat, fleas, ticks and certain spiders can make your family ill. Some pests and bugs spread diseases.

Source Pests travel into your home from outdoors or other places and they are looking for places with food, water and shelter. Pests often enter your home through gaps or openings in walls, doors or windows, but can also be carried inside by pets.

When in doubt, check it out: www.hud.gov/healthyhomes and www.epa.gov/safepestcontrol

- Store food (including pet food) in tightly sealed containers
- Clean up after cooking and eating
- Seal up cracks around exterior doors, window, pipes, and other holes to the outside
- Do not let trash and clutter collect inside. Keep trash cans covered with lids
- Avoid the use of bug bombs - use closed baits, traps, or gels instead
- If you do use pesticides, read and follow the label carefully
- Fix water leaks and spills as soon as possible
- Install animal-proof screens in vents in attics and crawl spaces
- Clean up your yard. Keep mulch, garden debris, and litter away from the foundation of your home



Carbon Monoxide

Hazard Carbon monoxide (CO) is a dangerous gas and it is not safe to breathe. You can't see, taste, or smell it. You should always have a CO alarm in your home.

Health Effects If you are exposed to CO, you might get headaches, upset stomach, vomiting, dizziness, weakness, or confusion. Severe cases can cause brain damage, blindness, deafness, heart problems, or death. Exposure to CO can be a major threat to you and your family's health.

Source Fuel burning appliances and automobiles are the main source of carbon monoxide in your home. They use natural gas, gasoline, kerosene, coal, propane, oil, or wood. CO can be produced if fuel burning appliances aren't vented to the outside or are not working correctly.

When in doubt, check it out: www.hud.gov/healthyhomes and www.cdc.gov/co/

- Have a professional check your furnace, water heater, gas appliances, flues, chimneys and fireplaces each year for carbon monoxide leaks
- Install a carbon monoxide alarm on each floor near bedrooms and check the batteries twice a year!
- Always have the garage door open when a car is running inside
- Do not use your oven or stove to heat your house
- Never use grills, generators, engines, lawnmowers, or other yard equipment indoors
- Avoid the use of portable heaters that burn fuel
- If you have to use a portable heater that burns fuel, always have it vented to the outside
- If your carbon monoxide detector goes off, leave your home immediately and call the fire department!



Home Safety

Hazard Your chances of getting hurt at home are much higher than at work or school. Very young children and older adults are the most likely to get hurt. Home safety includes reducing the opportunity for falls, poisonings, burns, and other injuries in your home.

Health Effects Young children can get into everyday things that can poison them and get into places in your home that can injure them. Older adults are more likely to be victims of falls, and the resulting injuries can affect their ability to lead an active and independent life. Fire and burns are a danger to all family members.

Source The leading causes of death and injury in homes are from falls, poisoning, fires or burns, blocked airway (choking), drowning, and weapons.

When in doubt, check it out: www.hud.gov/healthyhomes and www.cdc.gov/homeandrecreationalafety/

- Store all medicines, cleaning supplies, matches, firearms, and poisons in locked cabinets and away from children
- Keep the Poison Control Hotline (800) 222-1222 near phones and on mobile phones
- Keep floors clear of electrical cords and clutter
- Install smoke detectors on each floor and near all bedrooms
- Set your hot water heater to 120 degrees or less
- Use non-slip mats around showers and bathtubs
- Fix loose stairs and handrails
- Use cordless blinds or tie cords out of reach of children
- Talk to children about staying away from hot stoves and ovens
- Secure furniture such as bookcases and entertainment centers to walls to prevent tipping injuries
- Keep a flashlight near your bed for when the power goes out



Asbestos

Hazard Asbestos fibers are dangerous if they get into the air and you breathe them in. The fibers get into the air when materials containing asbestos are damaged or disturbed.

Health Effects Asbestos can cause serious long term health problems including lung disease and cancer. Smokers have a higher risk from asbestos exposure. Other health hazards may include mesothelioma and asbestosis. These health hazards can take many years to develop.

Source Asbestos was commonly used in homes in the past to insulate pipes and attics. Asbestos was also used for roofing, siding, floor tiles, fireproofing, and spray-on textures for walls and ceilings.

When in doubt, check it out: www.hud.gov/healthyhomes and www.epa.gov/asbestos

- If your home was built before 1978 and you are planning on renovating or remodeling your home, consult with a licensed asbestos removal professional or state health office to learn about testing your home
- If your home has asbestos materials, do not remove or damage the materials. Consult with a licensed asbestos removal professional or state health office to learn about your options for reducing your exposure
- In areas with damaged asbestos, keep activities to a minimum and keep children out of those areas.



Home Temperature Control

Hazard A healthy home has comfortable temperature and humidity levels. Older homes were constructed with materials and methods that are not very energy-efficient and can let heat escape in the winter and cool air escape in the summer.

Health Effects Homes that do not have comfortable temperatures may place your family at increased risk from exposure to extreme cold and heat. High temperature and humidity in a home can make asthma, mold, and other indoor pollution worse, as well as general discomfort for your family. Cold or hot conditions in the home can be especially dangerous for seniors and people with chronic illnesses. Homes that are not energy-efficient will make monthly

utility bills (gas, electric, propane) higher.

Source Homes with temperature and humidity control problems are often drafty, have no or little insulation in walls and attics, and have heating or cooling systems that need repair or maintenance.

When in doubt, check it out: www.energy.gov/energysaver and www.energystar.gov

- Have the heating and air conditioning systems serviced yearly by a qualified professional
- Clean or change the air filters when they are dirty (usually every 3 months). Homes with pets or smokers should change their filters more often
- Consider having a home energy audit from your utility company or a local housing agency
- Find temporary shelter for elderly or ill family members, neighbors, or friends during extended periods of hot or cold indoor temperatures, if they are living in homes without good heating or cooling

Indoor Air Quality in Your Home

It is not always easy to tell if your home has good indoor air quality. There can be particles or gas (called contaminants) in the air that make the air bad for your health. Family members can be sensitive to one or many contaminants in the air.



The air inside your home can actually be worse for your family's health than the air outdoors. The amount of contaminants trapped in the air circulating inside your home could make some people feel sick. Most people spend more than half of their lives inside their homes. That's why indoor air quality is so important. You might notice bad smells or see smoke, but there are other dangers like carbon monoxide and radon that you can't see or smell in the air that are also dangerous for your family to be breathing in. People with heart or lung disease such as asthma may be more sensitive to these contaminants.

Ready, Set, GO!

- Download the [Healthy Home Basics App](#) from the Google Play or iTunes store
- Complete the [Room by Room Checklist](#) below to address hazards in your home today!
- Find your local health department to seek services for your family's health or inquire about environmental testing in your home and community.
Visit <http://www.naccho.org/resources/lhd-directory>
- Find out if there is a Lead Based Paint Hazard Control Program near you or find a licensed lead based paint professional to assess or complete lead based paint work on your home if it was built before 1978.
Visit <https://cfpub.epa.gov/flpp/pub/index.cfm?do=main.firmSearch>
- Contact the National Lead Information Center (NLIC) to talk to professionals about available materials and common questions: (800) 424 – LEAD and www.epa.gov/lead
- Visit these websites to find more information about health and housing and how it impacts your family:

U.S. Department of Housing and Urban Development www.hud.gov

Office of Lead Hazard Control and Healthy Homes www.hud.gov/healthyhomes

U.S. Department of Agriculture, National Institute of Food and Agriculture www.nifa.usda.gov

Cooperative Extension Service for your state land grant university:

www.nifa.usda.gov/extension or www.eXtension.org or your telephone book

U.S. Environmental Protection Agency www.epa.gov

U.S. Centers for Disease Control and Prevention (800) CDC - INFO / (800) 232 - 4636 www.cdc.gov

U.S. Consumer Product Safety Commission (800) 638 - 2772 www.cpsc.gov

National Healthy Homes Partnership www.healthyhomespartnership.net

National Center for Healthy Housing www.nchh.org

Children's Environmental Health Network www.cehn.org

National Safety Council www.nsc.org

Pediatric Environmental Health Specialty Units www.aoec.org/pehsu.htm

American Lung Association (800) LUNGUSA www.lung.org

Household Products Database www.householdproducts.nlm.nih.gov

National Pesticide Information Center (800) 858 - 7378 www.npic.orst.edu

National SAFE KIDS Campaign (202) 662 - 0600 www.safekids.org

National Safety Council (800) 621 - 7615 www.nsc.org

Room by Room Checklist for a Healthy Home

Take the first step! This checklist is a great way to start learning more about the conditions in your home that could be impacting your health and safety. You don't have to be an expert or a professional to complete this list. For more information on this material and recommended actions please visit:

www.hud.gov/healthyhomes or download the Healthy Homes Basics App to have a resource at your fingertips whenever you are ready.

1. Living, Dining, and Family Rooms

- If your home was built before 1978, check painted doors, windows, trim, and walls for lead
- Vacuum carpets regularly to reduce asthma triggers
- Move blind cords out of reach of children to prevent strangulation
- Check lighting and extension cords for fraying or bare wires
- Avoid having lighting and extension cords in floor pathways
- Purchase children's toys that do not have small parts for choking and do not contain lead
- Secure heavy items (televisions, bookcases) to walls to prevent tip overs

2. Kitchen

- If your home was built before 1978, check painted doors, windows, trim, and walls for lead
- Use a range hood exhausted to the outside (or open window) to ventilate while cooking
- Clean up liquids and foods right after spills
- Keep matches, glassware, knives, and cleaning supplies out of reach of children
- Avoid leaving food and water out overnight
- Mop floors weekly
- Place Poison Control Hotline number **(800) 222 – 1222** on the refrigerator and in every room
- Do not allow children to be in kitchen unsupervised when the range or oven is on

3. Bedroom(s)

- If your home was built before 1978, check painted doors, windows, trim, and walls for lead
- Move blind cords out of reach to prevent strangulation
- Make sure room has a working smoke detector
- Make sure the hall outside of bedrooms has a working carbon monoxide detector
- Use mattress and pillow covers, and vacuum carpets regularly to reduce asthma triggers

4. Entry

- Use floor mats by entry doors to reduce bringing in lead dust and other toxins into the home
- Remove shoes at entry if lead is present in the soil or paint
- Repair or install weather seals around the perimeter of doors

5. Bathrooms

- If your home was built before 1978, check painted doors, windows, trim, and walls for lead
- Use an exhaust fan to ventilate after shower or bath use
- Use slip resistant mats in showers and tubs
- Clean up water from floors right after spills
- Keep medicines and cleaning supplies locked away and out of reach of children
- If an older adult or someone with mobility or balance concerns is present in the home, install grab bars at toilets, showers, and tubs

6. Laundry

- Vent clothes dryer to the outside (through roof or wall, not into the attic)
- Keep laundry soaps and detergents out of reach of children
- Wash sheets and blankets weekly to reduce asthma triggers
- Regularly remove lint from dryer screen

7. Attic

- Clean up clutter to prevent rodents and insects from finding places to nest
- Check exposed attic insulation for asbestos and consult with an asbestos professional for removal
- Make sure eave and roof vents are not blocked with insulation

8. Basement (or Crawlpace)

- If your home was built before 1978, check painted doors, windows, trim, and walls for lead
- Check if the pipe that connects your home to the water main (the service line) is made from lead
- Seal holes in walls and around windows and doors to keep rodents and pests out of living spaces
- Clean up clutter to prevent rodents and insects from finding places to nest
- Test the home for radon. If test shows radon above EPA recommended levels, seal slab and foundation wall cracks, and if the problem persists, consider installing a radon mitigation system
- Keep pesticides and cleaning supplies locked away and out of reach of children
- Seal all cracks in slabs and foundation walls for moisture, radon, and pest protection

9. Garage

- Never run lawnmowers, cars, or combustion equipment inside the garage with garage door closed
- Keep gasoline, pesticides, and cleaning supplies out of reach of children.
- Clean up oil, gasoline, and other spills immediately
- If a floor drain is present, make sure it drains to well beyond the outside of the home

10. Outside

- If your home was built before 1978, check painted doors, windows, trim, and walls for lead
- If painted walls, doors, windows, or trim contain lead, keep children away from peeling or damaged paint and prevent children from playing around the ground next to the walls
- Remove leaves and debris from gutters regularly and extend downspouts to drain away from the house
- Replace missing or broken shingles or flashings
- Clean window wells of trash and debris
- Install and maintain fences completely around pools with openings less than 1/4 inch
- If your home was built before 1978, check hardboard siding for asbestos
- Make sure private wells are sealed and capped.
- Consider testing your well for pesticides, organic chemicals, and heavy metals before you use it for the first time.
- Test private water supplies annually for nitrate and coliform bacteria to detect contaminations problems early
- Do not leave open garbage containers near the home
- Repair broken glass in windows and doors.
- Seal holes in walls and around windows and doors to keep rodents and pests out of living spaces

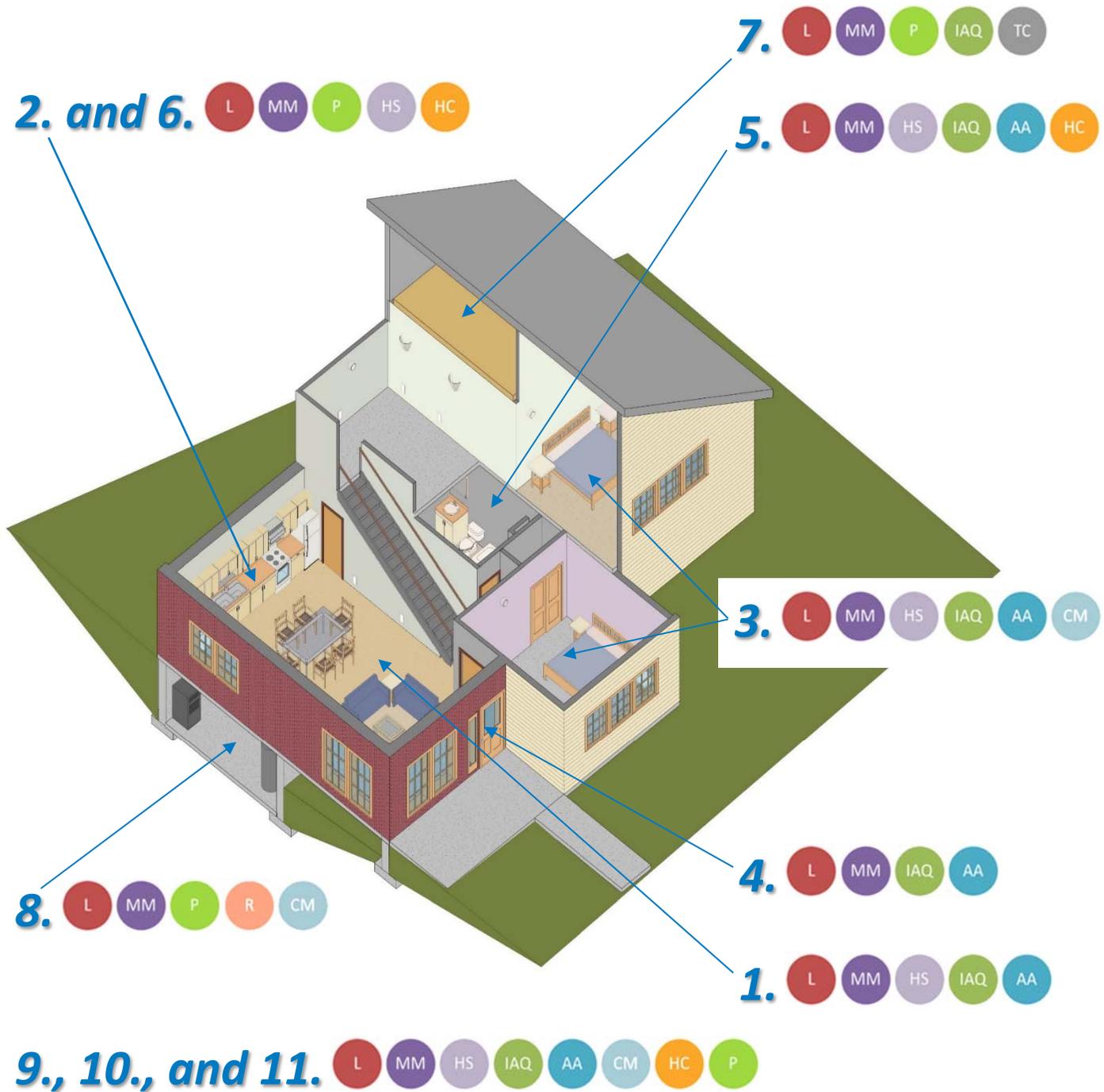
11. General

- If your home was built before 1978, use lead-safe work practices for all renovation and repairs and test children in the home for lead exposure
- Check piping connecting your home to the water main and the piping in your home for lead (lead pipes are dull and can be scratched easily with a penny). Lead pipes are more likely to be found in homes built before 1986
- No smoking inside the home, especially with children in the same home
- Have a professional maintain yearly all gas appliances and check for carbon monoxide leaks and proper venting
- Do not use candles or incense in the home when adult supervision is not present
- Secure balcony and stair railings, and install no-slip nosings
- Replace burned-out bulbs in lights over stairs and landings
- Run a dehumidifier if indoor humidity is above 50 percent or you see condensation on windows
- Make sure all gas burning appliances, furnaces, heaters, and fireplaces ventilate to the outside
- Replace the furnace filter with a MERV 8 or better every three months
- If mold is visible in any room, refer to mold removal guidelines from the EPA, CDC, or HUD
- Install child-proof locks on cabinets and child-proof covers on electrical outlets
- Keep water temperature at less than 120 degrees
- Keep firearms in locked safes
- Use pest management recommendations or safer alternative products before applying pesticides
- Keep all cleaning products in original containers and do not mix two products together

Room by Room Checklist for a Heathy Home

To help you connect the room, steps, and hazards please look for the following icons:

- | | |
|--|--|
|  Lead |  Pests |
|  Indoor Air Quality |  Carbon Monoxide |
|  Asthma and Allergies |  Home Safety |
|  Radon |  Household Chemicals |
|  Mold and Moisture |  Home Temperature Control |



Good health starts at your home

For more information on how you can have a Healthy Home, go to www.hud.gov/healthyhomes or the Healthy Homes Partnership website at www.healthyhomespartnership.net and visit us on Facebook, Twitter, Pinterest, and YouTube.



United States Department of Agriculture
National Institute of Food and Agriculture



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Help Yourself to a Healthy Home



Protect Your Children's Health



**U.S. Department of
Housing and Urban
Development**

- Indoor Air Quality
- Asthma & Allergies
- Mold & Moisture

- Carbon Monoxide
- Lead
- Drinking Water

- Hazardous Household Products
- Pesticides
- Home Safety



Office of Healthy Homes and Lead
Hazard Control
451 Seventh St., SW, Room 8236
Washington, DC 20410
(202)-755-1785

www.hud.gov/offices/healthyhomes

www.reeusda.gov

www.uwex.edu/healthyhome



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www.uwex.edu/healthyhome/

Help Yourself to a *Healthy Home*

You want to take good care of your family. You try to eat healthy foods. You take your children to the doctor for regular checkups. You try your best to protect your family from accidents and illness. You want to live in a safe neighborhood and home.

But did you know your home might have hidden dangers to your children's health? Ask yourself:

- Is the air in your home clean and healthy?
- Do your children have breathing problems, like asthma?
- Is someone in your home allergic to mold?
- Do you know the signs of carbon monoxide poisoning?
- Is there lead anywhere in your home?
- Is your tap water safe to drink?
- Do you have household products with chemicals in them that can make you sick?
- Do you use bug spray or other products to keep away pests?
- Do you keep poisons where your children can reach them?

The answers to questions like these will help you learn if your home is safe and healthy. This booklet will make it easier to answer these and other important questions about your home and how you live in it. It will also give you ideas about how to protect your children's health. It is up to you to make sure your home is a healthy home, but there are lots of places to go for help.

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Why *Should You* Be Concerned?

Some of the most serious health problems for children may start at home. This booklet explains some of these health concerns and what you can do about them.

Most people spend over 90% of their time indoors.

Indoor Air Quality

Is the air in your home healthy? The air inside can be more harmful to your family's health than the air outdoors. Air can be unhealthy if it has too many pollutants. Indoor air pollutants can be lots of things—from oven cleaner to cigarette smoke to mold. It is not always easy to tell if your home has unhealthy air. You may notice bad smells or see smoke, but

you cannot see or smell other dangers, like carbon monoxide or radon. This chapter will help you learn if your home has healthy air. *See page 6.*

The number of children with asthma has doubled in the past 10 years.

1 in 15 children under 18 years of age has asthma.

Asthma & Allergies

Allergies and asthma are health problems that have a lot to do with the air you breathe. You and your children spend a lot of time at home, so the air inside needs to be clean. Does someone you live with smoke? Do you have

pets? Is your basement damp? These may cause or add to breathing problems. *To learn more about asthma and allergies, see page 11.*

Mold & Moisture

Other health and safety problems may come from the air in your home too. Too much dampness causes mold to grow. Some mold

is very harmful and some can make allergies or asthma worse. *See page 17 to find out more about mold.*

Carbon Monoxide

If they are not working right, ovens and heaters may cause a deadly gas called *carbon monoxide* to build up inside your home. You cannot see or smell this danger, but you can help keep your

loved ones safe from carbon monoxide poisoning. *See page 23 to learn more about how to protect your family from carbon monoxide.*

Lead

Can your children be poisoned by lead in your home? Some house paint and water pipes contain lead. This metal can poison your children. Most problems with lead come from old paint or lead dust. Lead was also in gasoline and got into the soil and air from car exhaust. It's not used in these ways any more. There's still plenty of lead around though.

Lead can poison your children if they get it into their mouths or breathe it in from the air. If a pregnant woman gets lead in her body, it can harm her unborn baby.

Lead poisoning can be a serious problem for young children. It can cause problems with learning, growth, and behavior that last a lifetime.

Even small amounts of lead can harm children. *Turn to page 29 to find out about lead poisoning in your home.*



1 in 40 American children has too much lead in his/her body.

Drinking Water

Is your drinking water safe? Do you know where your drinking water comes from? If it comes from your own well, you need to make sure it is safe to drink. Have your water tested every year to make sure it does not have chemicals or other pollutants in it that can make your family sick. There are things you can do to take care of your well and keep the water clean. *See page 35 for ideas.*

You may get your drinking water from a water company or utility. They always test the

water before they pipe it to you to make sure it is safe. You can ask the company or utility for a report on what the tests found. Even if it is o.k. at the water utility, water can still become unsafe after it comes into your home. *Look at page 33 to see if your water is safe to drink.*

95% of people living in rural areas use private wells for their drinking water.

Hazardous Household Products

What harmful products do you have in your home? Some products can harm your family's health if you do not use them in the right way. Common chemicals like bleach, rat poison, paint strippers, and drain cleaners can be dangerous. Children can poison themselves if they get into products like these. Even very small amounts of some chemicals can cause health problems if you touch them or breathe them in. Remember—if you spray or pump

something, it goes right into the air. When you and your family breathe, those chemicals go into your bodies. *See page 38 to learn more about how to use, store, and dispose of household products.*

Thousands of children die each year from chemicals stored and used improperly in the home.

Pesticides

Do you use pesticides in your home? Almost every household uses *pesticides*. Bug spray, flea powder, rat poison, and garden weed killer are all types of pesticides. They have chemicals in them that kill pests. This also means they may harm you and your family. If you do not use them safely, some pesticides may cause serious health problems—poisoning, birth defects, nerve damage, and even cancer.

Your children can come into contact with pesticides in many ways. You can take simple steps to protect them from pesticides. *See page 42 to see if you are using pesticides safely!*

Nearly one-half of households with a child under age five had pesticides stored within reach of children.

Home Safety

Did you know that your chances of getting hurt at home are much higher than they are at work or school? The leading causes of death in the home are falls, drowning, fires, poisoning, suffocation, choking, and guns. Very young children and older adults are the people most likely to get hurt at home. It's important to keep people's age in mind when thinking

about home safety.

Look at page 48 to find out if your home is a safe place to live and how to make it even safer.

Each year, accidents in the home hurt over six and a half million people.

Why *Focus on* Children?

Everyone needs a healthy home. But there are special reasons to think about children:

- Children's bodies are still growing. Their young brains, livers, and other organs are more likely to be harmed by chemicals and other dangers than those of adults. If children get sick, it may be harder for them to get well because their immune systems are still developing.
- For their size, children eat more food, drink more water, and breathe more air than adults do. When they get lead in their bodies or breathe in harmful gases, they get a bigger dose than adults would.
- Children play and crawl on the ground. That means they are closer to many things that might cause health problems, like dust and chemicals. Babies and young children also put most everything in their mouths—things that might have chemicals or lead dust on them.



Children depend on adults to make their homes safe!

How to use this booklet...

This booklet asks questions about your home and how you live in it. By answering them, you can find out if your home is healthy or if you need to make some changes.

There are nine chapters in this booklet. Every chapter gives information about a topic, asks questions about it, and gives you simple Action Steps to protect your children's health. At the end of each chapter, you will find out where to get more help.

It's up to you—***Help Yourself to a Healthy Home!***

Indoor Air Quality

Should You Be Concerned?

Most people spend at least half of their lives inside their homes. The air inside can be more harmful to your family's health than the air outdoors. Is the air in your home safe to breathe?

It is not always easy to tell if your home has poor air quality. You may notice bad smells or see smoke, but you cannot see or smell other dangers, like carbon monoxide or radon. This chapter and those on asthma and allergies, mold, and carbon monoxide will help you ask the right questions to find out if the air inside your home is healthy and safe. They will also give you ideas about how to fix any problems you might find.

The air in your home can be unhealthy if it has too many pollutants in it. To cut down on indoor air pollution, learn where it comes from. Take good care of your home to keep it healthy!

Children can spend up to 90% of their time indoors. For their size, children breathe up to twice as much air as adults. That means children are at greater risk for health problems that come from indoor air pollution.

Asthma and Allergies

If someone in your home has health problems or is ill, polluted indoor air can make them feel worse. For example, asthma is a lung disease that affects a growing number of children. Indoor air pollution can make it worse. Insects and other pests can also be a real problem for people with asthma or allergies. For example, cockroach and dust mite droppings cause asthma attacks in some people. Pesticides can help fight these pests but they can be dangerous. See page 44 for more information about using bug spray and other pesticides safely. *See page 11 to find out about making your home healthier for people with asthma or allergies.*

Mold

Mold grows in wet or damp places. It often smells musty. Many people are allergic to mold. Some kinds of mold are toxic, and coming into contact with large amounts of mold may cause health problems. Talk to a doctor if you think mold is causing health problems for you or your family. *See page 17 to learn more about how to control mold in your home.*

Carbon Monoxide

Carbon monoxide is a deadly gas that can come from appliances that burn gas, oil, coal, or wood, and are not working as they should. Car exhaust also has carbon monoxide. You cannot see, taste or smell carbon monoxide. *See page 23 for more information on how to protect your family from carbon monoxide poisoning.*

Other Indoor Air Problems

Radon is another gas. It can get into some homes from the ground below them. You cannot see, taste, or smell radon. Radon is found all over the United States. Radon can cause lung cancer. In fact, it is the second leading cause of lung cancer in the U.S. If you smoke and your home has high levels of radon, your risk of lung cancer is especially high.

Indoor Air Quality

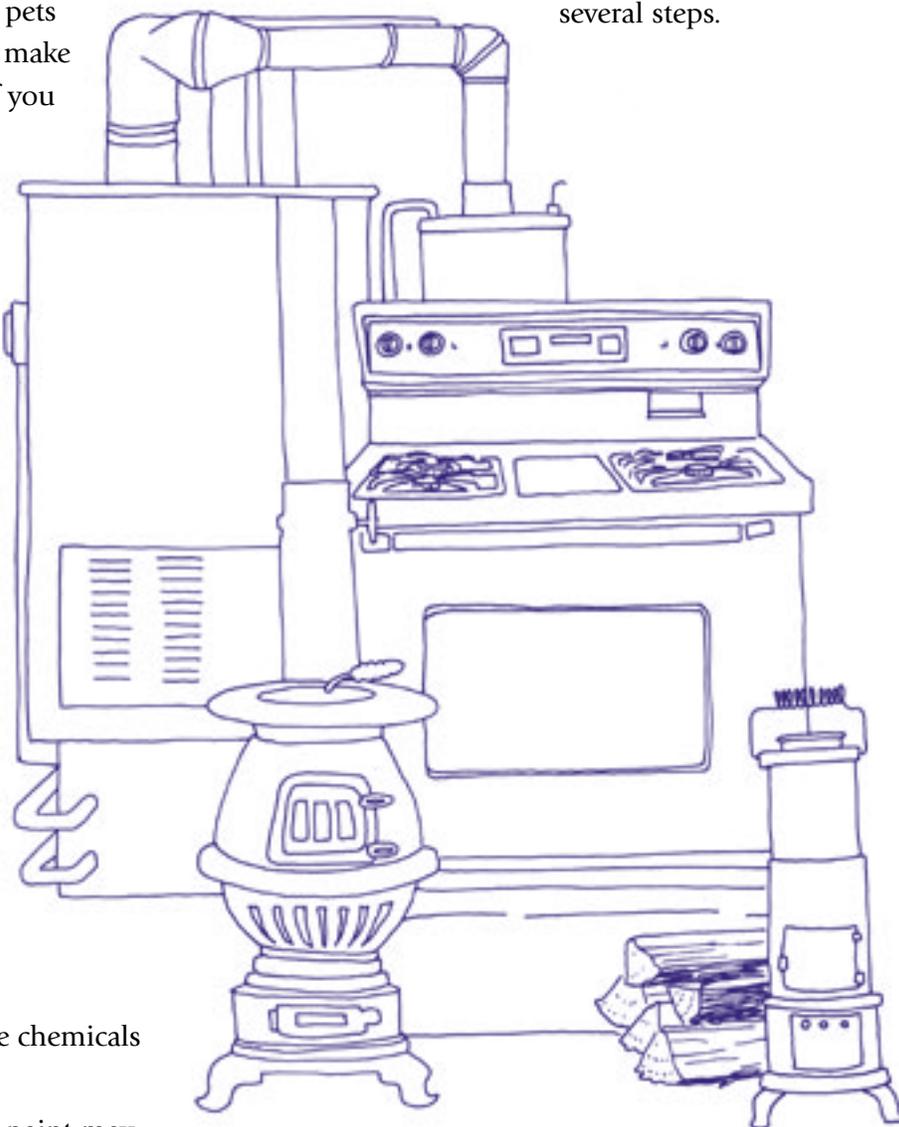
Sometimes indoor air pollution comes from what people do in their home.

- Tobacco smoking causes cancer and other major health problems. It's unsafe for children to be around smokers. ***Second-hand*** or ***environmental tobacco smoke*** can raise children's risk of ear infections and breathing problems. It can trigger asthma attacks, too.
- Many families have pets. However, furry pets cause problems for some people. Pets can make asthma and allergies act up, especially if you keep them in sleeping areas.
- Hobbies and home projects sometimes involve sanding, painting, welding, or using ***solvent chemicals***, like varnish or paint strippers. (A solvent is a chemical that can dissolve something else. Solvents are usually liquid.) Home projects can pollute the air with dust or harmful chemicals.

Sometimes indoor air pollution comes from what people have in their homes.

- Some household products, especially those with solvents, can pollute the air if you don't use them in the right way. *See page 38 for more information about household products*
- New furniture, carpets, and building products may give off chemicals that were used in their making. Some of these chemicals can harm people, especially children.
- If your home was built before 1978, the paint may have lead in it. Lead is very dangerous for young children. *See page 29 to learn about protecting your children from lead poisoning*

There are simple, but important steps you can take to find out what is causing poor air quality. The questions on the next page can help you find problems around your home. *Page 9 will give you ideas of what to do.* Look at the chapters on asthma and allergies, mold, and carbon monoxide to learn more about indoor air problems. Remember, making your home a safer, healthier place to live may mean taking several steps.



Combustion appliances are one possible source of air pollution.

Indoor Air Quality

Questions to Ask

Your Family's Health

- Does anyone in your family have asthma or allergies?
- Does a family member notice burning eyes, coughing, or sneezing that happens most often while at home?
- Does anyone in your home have chronic bronchitis or another lung disease?



Radon

- Have you ever tested your home for radon?
- Do any of your neighbors have problems with radon gas? If so, you might also have a radon problem.

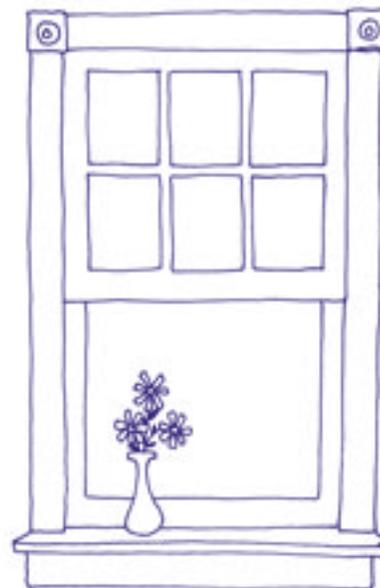
Living in a Healthy Home

- Do some areas in your home smell damp or musty?
- Have you seen cockroaches in your home?
- Do you know how to safely run and take care of your fuel-burning appliances?
- Do you allow smoking in your home?
- Do you have furry pets in your home? In the bedrooms?
- Do you read the label on household products, and follow the directions for using them safely?

- Do you open windows or turn on fans when doing hobbies or projects that make dust or odors?
- Do you try to do dusty or smelly projects outdoors?
- Do you choose furniture, carpet, and building products that are made with non-toxic chemicals and materials?

These are sometimes called *green building products*.

- Does your home ever smell musty, damp, smoky, or like chemicals?
- Does your home seem stuffy or stale? Can you smell cooking odors the next day?
- Do your bathroom and kitchen have exhaust fans—do you use them?



ACTION STEPS

Be sure to check the Action Steps in the chapters on asthma and allergies, mold, and carbon monoxide. You will find good suggestions for cutting down on pollution in your home and making the air healthier.

Test Your Home for Radon

You can buy low cost radon test kits at hardware or home supply stores. Or call your local or state health department for more information.

Living in a Healthy Home

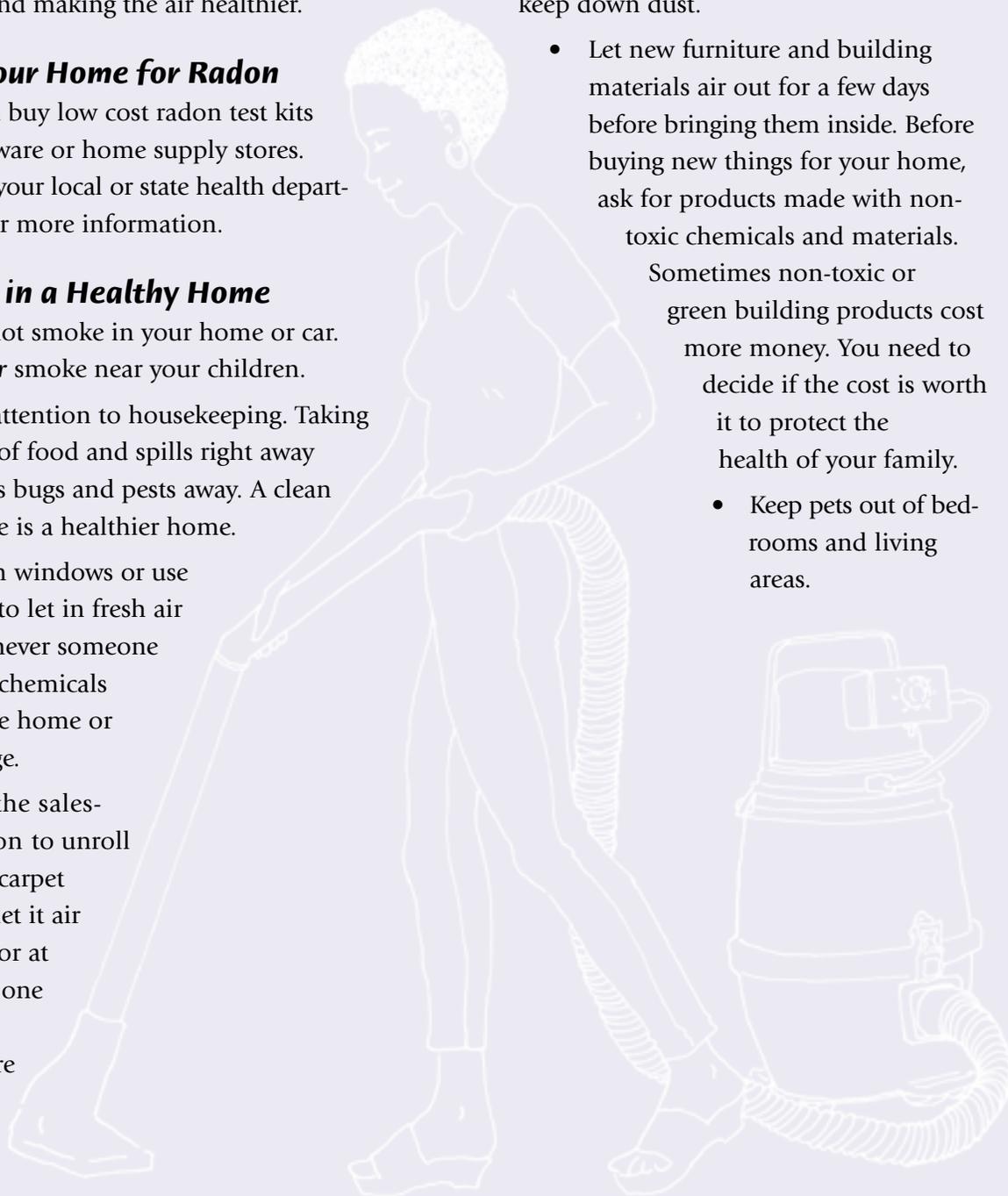
- Do not smoke in your home or car. *Never* smoke near your children.
- Pay attention to housekeeping. Taking care of food and spills right away keeps bugs and pests away. A clean home is a healthier home.
- Open windows or use fans to let in fresh air whenever someone uses chemicals in the home or garage.
- Ask the salesperson to unroll new carpet and let it air out for at least one day before

bringing it into your home. Put in carpet during a season when you can open windows for several days afterwards. Vacuum old carpet well before you remove it to keep down dust.

- Let new furniture and building materials air out for a few days before bringing them inside. Before buying new things for your home, ask for products made with non-toxic chemicals and materials.

Sometimes non-toxic or green building products cost more money. You need to decide if the cost is worth it to protect the health of your family.

- Keep pets out of bedrooms and living areas.



Indoor Air Quality

When In Doubt, Check It Out!

- US Environmental Protection Agency Indoor Air Quality Home Page—www.epa.gov/iaq
- Indoor Air Quality Information Clearinghouse (IAQ INFO) 800/438-4318 (Monday to Friday, 9:00 a.m - 5:00 p.m. Eastern Time) or email: iaqinfo@aol.com
- National Radon Information Hotline 800/SOS RADON (800/767-7236)
- The National Consumer Federation's Radon Website—www.radonfixit.org
- National Lead Information Center 800/424-LEAD (800/424-5323)
- National Hispanic Indoor Air Quality Hotline 800/SALUD-12 (800/725-8312), Monday to Friday, 9:00 a.m. - 6:00 p.m. Eastern Time
- American Lung Association. Contact your local organization, call 800/LUNG-USA (800/586-4872) or visit the web at www.lungusa.org
- Contact Healthy Indoor Air for America's Homes at 406/994-3451 or www.healthyindoorair.org
- *Home*A*System*: An Environmental Risk Assessment Guide for the Home contains information about indoor air quality and other healthy home topics. 608/262-0024 or www.uwex.edu/homeasyst

Notes



Asthma & Allergies

Should You Be Concerned?

More than eight million children in the United States have a disease called *asthma*. Asthma is a leading reason that children miss school or end up in the hospital. Asthma makes it hard for people to breathe. Sometimes people even die from asthma. This disease has no cure yet, but it can be controlled.

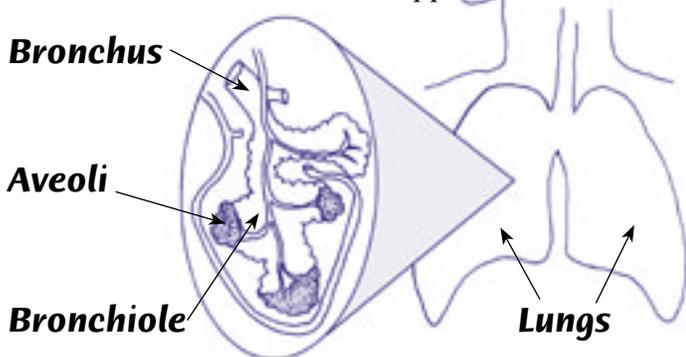
Another 40 to 50 million people have allergies. Allergies can also make it hard for people to breathe by causing an asthma attack. An allergy is an unusual reaction to something, like a food or a plant, which is normally harmless. Common signs of allergies are a stuffy or runny nose, itching, or a rash. This section will help you ask the right questions to find out how to make your home a safer, healthier place for people with asthma or allergies.

What Happens During an Asthma Attack?

Asthma flare-ups are called asthma attacks. During an attack, the breathing tubes in your lungs, called *bronchi* and *bronchioles*, get smaller. During an asthma attack:

- The breathing tubes in your lungs swell up
- The muscles around these tubes tighten
- The tubes make large amounts of a thick fluid called mucus

You cannot catch asthma. It does run in families though. If someone in your family has it, you or your children may too. The number of asthma cases is growing, and more people die from it every year. These deaths do not need to happen.



Warning Signs of an Asthma Attack:

- Tightness in the chest
- Shortness of breath
- Wheezing
- Coughing

People with asthma who learn to spot the early signs of an attack can take medicine right away. This may make the attack less severe.

If someone is having a severe asthma attack, get him or her to a hospital emergency room right away. Some signs of a severe attack:

- The person's asthma *rescue* or *inhaler medicine* doesn't help within 15 minutes
- The person's lips or fingernails are blue
- The person has trouble walking or talking due to shortness of breath

The most important thing to know about asthma is that you can control it. Asthma patients (or their parents) who learn what medicine to take and what triggers attacks can avoid them most of the time. That means people with asthma can lead normal lives.

Many types of medicine can treat asthma. Keep in mind that no one medicine works best for everyone. You and your doctor have to work together to find the best medicine. Remember, it may take a while to find just the right kinds. Also, you must take the time to find out what sets off an attack.

Asthma & Allergies

Asthma Triggers

No one knows what causes asthma. Lots of things set off asthma attacks, though. These things are called *triggers*. Some people have only one or two triggers. Other people have many.

Some triggers are things to which people are often allergic. Common ones are *pollen* (from trees and flowers) and *dander* (skin flakes from cats, dogs, and other pets). Also, some people are allergic to pests such as roaches, rodents, or *dust mites*. Dust

mites are tiny insects that you can't see. They live everywhere—in carpets, upholstered furniture, stuffed animals, and bedding. *Cigarette smoke* is another common trigger of asthma attacks.

Other triggers have nothing to do with allergies—cold weather, exercise, or strong feelings (laughing, crying).

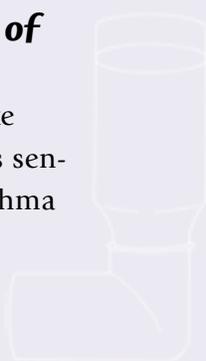


Other Common Asthma Triggers

- Dust
- Mold
- Carbon Monoxide
- Cleaning products like furniture polish or dusting sprays
- Personal care products like hair spray or perfume
- Flu, colds

There are two main types of asthma medicine.

One kind you (or your child) take regularly to make the lungs less sensitive to the things that cause asthma attacks. It is important to take this medicine as prescribed, even if you feel o.k. It usually takes a couple of weeks to work. The other type



is called *rescue medicine*. You take this during an attack to help open up your breathing tubes so you can breathe better.

Some “everyday” asthma medicines are *steroids*. Some people may worry about them because they have heard stories about athletes who use steroids in the wrong way. Asthma steroids are not the same. Side effects of asthma steroids are also rare. Asthma patients usually breathe these medicines right into their lungs, so they only need a small dose.

Asthma & Allergies

Allergies

Common signs of allergies include runny or stuffy noses, coughing, hives, itching, a rash, or puffy eyes. Allergies can be deadly for some people. When sensitive people come in contact with something they're very allergic to, like peanuts, their blood pressure drops, their breathing tubes swell up, and they can die from lack of air. The good news is that allergies can be treated. If you have allergies, it's important to find out what causes them and how to take care of them. A doctor can test you to find out. People with severe allergies may need to carry emergency medicine.

Common Allergens

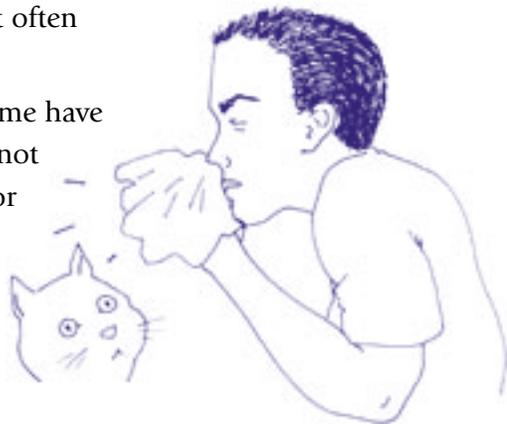
An *allergen* is something that causes allergy signs, or an *allergic reaction*. Many of the asthma triggers listed on page 12 also cause allergic reactions in people who don't have asthma. There are many other allergens too. Some common ones are listed here. It's important to talk to your doctor if you have had a reaction to any of these:

- **Foods:** milk and dairy products, citrus fruit like oranges and lemons, artificial colors and flavors, nuts, and shellfish like shrimp or clams.
- **Medicines:** penicillin, some heart medicines, and some anti-seizure medicines.
- **Insect stings and bites:** most are caused by yellow jackets, honeybees, paper wasps, hornets and fire ants. In some people, reactions to stings become more serious as years go by. Eventually, only one sting may kill. Talk to your doctor if you have had a serious reaction to a sting.
- **Contact allergens:** cause reactions when things like plants, cosmetics, jewelry, or latex (a type of rubber) touch the skin. Rashes are common reactions to these allergens.

Look at the questions on the following pages to help you find problems around your home that may make asthma and allergies worse. Pages 14 and 15 will give you ideas about how to keep your family healthy and safe.

Questions to Ask

- Does anyone in your family have asthma or allergies?
- Does someone in your family notice burning eyes, coughing, or sneezing that happens most often at home?
- Does your home have carpet that is not cleaned well or not cleaned often?
- Do you have carpeting, stuffed toys, or fleecy materials in bedrooms?
- How often do you wash sheets, blankets, and other bedding?
- Do you store food in containers or boxes that don't have covers?
- Do you keep pets inside?
- Has it been more than a year since you had your furnace, flues, and chimneys inspected and cleaned?
- Does anyone smoke inside your home?
- Is your home damp or musty?



ACTION STEPS

Pay Attention to Your Asthma and Allergies

Know what triggers your or your children's asthma or allergies. Talk to a doctor or nurse about keeping emergency medicine around if your asthma or allergies are severe. If someone you love takes asthma or allergy medications make sure they know when to take it.

Healthy Housekeeping

Clean your home often. Since cleaning puts dust into the air, have someone without asthma or allergies do it. Wear a dust mask if you can't find somebody else to clean. You can buy one at a drug store.

Keep clutter down. Clutter collects dust and makes it harder to keep a clean home. Store your belongings in plastic or cardboard boxes instead of keeping them in piles or stacks. You can move the boxes to make cleaning easier.

When possible, don't have carpeting or rugs. Hard floors (vinyl, wood, or tile) are much easier to keep dust-free. If you do have rugs or carpet, vacuum often. You may be able to borrow or buy a vacuum with a special HEPA (High Efficiency Particle Air) filter to get rid of dust. Call your local or state health department for more information.

Keep Down Dust Mites

Use zippered plastic mattress and pillow covers beneath sheets and pillowcases. You can buy them at your local department store or through the mail. If the mattress cover is uncomfortable, put a mattress pad over it.

Wash bedding, including blankets, pillow covers, and mattress pads in hot water every week. Temperatures above 130°F kill dust mites.

Control Other Pests

Roaches and rodents can trigger asthma and allergies. They need food, water, warmth, and shelter to survive. You can control roaches, mice, and other pests by making these things hard to get. *See the chapter on pesticides on page 42 to learn more about how to handle pests.* Here are some tips to keep pests away:

- Store food in tightly sealed containers.
- Clean up crumbs and spills right away.
- Empty your garbage often.
- Wash your dirty dishes right after eating.
- Don't leave out pet food or water overnight.
- Fix plumbing leaks and drips.
- Seal cracks where roaches and other bugs hide or get into your home.

ACTION STEPS, continued

Pets

Furry pets like dogs, cats, and gerbils can cause asthma and allergy attacks because of their saliva and skin flakes. It is best to either not have pets or keep them outside. If you do have pets inside, make sure to keep them out of sleeping areas and off fabric-covered furniture.

Check Your Appliances

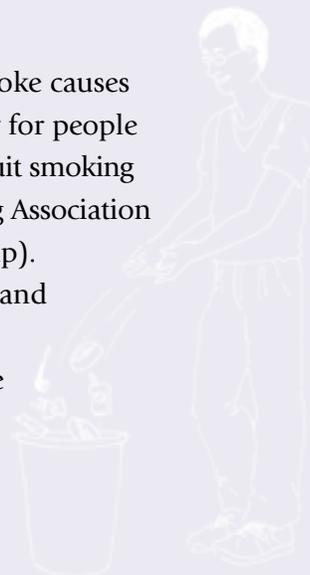
Make sure your gas appliances, fireplace, furnace, or wood-burning stove have yearly checkups to keep down soot (and protect you from the dangers of carbon monoxide. *See page 26 for more information.*)

Check the filter on your furnace or air conditioner a couple times each year. Change when needed. Think about buying filters that cost a little more than the most economical ones. They will clean the air in your home better. They trap more dust so you will need to change them more often. You can buy air filters at a hardware store. Check labels and packaging to find out about these products. If you rent, talk to your landlord about these steps.



Smoking

Cigarette, cigar, or pipe smoke causes health problems, especially for people with asthma. It is best to quit smoking (contact the American Lung Association at 1-800-LUNG-USA for help). Otherwise, smoke outside and away from children. Don't light up in your car, because smoke will linger there and affect children.



Mold

When people breathe in mold, it can cause allergies and asthma to act up. Mold needs water to grow. Keep your home dry to control mold. That will also help with roaches and dust mites. *See the chapter on mold on page 17 for more information.*

Air cleaners may help in the bedrooms of allergy and asthma patients. Good air cleaners (with HEPA filters) cost about \$100 or so. DO NOT use an air cleaner that makes ozone because ozone can cause health problems.

Asthma & Allergies

When In Doubt, Check It Out!

- Your local county Extension Office
—look in your telephone book
- Your local or state health department
—look in your telephone book
- American Lung Association, 800/LUNG-USA
—www.lungusa.org
- The Soap and Detergent Association,
Cleaning to Control Allergies and Asthma,
202/347-2900—www.cleaning101.com/house
- Healthy Indoor Air for America's Homes
406/994-3451—www.montana.edu/wwwcxair
- The Allergy & Asthma Network: Mothers of Asthmatics
800/878-4403—www.aanma.org
- The Food Allergy & Anaphylaxis Network (FAAN)
800/929-4040—www.foodallergy.org

Notes



Mold & Moisture

Should You Be Concerned?

Most of us have seen mold or moisture around the home. But did you know that mold is alive? It grows on wet or damp surfaces. It is often gray or black but can also be white, orange, or green. It can grow out in the open, on places like walls, clothes, and appliances. But you may also find it in more hidden places—under carpets or in walls and attics. Mold often smells musty. Mildew is a common name for mold. If you live near the ocean or in a damp climate, there may be more mold in your home than in homes in other places.

Mold produces “spores,” tiny specks you can’t see and that float through the air. When you breathe in mold spores, they get into your lungs. This can cause health problems. People with allergies to mold may have reactions. They include watery eyes, runny or stuffed up noses, sneezing, itching, wheezing, trouble breathing, headaches, and tiredness. Mold can even trigger asthma attacks.

We are learning more about the health problems mold causes. Some molds can cause severe health problems in some people, but scientists disagree about what the problems are. Mold is almost everywhere, but it is not healthy to live where mold is growing. Because mold needs moisture to grow, try to keep your home and everything in it dry. Here are some places you might find mold:

- In bathrooms, especially around the shower or tub, and on the walls, ceiling, or floor
- In wet or damp basements and crawl spaces
- Around leaky bathroom and kitchen sinks
- In attics under leaking roofs
- On wet clothes that are not dried quickly
- On windows and walls where condensation collects
- In closets

- Under wallpaper or carpet
- In your air conditioner

It’s important to fix any moisture problem in your home right away. Mold can grow fast, so it’s best not to wait. To stop mold from growing, quickly dry or throw away anything that has gotten wet.



Mold & Moisture

Questions to Ask

How is Your Family's Health?

- Does anyone have allergies or asthma?
- Does anyone in your home always seem to have a cold—a runny nose, wheezing, coughing, and headaches?
- Do these problems go away when they leave home for a while?
- Are there infants, children, or elderly people living in the household?

How Can You Tell if Mold is Growing in Your Home?

- Can you see mold growing anywhere?
- Is there mildew growing on clothes or towels?
- Does any part of your house or apartment smell musty or moldy?
- Do you see color changes on walls or floors that you can't wipe off?

Is There Moisture in Your Home That Could Cause Mold to Grow?

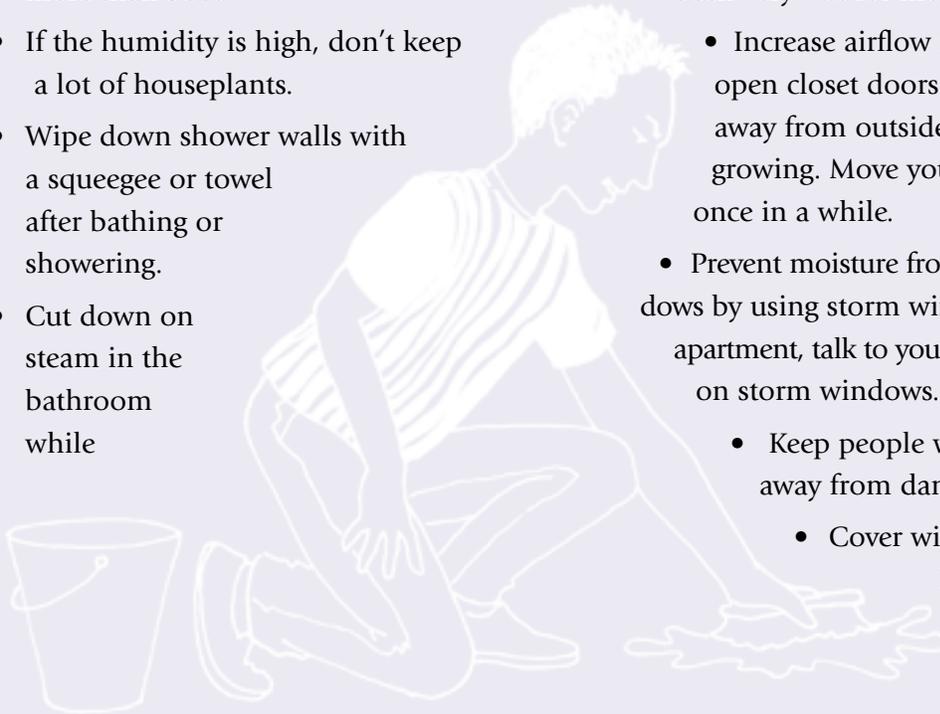
- Has any part of your home been flooded?
- Has there been a water leak or overflow?
- Has the carpet gotten wet and stayed damp for more than 24 hours?
- Can you see moisture on walls, ceilings, or windows?
- Do bathroom walls stay damp for a long time after a bath or shower?

- Do basement floor drains ever get clogged and hold water?
- Does your basement or roof leak when it rains? (Check the attic floor.)
- Does anyone use a humidifier?
- Does water collect in the drain pan under the refrigerator or air conditioner?
- Do you use unvented space heaters?
- Is there a crawl space under the house?
- Do you live in a humid climate?
- Does rainwater drain toward your home's foundation?
- If your home is raised, does water pool under it?
- Does the air in your home feel clammy or humid?



ACTION STEPS

- Use downspouts to direct rainwater away from the house. Make sure your gutters are working.
- Slope the dirt away from your house's foundation. Make sure the dirt is lower six feet away from the house than it is next to it.
- Repair leaking roofs, walls, doors, or windows.
- Keep surfaces clean and dry—wipe up spills and overflows right away.
- Store clothes and towels clean and dry—do not let them stay wet in the laundry basket or washing machine.
- Don't leave water in drip pans, basements, and air conditioners.
- Check the relative humidity in your home. You can buy a kit to do this at a home electronics or hardware store. Stop using your humidifier if the relative humidity is more than 50%.
- If the humidity is high, don't keep a lot of houseplants.
- Wipe down shower walls with a squeegee or towel after bathing or showering.
- Cut down on steam in the bathroom while bathing or showering. Run a fan that is vented to the outside or open a window.
- Run a fan vented to the outside when cooking.
- If you have a dryer, make sure it is vented to the outside.
- Use a dehumidifier or air conditioner to dry out damp areas.
- If you use a humidifier, rinse it out with water every day. Every few days, follow the manufacturer's directions for cleaning it or rinse it out with a mix of 1/2 cup chlorine bleach (Sometimes called *sodium hypochlorite*. "Clorox" is one brand.) and one gallon of water.
- When you use your air conditioner, use the "auto fan" setting.
- Throw away wet carpeting, cardboard boxes, insulation, or other things that have been very wet for more than two days.
 - Increase airflow in problem areas—open closet doors and move furniture away from outside walls where mold is growing. Move your furniture around once in a while.
 - Prevent moisture from collecting on windows by using storm windows. If you live in an apartment, talk to your landlord about putting on storm windows.
 - Keep people with asthma or allergies away from damp areas of your home.
 - Cover window wells if they leak.



ACTION STEPS, continued

- After cleaning up mold, using a high efficiency (HEPA) vacuum or air cleaner may help to get rid of mold spores in the air. You may be able to borrow a HEPA vacuum. Call your local or state health department to ask.
 - If you find an area of mold greater than 15 square feet, it's best to hire a professional to get rid of it. (You can find them listed in the telephone book under "Fire and Water Damage Restoration.")
 - Clean up mold with a mix of laundry detergent or dishwashing soap and water OR chlorine bleach with soap and water. Do not mix chlorine bleach with any product that contains ammonia.
 - If you think mold may be causing you or your family health problems, see a doctor.
- sick people, and anyone with allergies or asthma away during cleanup.

How do I Clean Up Mold?

Protect yourself when cleaning up mold. Wear long sleeves and pants, shoes and socks, rubber gloves, goggles to protect your eyes, and a N-95 respirator. Open a window to let in fresh air while you're working.

Throw away things like carpet or mattresses, wallboard (drywall), ceiling tile, insulation, or cardboard boxes that have been wet for more than two days. Wrap anything you're going to throw away in plastic to stop mold from spreading. Cleaning up mold puts the spores in the air so it's a good idea to wear a respirator. Keep small children, elderly and



ACTION STEPS, continued

Clean hard surfaces with a mix of laundry detergent or dishwashing soap and water. You may have to scrub with a brush. Rinse the area with clean water and dry quickly by wiping away the water and using a fan. Chlorine bleach will kill mold growing on surfaces. It does not kill mold spores in the air and dead mold can still cause allergic reactions. If you use bleach, follow these steps:

- Scrub the surface first with water and detergent.
- Water down the chlorine bleach—use about one cup bleach to ten cups of water.
- Spray or sponge the bleach on the moldy area. Leave it on about 15 minutes, then rinse the area and dry quickly.
- Never mix chlorine bleach with products that contain ammonia or acids because you will make a deadly gas.
- Keep chlorine bleach out of the reach of pets and children.
- Remember, chlorine bleach takes the color out of most fabrics and rugs. Be careful not to spill or splash.

The Cooperative Extension Service or your local or state health department can provide more information on mold. Renters should talk to their landlords. Some home insurance policies will pay to fix mold damage. Fire and Water Damage Restoration professionals can help you fix the damage. Cleaning up a big mold problem may cost several thousand dollars or more.



What About Testing for Mold?

You may have heard about so-called “toxic” molds that can cause severe health problems. This may cause worry if you know that mold is growing in your home. See your doctor if you think mold is causing health problems for you or your family. Many experts agree that health problems come more from the length of time you’ve been in contact with the mold and the amount of mold in your home than the type of mold in your home.

No matter what kind of mold you have, you need to get rid of it and fix the moisture problems that made it grow. Most experts think it’s better to spend your time and money on cleaning up the problem than testing. So act quickly to get rid of the mold and moisture by following the action steps in this chapter.

Mold & Moisture

When In Doubt, Check It Out!

- Your local county Cooperative Extension Office
—look in your telephone book
- Your local or state health department
—look in your telephone book
- The Environmental Protection Agency (EPA)
—www.epa.gov/iaq
- The Centers for Disease Control & Prevention (CDC)
—www.cdc.gov/nceh/mold
- California Indoor Air Quality Program
—www.cal-iaq.org/iaqsheet.htm
- The Health House—www.healthhouse.org
- Healthy Indoor Air for America's Homes
406/994-3451—www.montana.edu/wwwcxair

Notes



Carbon Monoxide

Should You Be Concerned?

You can't see, taste, feel, or smell carbon monoxide (CO). However, this deadly gas can make you very sick or even kill you. Over 500 people in the United States die every year after breathing too much CO. The signs of CO poisoning seem like the flu. Many people don't even know they've been breathing in CO. People who survive can suffer brain damage, lose their sight or hearing, or have heart problems. It is a major threat to your family's health. The good news is that you can prevent CO poisoning. This section will help you ask the right questions to find out if the air in your home is safe and healthy.

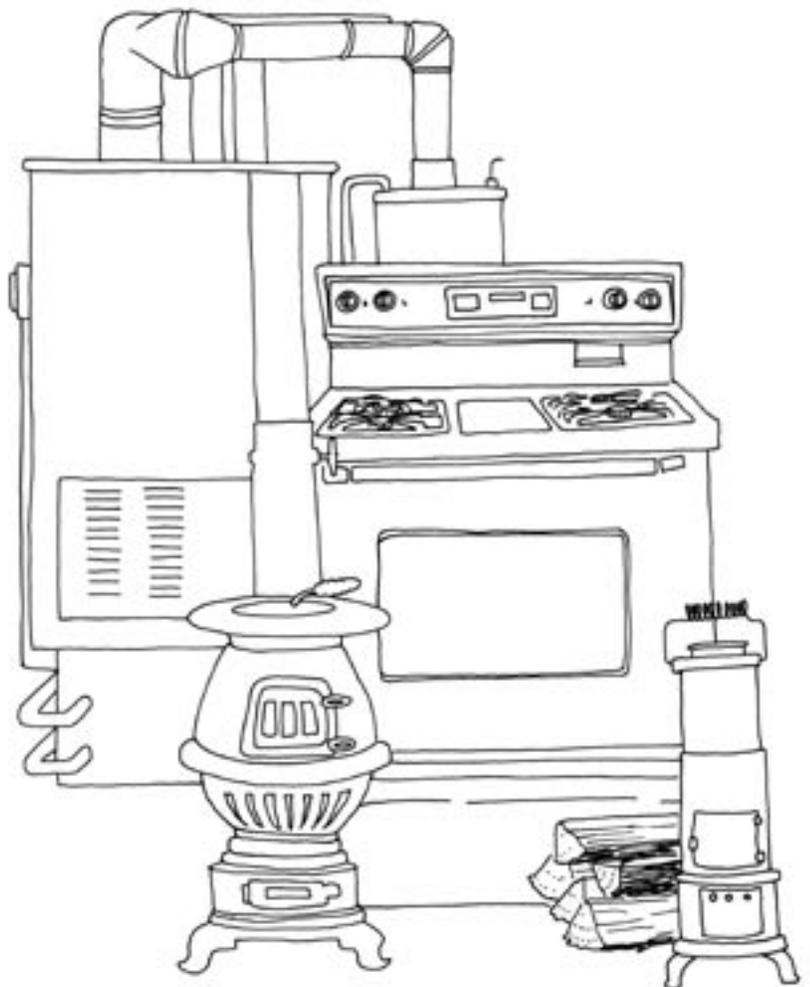
There can be so much CO in a burning building that breathing smoke for as little as one minute can kill you. Lower levels, such as from smoking, do not kill right away. They can cause many other health problems though. Children, unborn babies, people with asthma, older adults, or people with heart or lung problems are more likely to get hurt from breathing CO. But remember, CO harms even healthy people.

Where Does CO Come From?

Fuel-burning appliances use gas, oil, or wood to produce heat. If they are not working right, they can make CO. Most gas appliances that have been put in and taken care of properly are safe and make very little CO but unvented appliances may not be. Electric appliances do not burn fuel and so make no CO. Common sources of CO include:

- Gas and oil furnaces, boilers, and water heaters
- Wood-burning fireplaces and stoves
- Gas appliances like ovens, stoves, or dryers

- Gas and kerosene space heaters
- Gas and charcoal grills
- Cars, trucks, campers, tractors, and other vehicles
- Gasoline and liquid propane (LP)-powered small equipment, including lawn mowers, snow blowers, chainsaws, pressure washers, and electric generators
- Recreational vehicles, including boat motors, all terrain vehicles (ATVs), ski-boats, and generators in campers and houseboats
- Tobacco smoke
- House fires
- Blocked chimneys and flues



Carbon Monoxide

Breathing in low levels of CO can hurt your brain, heart, or other parts of your body. At high levels, the brain is so short of oxygen that you cannot think clearly. You lose control of your muscles and may be unable to move to safety. High-level CO poisoning can cause loss of consciousness, coma, and death.

There are simple but important steps to take to find out if your family is at risk for CO poisoning. The questions on the following page will help you do that. Page 27 will give you ideas of what to do to keep the air in your home safe to breathe.

What are the Signs of CO Poisoning?

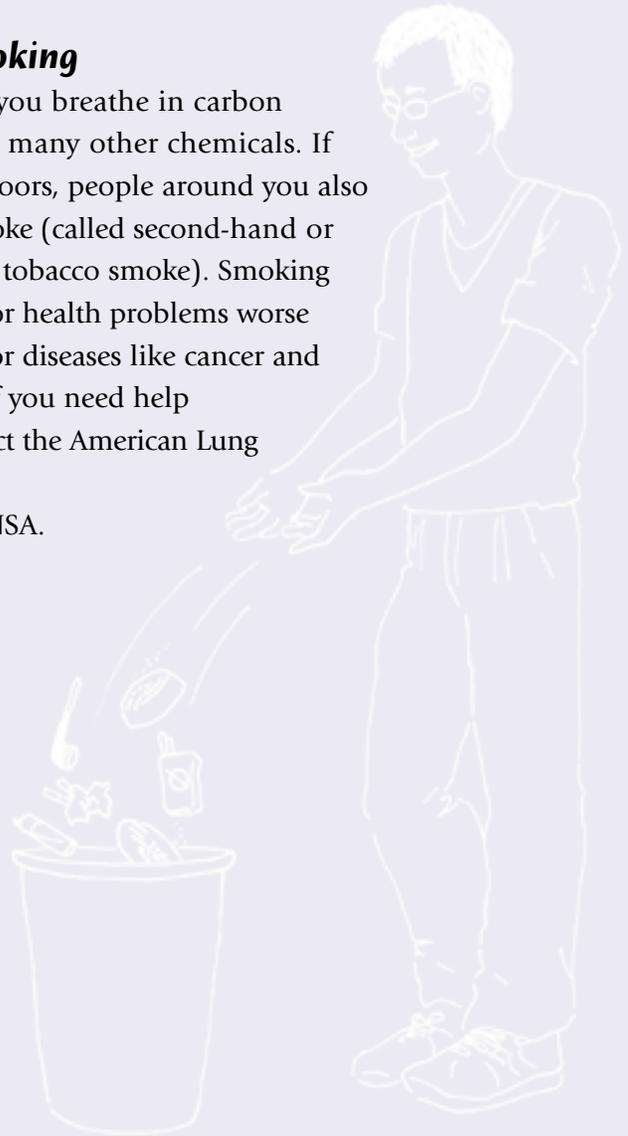
People often think CO poisoning is the flu. That's because it can feel like the flu. Signs of low-level CO poisoning may include:

- Headache
- Nausea
- Vomiting
- Dizziness
- Confusion
- Tiredness
- Weakness
- Sleepiness
- Tightness in the chest
- Trouble breathing
- Changes in senses of sight, smell, hearing, touch and taste.

CO and Smoking

If you smoke, you breathe in carbon monoxide and many other chemicals. If you smoke indoors, people around you also breathe the smoke (called second-hand or environmental tobacco smoke). Smoking can make minor health problems worse and cause major diseases like cancer and heart disease. If you need help quitting, contact the American Lung Association at 1-800-LUNG-USA.

FACT



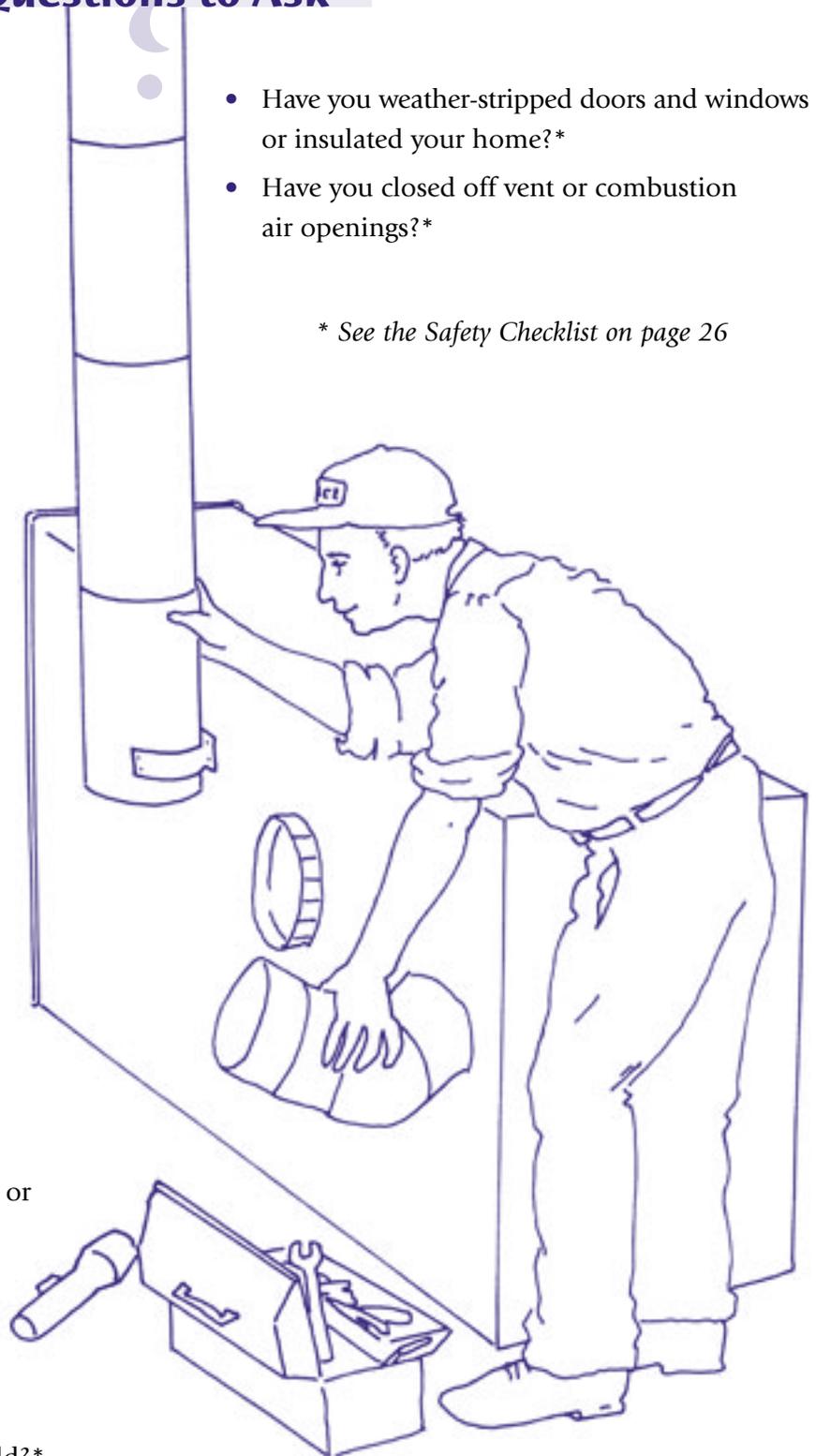
Carbon Monoxide

Questions to Ask

- Do you sometimes use charcoal grills or small gasoline engines inside your home, garage, or closed-in porch?
- Do you have an attached garage?
- Do you sometimes warm up your car inside the garage?
- Has it been more than one year since you or your landlord had your furnace, fireplace, wood stove, chimney or other appliances inspected or cleaned?
- Do you ever use a gas or kerosene space heater or a vent-free gas fireplace?
- Does your home have a carbon monoxide alarm?
- Do you ever use the kitchen stove or oven to heat your home?
- Do you sometimes forget to turn on the kitchen exhaust fan when using the oven?
- Do some of the burners on the kitchen stove burn yellow or orange?*
- Does smoke from the fireplace sometimes come back into the room?
- Are your appliances and furnace in good shape?
- Are the vent pipes for your furnace, boiler, or water heater rusty or falling apart?*
- Do you have a gas water heater that does not have a vent?*
- Is there rust, soot, or dirt on your furnace, boiler, or water heater?*
- Is your furnace or boiler over ten years old?*

- Have you weather-stripped doors and windows or insulated your home?*
- Have you closed off vent or combustion air openings?*

* See the Safety Checklist on page 26



ACTION STEPS

- **Never** use charcoal grills or run engines inside your home, garage, or basement even for a short time. Charcoal grills and small gasoline engines make a lot of carbon monoxide. Even opening all the windows and doors will not give you enough fresh air to prevent CO poisoning.
- **Never** warm up a vehicle inside the garage. Warming up your car, truck, or motorcycle on a cold day for just a couple of minutes (even with the garage door open) can make enough CO to make you sick. Start lawnmowers, snow blowers, and other yard equipment outdoors.
- Have a heating contractor check your furnace, chimneys, and other sources of CO every fall to make sure everything is okay. (You can find one in the telephone book.) Make sure they use a tool that measures CO. To get harmful gases out of a home, many heating appliances have chimneys. (Chimneys on gas appliances are called vents). The chimney carries CO and other gases from the appliance outdoors. If your appliances and vents are working right there should be little CO in your home. If you rent, ask your landlord to have the heating system checked.
- Make sure chimneys are in good shape—clean and working right. Have your chimney, wood-burning fireplace, or wood stove swept every year. Burning wood nearly always makes a lot of CO. It is very important that all the smoke goes out the chimney.
- If you use unvented kerosene or gas heaters OR a vent-free gas fireplace, follow instructions carefully and always open a window for fresh air. Do not use them while sleeping.

Safety Checklist



If you answered *yes* to any of the starred questions on page 25 pay special attention to this checklist. Remember, putting in and taking care of cooking and heating appliances like stoves and furnaces can be dangerous. Only trained and qualified workers should do this.

- Turn off an appliance or heater that starts making different noises, smells funny, starts sooting, has a yellow or orange-colored flame, or does not seem to be working right. Call a heating contractor for repairs.
- Read and follow the instructions that came with your appliance or unvented gas heater. Never block or disconnect an exhaust vent.
- Provide good ventilation for all heating appliances.
- Keep all wood, paper, cloth, and furniture away from heating appliances.
- Don't block an appliance's air openings or exhaust vents.
- Have furnaces checked every year by a qualified heating contractor.
- Ask the contractor to check for carbon monoxide and look at the vent (chimney) system.
- If you insulate and weather-strip your home, call a heating contractor to make sure there is still enough ventilation.
- If you smell gas or if the smoke detector or the carbon monoxide alarm goes off, leave the building right away and call 9-1-1.

ACTION STEPS, continued

- Put carbon monoxide alarms near each sleeping area and on each floor of your home. (Older models are called carbon monoxide detectors.) You can find them at your local hardware, discount, outlet, or building supply store for \$20 to \$50.
- Never use the kitchen stove or oven to heat your home.
- Always turn on the kitchen exhaust fan when using a non-electric oven or range top.
- Have the kitchen range top fixed before using it if the flames burn orange or yellow.
- Don't use a smoking fireplace until you fix the problem.
- Call 9-1-1 or your local emergency number from a phone outside your home.
- See a doctor or nurse right away. See a doctor or nurse even if you feel better after breathing fresh air. They can check your blood and breath for CO and tell if you need more medical care.
- Treat all alarm soundings as an emergency. Never ignore an alarm sounding!
- Have your home checked out by a qualified heating or appliance contractor. You can find one in the telephone book.
- Don't go back home until all problems have been found and fixed.

Carbon Monoxide Alarms

Carbon monoxide (CO) alarms will help protect you and your family from sickness or death. A good alarm will make a loud noise when CO levels become too high. There are plug-in and battery operated alarms. Look on the package to make sure the alarm is okayed by a qualified testing laboratory, such as Underwriters Laboratory (UL). Check the batteries on a battery-operated alarm every six months. Every home should have at least one alarm. It's best to put one near each sleeping area and on each level of the home. Carbon monoxide alarms do not take the place of checking and taking good care of your home's furnace, fireplace, space heaters, and oven.

If someone in your family shows signs of CO poisoning or if a CO alarm goes off:

- Get outside right away.



Carbon Monoxide

When In Doubt, Check It Out!

- Your local county Extension Office
—look in your telephone book
- Your local or state health department
—look in your telephone book
- The Consumer Products Safety Commission
800/638-2772—www.cpsc.gov/cpscpub/pubs/466.html
- The American Lung Association, 800/LUNG-USA
—www.lungusa.org/air/carbon_facstsheet99.html
- Healthy Indoor Air for America's Homes
406/994-3451—www.montana.edu/wwwcxair/

Notes



Lead

Should You Be Concerned?

Lead poisoning is one of the most serious health threats for children in and around the home. Your children can be poisoned if they get lead in their bodies. Lead may cause learning and behavior problems. It may damage hearing and the nervous system, including the brain.

Where Does Lead Come From?

Lead was used in paint, water pipes, gasoline, pottery, and other places. Even though this metal is not used as much anymore, it still remains in places it was used.

The paint on your walls and windowsills may have lead in it. Household dust (from old, worn paint) may have lead in it. Your drinking water may have lead in it from your water pipes or the solder that joins pipes together. Even the soil outside your home may have lead in it.

It is very important to find out if your home has lead in or around it. There are tests that will let you know and they don't cost a lot.

How Can Lead Poison your Child?

There are many ways. Young children put their hands and everything else in their mouths, so they can eat the dust or chips of lead-based paint without knowing it. Even bits of paint too small to see can come off windows, doors, and walls, creating lead dust. Children who crawl on the floor, put toys in their mouths, or play in soil around their home or daycare can be poisoned.

Children with too much lead in their bodies may not look or feel sick. A simple blood test is the only way to know if your child is being exposed to lead. Ask your doctor or health care provider to test your child for lead.

Lead paint that is in good shape is not an immediate problem. It may be a risk in the future though.

Laws have been passed to ban lead in household paint, gasoline and water pipes. However, many older homes still have lead in them. Finding out if lead is a problem in your home is the first step in protecting your children's health. The questions on the next page can help.



One out of every 40 American children has too much lead in their bodies. The rate of lead poisoning is even higher in cities.

Dust from lead paint is the biggest threat to young children.

Questions to Ask

- Do you live in an older home? Many older homes have lead-based paint or lead water pipes. Lead paint was banned in 1978. Homes built before 1950 are most likely to have lead in paint and water pipes.
- Is there cracking, chipping, or flaking paint in your home?
- Are there places where paint is being rubbed, such as on a door or in a window frame? This can make dust that has lead in it.
- Do you have water pipes made with lead or joined with lead solder? Water that flows through them may contain lead. Lead pipes are dull gray and scratch easily with a key or penny.
- Has your home been recently remodeled or renovated? Projects may leave dust or paint chips with lead.
- Is there lead in the soil outside your home? It may have gotten there from paint on the outside of the building or from industry. Or it may have come from car exhaust from the days when gasoline contained lead. Children can be poisoned if they play in soil that has lead in it or if someone tracks the soil inside the home.
- Does someone you live with work where lead is used? Some jobs that might create lead dust are: construction, bridge building, sandblasting, ship building, plumbing, battery making and recycling, car repair, furniture refinishing, and foundry casting. Workers can bring lead dust home on clothing, skin, or shoes.
- Do you have children under age six who have not had a blood test for lead? Young children should be tested for lead. This is especially true if you live in an older home, if your home has recently been remodeled, or if a brother, sister or a playmate has tested high for lead. Ask your doctor to test your children beginning at six months of age, and then every year until age six.
- Have neighbor children or playmates ever had a high blood lead test?

If you answered yes to any of these questions, your children may be at risk for lead poisoning. Look at the Action Steps on the next page to find out what you can do to protect your children's health!

The Blood Test for Lead

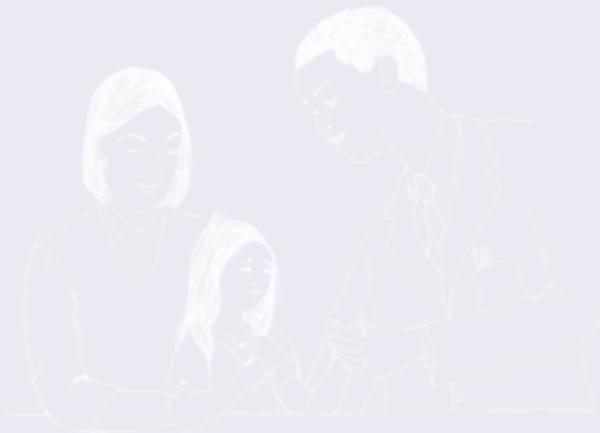
- It only takes a small blood sample to tell if your child has lead poisoning.
- Ask your health care provider about testing.
- Lead levels are measured in micrograms per deciliter ($\mu\text{g}/\text{dL}$).
 - *If your child's level is 10 $\mu\text{g}/\text{dL}$ or more, it is too high.*
 - *You need to find out how she or he is getting the lead.*
- Your health care provider can help you find out what to do.



ACTION STEPS

Have Your Children Tested for Lead

- This test is often free at local health clinics.



Find Out if Your Home Has Lead

- You may need to have your home or water tested. Your local or state health department can tell you how to do this for little or no cost. Many hardware stores also sell low-cost lead testing kits.
- Don't try to remove lead on your own. It should be done by trained and certified workers. You can find a certified lead paint removal company by contacting your local or state health department. Getting rid of lead in the wrong way can make the problem worse! Children and pregnant women need to stay away during a lead removal project.

Protect Your Children From Lead

- Wash children's hands and face often with soap and water, especially before they eat. Wash toys every week.
- Keep down lead-based paint dust with housekeeping. Wipe windowsills, floors, and other surfaces with paper towels, warm

water and soap once a week. Rinse well.

- Never sweep, vacuum, or dry dust in a room that has lead dust. You will not remove the harmful dust and can stir it up. This includes porches, which were often painted with lead paint.
- Don't let children chew or put their mouths on windowsills. Keep cribs away from windowsills and walls.
- If any remodeling is being done, be sure you find out if work is happening on something that contains lead-based paint. Never dry scrape or dry sand lead paint. Don't burn or torch it. Children and pregnant women should stay away while work takes place. Test dust for lead around the remodeling area afterwards.



- If you have lead pipes or pipes joined with lead solder, you can take steps to cut down on the lead in your water:

ACTION STEPS, continued

- Never use hot water from the tap for drinking, cooking, or making formula. Hot water can take more lead out of the pipes.
- When you haven't used any water for a few hours or overnight let the cold water run for a few minutes before using it again. You will know it has run long enough when the water changes temperature. Usually it gets colder. This clears out any water sitting in the pipes that may have collected lead or other metals. (See the chapter on drinking water on page 33.)
- Have your water tested for lead. Call your local or state health department to learn how.
- If someone in your home works with lead, they can bring it home on their clothes. Make sure they shower and change clothes and shoes before coming inside. Wash these clothes by themselves.
- If your yard or the yard at your children's daycare may have lead in the soil, don't let your children play there. Have the soil tested for lead to make sure it's safe. Put in grass or other plants to help keep children away from the soil in the meantime.
- Feed your children a healthy diet. Foods with vitamin C, calcium, and iron can help reduce lead poisoning. Children with lead poisoning often don't get enough iron or other minerals in their diets. Making sure your children get enough of these nutrients can lower how much lead their body takes in.

When In Doubt, Check It Out!

- For blood tests, call your family doctor or public health clinic.
- For testing of paint samples and drinking water, call your local or state health department.
- For a packet of materials or questions about lead, call the National Lead Information Center, toll-free at 800/424-LEAD.
- For information on lead in drinking water, call the EPA Safe Drinking Water Hotline: 800/426-4791 or visit the website at www.epa.gov/safewater.
- Contact HUD about tenants' rights and other housing issues at 800/HUDS-FHA—www/hud.gov.
- For more information on Lead In and Around the Home, see *Home*A*Syst*. The *Home*A*Syst* handbook gives more details about this and other healthy home topics. 608/262-0024 or www.uwex.edu/homeasyst.

This chapter was adapted from "Lead In and Around the Home: Identifying and Managing Its Sources," by Karen Filchak, University of Connecticut Cooperative Extension. In *Home*A*Syst*, An Environmental Risk-Assessment Guide for the Home, ©1997 Regents of the University of Wisconsin System. All rights reserved.

Drinking Water

Should You Be Concerned?

Every day Americans drink more than one billion glasses of water! We also depend on water in our homes to clean, cook, fix baby food and formula, and bathe. If you are like most people, you trust that your water is safe. This is mostly true. Public drinking water in the U.S. is safe for most healthy people. If you have a well or other private water supply, it's up to you to keep your drinking water safe. Whether your water comes from a public or private source, you can take steps to make sure it's safe for you and your children.

There are times when your home water supply may not be safe. Using unsafe water to drink or prepare food can make you sick. Children may have more problems than adults because:

- For their size, children drink more than adults.
- Their illnesses may be more serious because children's immune systems are still developing.
- Their bodies are still growing, so chemicals can harm them more.

What May be in Drinking Water that is Not Safe?

Bacteria and viruses can cause diseases. Drinking water with these germs may cause upset stomachs, diarrhea, or more serious illnesses. It can be worse for children, pregnant women, and sick or older people. Just one drink of water with these germs can make you sick.

Nitrate gets into water from animal and human waste, and from fertilizer. Too much nitrate in your drinking water can cause **blue baby syndrome** in babies under six months old. Babies with this problem often have blue or purple-colored faces because they do not get

enough oxygen in their blood. They need to see a doctor right away. Some experts believe nitrate may also result in birth defects and miscarriages. Baby food or formula made with your drinking water needs to be safe.

Lead and copper are metals that can get into water from your pipes. Too much lead can cause children to have learning and behavior problems, and other illnesses (See pages 29-32 for more information on lead). Babies who get too much copper can have colic and spit up their formula more than normal. Older children and adults may get upset stomachs or diarrhea from copper.

Other harmful chemicals can get into drinking water. Pesticides may get into your water supply by washing off lawns and fields or leaking from storage contain-

ers. Gas or oil can seep into the ground and get into drinking water. Even very small amounts of some chemicals can cause problems, such as damage to kidneys, liver, or other organs. Some cause cancer and others can cause problems if you are pregnant.

Answer the questions on the next pages to find out if your water is safe and what you can do to cut down on risks to your family.

Questions to Ask

Where Does Your Water Come From?

Does your water come from a public water supply, such as the water utility in your city or town? Or do you have a private water supply, such as a well or spring? The questions to ask yourself depend on where your water comes from.

Public Water Supplies

Before reaching your home, water from a public water supply is tested for over 80 different chemicals. If there are problems, the utility has to treat the water to make it safe or tell you that the water is unsafe to drink.

Every year, water utilities give the results of these water tests to customers. They mail reports or print them in a local newspaper. You can also call your water utility to ask what chemicals are found in the water and how they treat it to make it safe.

Public water can become unsafe after it gets to your home through lead or copper pipes. What kind of pipes do you have?

Lead Pipes: Your home, especially if it is older, may have lead water pipes or pipes joined with lead solder. Lead pipes are dull gray and scratch easily with a key.

Copper Pipes: You may have copper pipes. These are reddish-brown in color.

ACTION STEPS

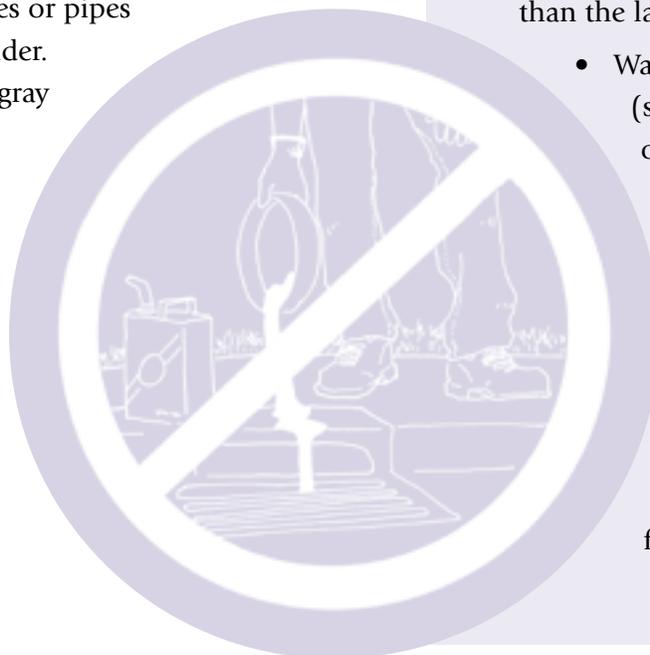
Clear the Pipes—Follow this simple step if lead or copper are problems in your home.

When you haven't used your water for a while (like when you wake up in the morning or when you get home from work), you need to clear out the pipes. Let the cold water run for two or three minutes or until you feel the temperature change, before you drink it or use it for cooking. This will flush out water that has sat in the pipes and picked up lead or copper. Never use hot water from the tap for cooking, drinking, or making formula because the heat helps dissolve the metals faster. Use cold water and heat it on the stove or in the microwave.

Help Protect Water Supplies

You may not know it, but the public water supply is local. Your water may come from the groundwater that is under your home. It may come from the river or lake nearby. What you do can help keep it clean or pollute it.

- If you use poisons to kill bugs or weeds, follow what the label says. Never use more than the label says.
- Watch where you store chemicals (such as bleach, paint, or pesticides) outside. Make sure that the bottles are closed tightly and have labels that say what they are.
- Do not throw chemicals in the garbage or down the drain. Read the label for disposal instructions. Give leftovers to someone who will use them or call your local or state health department to find out how to get rid of them.



ACTION STEPS, continued

- Clean up after your dog. Don't leave pet waste on the ground where rain can wash the germs into rivers and lakes. It's best to flush it down the toilet.

Private Water Supplies

You may have a private water supply, such as a well, for your drinking water. Your well is your responsibility. You need to make sure it is clean and safe.

Test Your Well Water

Has it been more than two years since your water was tested? You cannot see, smell, or taste most problems so you need to have your water tested at a laboratory. Well water is usually tested for bacteria and nitrate. You may want to have your water tested more often or for other pollutants, like pesticides, if you have had problems in the past. Call your local or state health department to find out how to have your water tested.

Protect Your Water Supply

You also need to take care of your well, especially if it is old.

Do you know where your well is?

Find your well. Is it uphill from animal pens, manure, pet waste, septic systems, dumps, or places where chemicals are stored?

What kind of well do you have?

- A dug or bored well usually has a big hole, two feet across or more, and is less than 50 feet deep. These wells may be less safe because chemicals and bacteria can easily get into the water through the top and sides
- A drilled well usually has a narrow hole (4-10 inches around) and is deeper, sometimes hundreds of feet.
- A driven point or sand-point well is 1-2 inches around and may not be deep.



If you do not know what kind of well you have, contact a local well driller. You can find one in the telephone book.

Do you know how old your well is?

If it is more than 20 years old it may need a checkup. You may need to test your water more often.

Is your well in good shape? You want to keep things from above ground out of your water supply.

ACTION STEPS, continued

- The well casing needs to stick up above the ground, up to 12 inches but local rules vary. Your local or state health department has the information.
- There should be no gaps or spaces between the well casing and the material or soil around it.
- Make sure the casing does not have holes or cracks.
- Does the well cap fit tightly? Are any openings or vents covered by a screen?
- Be sure there is not a low area near the well where rainwater can collect. Rainwater carrying pollutants can get into well water.
- Don't keep gas, oil, weed killer, or other chemicals in your well house.

Use devices on the ends of faucets to keep water from flowing back into your water supply.

These are called *back flow prevention devices*.

They help keep pollutants from washing back into the hose and into your drinking water.



Do you have unused wells on your property?

Unused wells that have not been properly filled and capped can let pollution into groundwater and make your drinking water unsafe. If you have an unused well, ask your local or state health department how to seal it.

What kind of pipes do you have?

See the section on "Clear the Pipes" on page 34 to find out how to make sure harmful metals are not getting into your drinking water from your pipes.

FACT

95% of people living in rural areas drink water from private sources.

Drinking Water

When In Doubt, Check It Out!

- Your local water company
- Your local Cooperative Extension office
- Your local or state health department
- EPA's Safe Drinking Water Hotline toll-free at 800/426-4791



- The *Home*A*Syst* handbook gives more details about this and other healthy home topics. 608/262-0024—www.uwex.edu/homeasyst



Notes

A large, dark blue rectangular box containing the word "Notes" in white, serif font. Below this box are numerous horizontal lines for writing notes.

This chapter was adapted from "Drinking Water Well Management", by Bill McGowan, University of Delaware Cooperative Extension. In *Home*A*Syst, An Environmental Risk-Assessment Guide for the Home*, ©1997 Regents of the University of Wisconsin System. All rights reserved, and "Your Guide to Public Water", by Alyson McCann, University of Rhode Island Cooperative Extension, February 2000, Rhode Island *Home*A*Syst* program.

Hazardous Household Products

Should You Be Concerned?

Do you have these products in your home? Bleach, rat poison, mothballs, charcoal lighter fluid, oven cleaner, batteries, mercury thermometers, gas, oil, wood polish, toilet and drain cleaners, shoe polish, bug spray?

Household products like these are dangerous for your children!

Household products are called hazardous if they can harm people when not used in the right way. Not every product is hazardous and some are more dangerous than others.

You can use most products safely if you follow the directions on the label. Doing things that are not on the label is risky for your health and your family's. People run into trouble by using too much of a product, or by mixing two products together, for example.

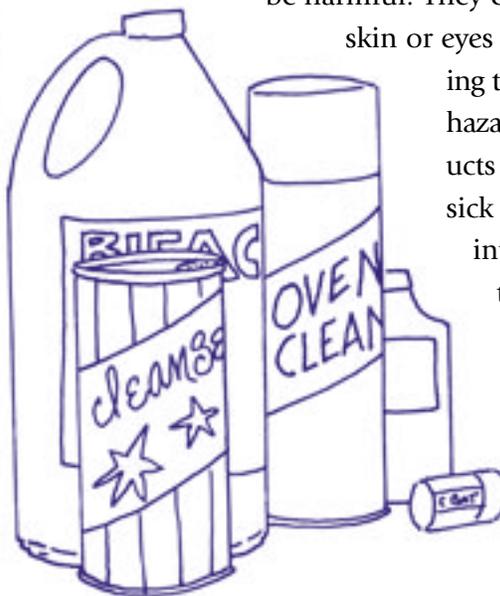
Children can be poisoned if products are stored or thrown away unsafely. Children's bodies are small, so even a little bit of some chemicals can cause big problems.

Eating or drinking a hazardous product is dangerous,



of course. Also, just touching or breathing some products—even a very small amount of them—can be harmful. They can burn your

skin or eyes just by touching them. Some hazardous products can make you sick if they get into your body through your skin or when you breathe in their dust or fumes.



Sometimes you know right away if you or your child has come into contact with a hazardous product. You may feel sick to your stomach or dizzy. Your skin may itch or burn. Your eyes may water or hurt.

Other problems don't show up until later, like cancer or harm to your lungs. Also, coming into contact with chemicals can affect a child's growing body.

You can protect your children and yourself from illness and injury. Use hazardous products safely. Store them carefully. Dispose of them properly. *The following pages will help you learn more.*

In Case of Emergency

You can reach your local Poison Control Center by calling 1-800-222-1222 from anywhere in the country. Put this number next to all of your telephones and where you store your hazardous products.

In 2000, nearly 20,000 children were exposed to or poisoned by household chlorine bleach.

Hazardous Household Products

Questions to Ask

Use Safely

Do you use hazardous household products safely?

- Read the label. That is one of the most important steps in using products.
- Look for words like **caution**, **warning**, **flammable**, **harmful**, **danger**, **poison**. These tell you that a product may be hazardous. If you see these words on a label, take extra care.
- Look for special instructions on the label such as: "Work in well ventilated area." This means work outside or with the windows open. The fumes can make you sick if you do not have enough fresh air.
- "Wear protective clothing." This means wear goggles or safety glasses, gloves, long sleeves, or other coverings. The right clothing can prevent burns or keep chemicals from going into your body through the skin.
- Never mix products unless the label says it is safe to do it. For example, never mix products containing chlorine bleach with products containing ammonia. You will make a deadly gas by mixing these together.
- Keep children and pets away while you use hazardous products.
- Always put the cap back on and put away the product right after you finish using it.

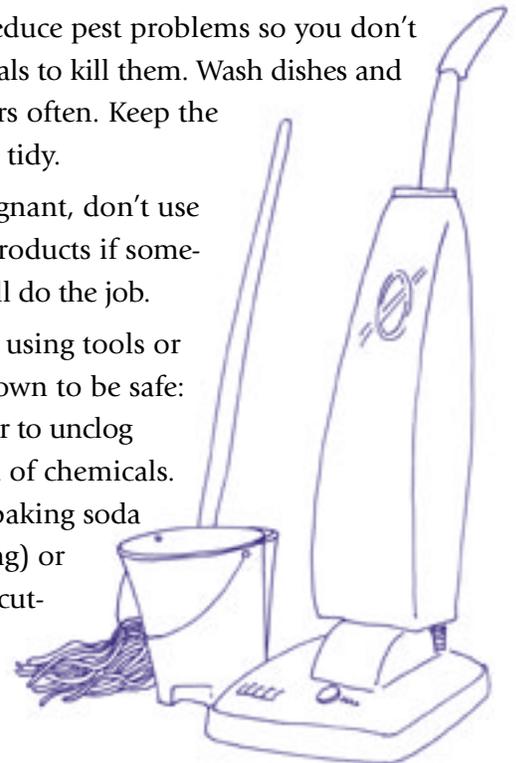


- Never leave the product or container where children can see it or reach it.
- Don't eat, drink, or smoke when using hazardous products.
- Be ready in case there's an accident: Put the Poison Control Center telephone number, 800/222-1222, where you can find it quickly in case of an emergency. Tape it to the wall by your kitchen phone, for example.
- Buy *Syrup of Ipecac* at your local drugstore and keep it handy. This medicine makes a person throw up. But only use it when a doctor or the Poison Control Center tells you. Sometimes throwing up makes the poisoning worse.

Use Less

Can you cut down on the hazardous products in your home?

- Do you buy only what you need, so you don't have extras?
- Prevent or reduce pest problems so you don't need chemicals to kill them. Wash dishes and wipe counters often. Keep the garbage area tidy.
- If you're pregnant, don't use hazardous products if something else will do the job.
- Think about using tools or products known to be safe: Use a plunger to unclog sinks instead of chemicals. Clean with baking soda (for scrubbing) or vinegar (for cutting grease).



Hazardous Household Products

Questions to Ask

Store Safely

Do you store hazardous household products safely?

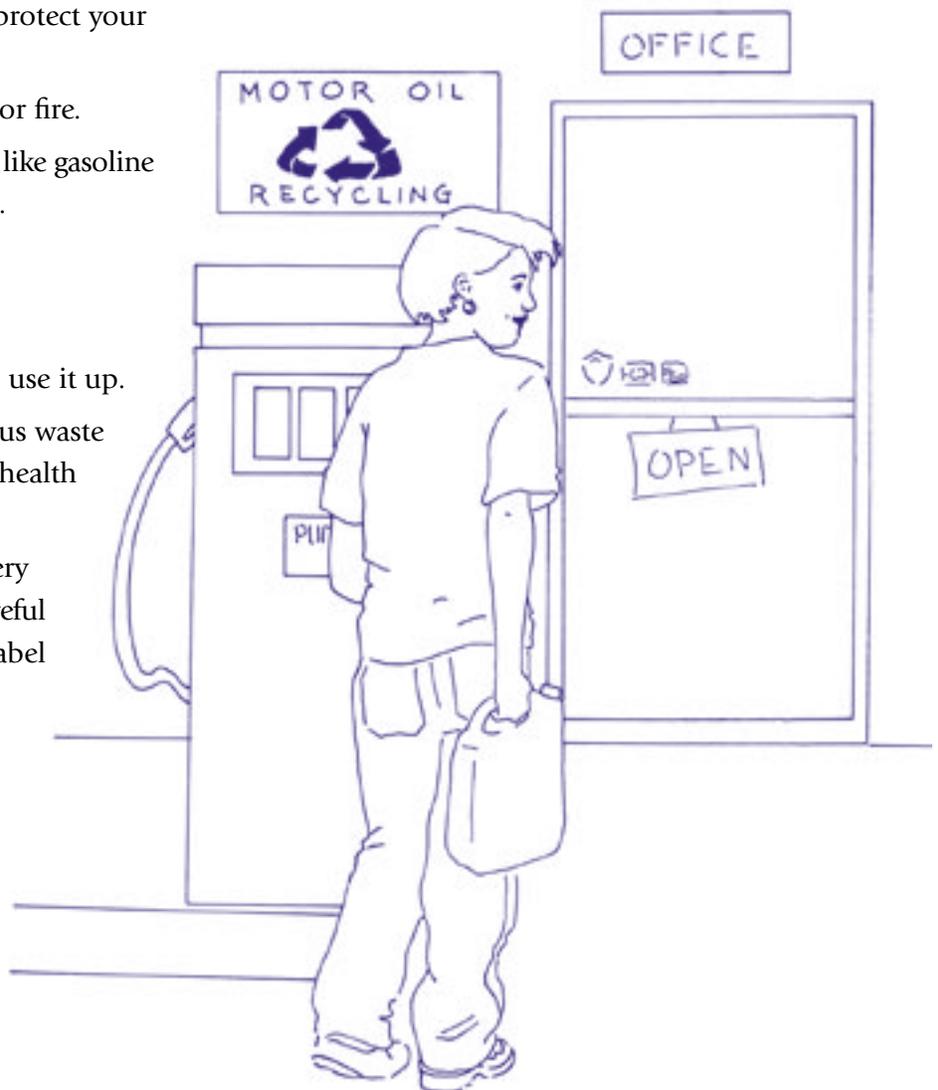
- Keep them away from children. A locked, secure place is best.
- Store them in the package, can, or bottle they came in. Never put them in another container (especially one for food or drink)! This helps prevent poisoning and keeps the label instructions with the product.
- Keep containers and packages dry. Close them tightly.
- Set containers inside a plastic bucket in case of leaks.
- Store products at least 150 feet away from your well, cistern, or water pump. This will protect your water supply and your health.
- Keep products away from heat, sparks, or fire.
- Store batteries and flammable chemicals like gasoline in the shade, away from direct sunlight.

Safe Disposal

How do you get rid of leftover products?

- Share the extra with someone who will use it up.
- Take leftovers to a community hazardous waste collection point. Ask your local or state health department where this is.
- Some products—like pesticides—are very hazardous. You will even need to be careful how you dispose of the container. The label will tell you what to do.
- Never dump or burn hazardous products on your property. Dumping or burning them near a water supply is very dangerous.

- Never burn hazardous wastes in a barrel or stove. Burning may let off toxic gases and make hazardous ash and smoke. And, it's against the law in many states.
- Recycle used motor oil or antifreeze. Many communities have places for you to do this.
- Mercury is a threat to health. Products that have mercury in them are fluorescent bulbs, thermometers, thermostats, and blood pressure meters. Call your local trash department or health department to find out where to recycle products with mercury.



ACTION STEPS

Here are some ways to protect your family's health.

- Buy only what you need to do the job.
- Use products known to be safe when possible.
- Read and follow directions on product labels—always!
- Post the Poison Control Center telephone number next to the phone.
- Never mix two products together unless you are certain it is safe to do so.
- Never mix bleach and ammonia
- Keep all hazardous products, including bleach, in a cabinet out of reach of children.
- Buy products in childproof containers.
- Keep hazardous products in their original containers.
- Give leftover products to someone else to use.
- Find out about your community's hazardous waste collection points.
- Recycle products that you can—oil, antifreeze, products with mercury.
- Never burn or dump leftover products or containers.

When In Doubt, Check It Out!

- Call your local Poison Control Center 800/222-1222
- Call your local Cooperative Extension office
- Call your local or state health department
- Contact the Consumer Products Safety Commission: 800/638-2772 • www.cpsc.gov
- Contact Healthy Indoor Air for America's Homes: 406/994-3451 or visit the website at www.montana.edu/wwwcxair/
- The *Home*A*Syst* handbook gives more details about this and other healthy home topics 608/262-0024 or www.uwex.edu/homeasyst
- EPA's Consumer Labeling Initiative www.epa.gov/opptintr/labeling/index.htm

Notes



Pesticides

Should You Be Concerned?

Many families are bugged by pests. Cockroaches, flies, rats, and mice carry disease and can get into food. Roaches and house dust mites can make allergies and asthma worse. Fleas and ticks riding into the home on pets or clothing can carry disease. The bites of rats and certain spiders can make children and others very ill.

Pesticides are things like bug spray, pet flea collars, rat poison, and garden weed killer that can prevent and kill pests. Pesticides can pose a real danger if you do not use them in the right way. Some may cause poisoning, birth defects, nerve damage, and even cancer. They can make allergies or asthma worse. Breathing fumes or dust from pesticide powders and sprays can be harmful. Touching a floor where pesticide was used can also be dangerous.

Children are especially at risk. When they crawl and play on floors and lawns, they can come into contact with any pesticides used there. Young children put their hands, toys, and other things in their mouths. They may have touched pesticides on the floor or grass.

The biggest danger is poisoning. Children can accidentally poison themselves if they play with, eat, or drink pesticides that are not stored safely.

Almost one-half of homes with a child under five have pesticides stored within reach of children.

POISONED BY CHEMICALS: Don't let this happen to your child

- **A five-year old boy** drinks from a bottle of bleach that he found under the bathroom sink.
- **A three-year old girl** tries to spray her hair the way Mommy does, but sprays an aerosol disinfectant in her eyes instead.
- **A baby** who has just begun to crawl eats green pebbles from behind the sofa. They look like candy but are really rat poison.

The good news is there are lots of things you can do to protect your family's health and safety. Ask yourself the questions on the following page to see if pesticides may be a threat in your home. Safe pesticide use depends on you!



Pesticides

Questions to Ask

Why Do You Have Pests?

- Does your home have loose or torn screens or broken windows?
- Are there gaps or holes in the building that could let in pests?
- Are counters and floors sometimes dirty? Do dishes go unwashed?
- Is there spilled food anywhere in your home?
- Do you keep your garbage where ants, roaches, rats, mice, or other animals can get into it?
- Does your plumbing or roof leak?
- Do you store food in containers or boxes that don't have covers?

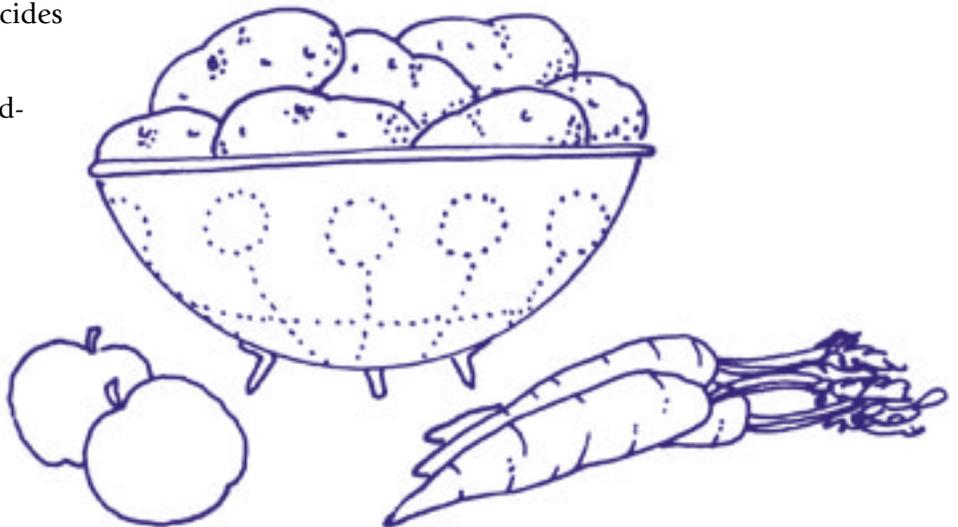
Do You Use Pesticides Properly?

Never take it for granted that a pesticide is harmless.

- Do you (or a pest control company) ever use airborne pesticides like flea bombs or roach sprays indoors instead of baits? Bombs and sprays spread pesticides over a larger area, making it more likely someone will come into contact with them.
- Do you use flea collars, sprays, or powder on your pets? These contain pesticides that may harm people.
- Do you use pesticides without reading the label?
- Are children or pets in the room when you use pesticides?
- Do you eat, drink, or smoke while using a pesticide?
- Do you use care when you put bug repellent on your children?
- Do you serve fruits and vegetables without washing them well?

How Do You Store and Dispose of Pesticides?

- Do you ever store pesticides in containers other than the package they came in?
- Do you sometimes have extra, leftover pesticides around the home?
- Do you store pesticides where children can reach them?
- Do you keep pesticides near food?
- Do you throw empty pesticide containers away without rinsing them?
- Do you leave empty pesticide containers where children can reach them?



ACTION STEPS

Keep a Clean Home

- Wash children's hands, bottles, pacifiers, and toys often. Regularly clean floors, windowsills, and other surfaces.
- Keep a tight lid on trashcans and empty them often.
- Store food in tightly sealed containers.
- Make sure people in your home eat at the table. Don't let them walk around with food.
- Wipe up spills and crumbs right away.
- Clean up dirty dishes right after eating.
- Clean your home well after treating for roaches to reduce roach allergies.
- Pests need water. Keep them from getting it by fixing leaks and not leaving dishwater in the sink overnight.
- Control fleas by washing bedding often, shampooing pets, vacuuming floors, and using flea combs and traps.
- Get rid of stacks of newspaper, papers, bags, and cardboard boxes that make good homes for pests. Recycle them if you can.

Keep Pests Out of Your Home

- Seal cracks and crevices where pests can get in your home.
- Check things like bags and boxes for roaches before bringing them inside.
- Teach your children not to share combs, hats, or coats at school or daycare.

Use Pesticides Safely

- Read the label and follow the instructions. Use only the amount directed and for the purpose listed.

- Place all pesticides, including baits, out of the reach of children.
- When using a pesticide, keep children away until it has dried or for the time the label recommends.
- Protect your skin, your eyes, and your lungs while using pesticides.
- Always wash your hands after use. Never smoke, eat, or drink while using a pesticide.
- Look for signal words. All pesticide labels include words such as **Caution**, **Warning**, or **Danger** to warn you about a product's hazards.



ACTION STEPS, continued

- Wash clothing you wore while using a pesticide in a separate load from other laundry.
- If you have questions about using a pesticide, call the company that made it. An 800 number should be on the label. You can also call the National Pesticide Information Center at 1-800-858-7378.
- Mix and use only the amount you need so you don't have leftovers.
- Mix pesticides outdoors or in an area with plenty of fresh air (Never mix them in the kitchen).

Storing and Disposing of Pesticides

- Store pesticides where children and pets can't reach them or in a locked cabinet.
- Store pesticides only in the container they came in. Never put them in a soft drink bottle or any other kind of container.
- Follow the directions on the label for the right way to throw away pesticides.
- Never use an empty pesticide container for something else.

The word **Caution** shows up on a pesticide label when a product is the least harmful to people.

Warning means a product is more poisonous than one with a Caution label.

Danger means a product is very poisonous or irritating. Use a pesticide that has this word on its label with extreme care because it can burn your skin or eyes very badly.

IN CASE OF EMERGENCY

You can reach your local Poison Control Center by calling 1-800-222-1222 from anywhere in the country. Put this number next to all of your telephones and where you store your hazardous products.

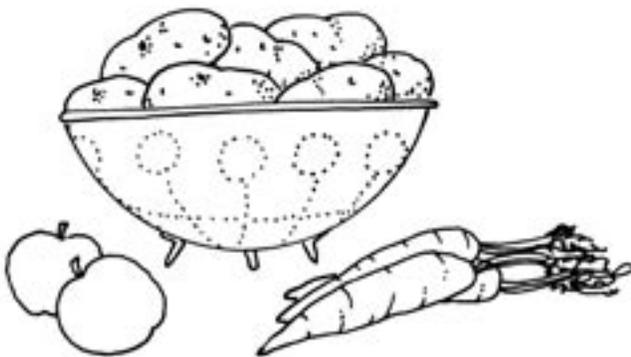
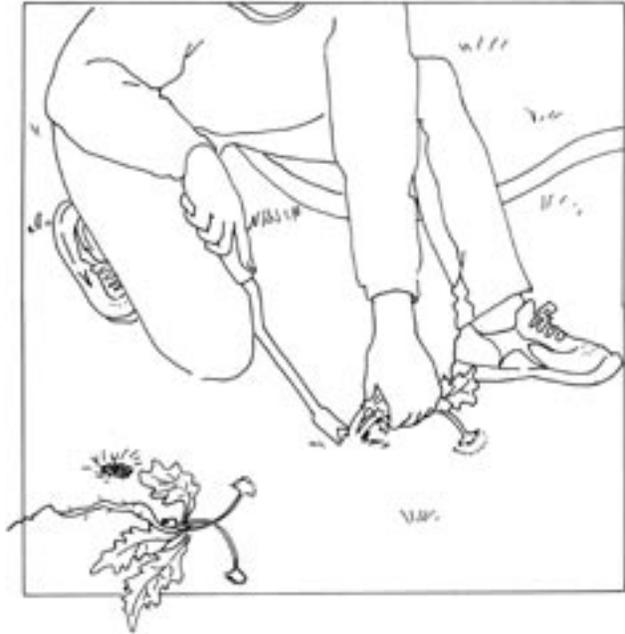
Bug Repellant

When putting bug repellant on children, read all directions first. Do not use over cuts or broken skin. Do not apply to eyes, mouth, hands, or directly on the face. Use just enough to cover skin or clothing. Don't use it under clothing.

Helpful Tips

Tips For Your Lawn and Garden

- Use lawn seed and plants that grow well in your area and fight disease.
- Think about putting up with a few weeds or insects, rather than using pesticides.
- Use your muscles. You can keep down weeds by hand pulling or hoeing.
- Clean up dead leaves and debris to get rid of homes for pests.
- Make sure you know what the pest or problem is before using a pesticide.
- Use pesticides only where the pests are.
- Your local Cooperative Extension office can help with lawn and garden care.



Tips For Preparing Food

- Wash and scrub all fruits and vegetables under running tap water.
- After washing, peel fruits and vegetables when possible.
- Throw away the outer leaves of leafy vegetables like lettuce and other greens.
- Trim fat from meat and skin from poultry and fish—some pesticides collect in fat.
- Eat lots of different foods from lots of different sources.

Pesticides

When In Doubt, Check It Out!

- EPA Office of Pesticide Programs, 703/305-5017
—www.epa.gov/pesticides
You can order these publications:
Help! It's A Roach: A Roach Prevention Activity Book
Citizen's Guide to Pest Control and Pesticide Safety
10 Tips to Protect Your Family From Pesticide and Lead Poisoning
Pesticides and Child Safety
Pesticides and Food: What You and Your Family Need to Know
- National Pesticide Information Center
800/858-7378—www.npic.orst.edu
- Food and Drug Administration Food Safety Information Service Hotline, 888/SAFE-FOOD (888/723-3366), 10 a.m. to 4 p.m. Monday through Friday
- The *Home*A*Syst* handbook gives more details about pesticides and other healthy home topics. 608/262-0024—www.uwex.edu/homeasyst
- For more information on non-toxic pest control contact the Bio-Integral Resource Center 510/524-2567—www.birc.org

Notes



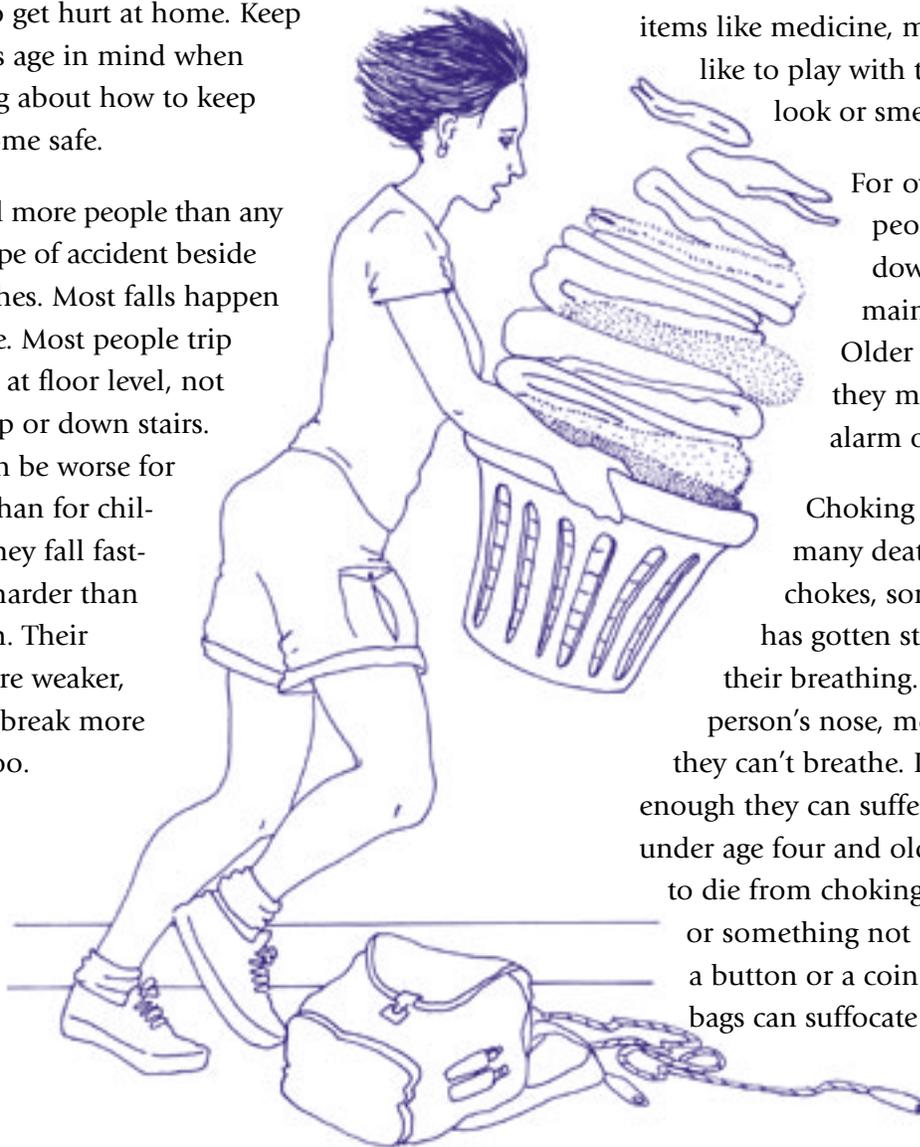
Home Safety

Should You Be Concerned?

Did you know that your chances of getting hurt at home are much higher than they are at work or school? The leading causes of death in the home are falls, drowning, fires, poisoning, suffocation, choking, and guns. The good news is that there are simple steps you can take to protect yourself and your family. This section will help you ask questions to find out if your home is a safe place to live and how to make it even safer.

Very young children and older adults are the most likely to get hurt at home. Keep people's age in mind when thinking about how to keep your home safe.

Falls kill more people than any other type of accident beside car crashes. Most falls happen at home. Most people trip and fall at floor level, not going up or down stairs. Falls can be worse for adults than for children. They fall faster and harder than children. Their bones are weaker, so they break more easily too.



In the U.S., more than one million children age five and under are poisoned each year.

Young children are curious and get into everyday things that can hurt or even kill them. More of them become sick or die from eating or drinking common items like medicine, makeup, and plants. Children like to play with these things because they can look or smell good.

For over a decade, the number of people who die in fires has gone down. Yet fires are still one of the main causes of death in the home. Older adults are most at risk because they may not be able to respond to an alarm or get out of a building quickly.

Choking and suffocation also cause many deaths in the home. When a person chokes, something like a piece of food has gotten stuck in their throat and stopped their breathing. Suffocation happens when a person's nose, mouth, or throat is blocked and they can't breathe. If someone stops breathing long enough they can suffer brain damage or die. Children under age four and older adults are the most likely to die from choking. People can choke on food, or something not meant to be eaten at all, like a button or a coin. Sheets, blankets, and plastic bags can suffocate people who get caught in them.

Home Safety

Drowning kills more than 1,000 children ages 14 and under each year. For every child who drowns, another 20 children go to the hospital or emergency room because they almost drowned.

It takes just a few easy, fairly low-cost steps to keep

your children safe from many everyday dangers. The questions below and on the next page will help you find safety problems at home. Page 51 will give you ideas about what to do. Remember, making your home safer for everybody may mean taking more than one step.

Questions to Ask

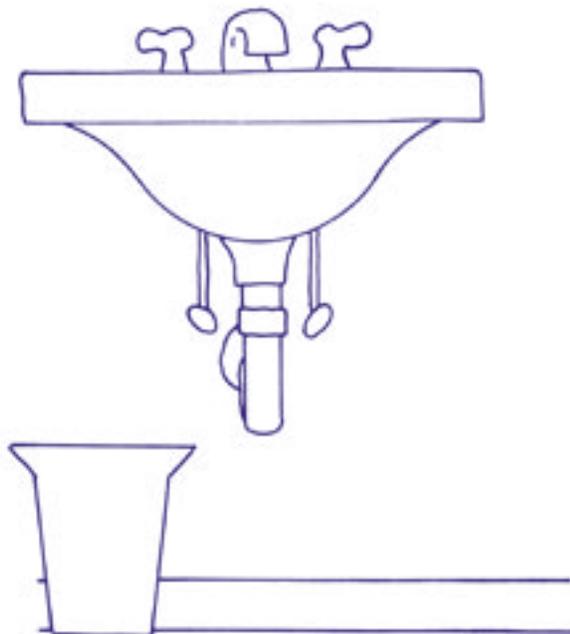
Slips, Trips, and Falls

- Do you keep your floors—especially hallways and stairs—free of things that might make people slip or trip?
- Are your stairs in good shape?
- Are there throw rugs in your home?
- Do you know the safe way to carry big loads?
- Is your home well lighted?

Is Your Home Poison-Proof?

To poison-proof your home, look through each room through the eyes of a child. Is anything that can hurt your child within her or his reach?

Any room can have something in it that can hurt a child: the kitchen, bathroom, bedrooms, living room, basement, garage, or laundry room. Most poisonous products are where people keep cleaning supplies. (See the chapters on Hazardous Household Products page 38 and Pesticides page 42 for more information.)



Home Safety

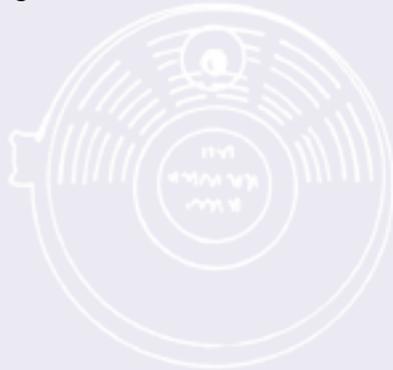
Questions to Ask

Fires and Burns

- Does your house or apartment have at least one smoke alarm?
- Where do you store matches and lighters?
- Have you talked about fire safety with your children?
- Do you have a fire exit plan in case your home catches fire?
- Do you use space heaters safely and with a window open?

Carbon monoxide is deadly gas you can't see or smell. It comes from combustion appliances like gas heaters, furnaces, stoves or dryers. Car exhaust also has carbon monoxide. See the chapter on carbon monoxide on page 23 to learn how to protect your family from this hidden danger.

To protect your family, put in a carbon monoxide alarm!



Watch Out Around Water

- Do you have a pool or does your child go swimming a lot?
- Does the pool you use have a fence around it?
- Do you ever leave toys in the pool?
- Does your child run around the pool?
- Do you ever visit lakes, beaches, or rivers?
- Do you watch your young children in the bathtub?

Pools are very dangerous for infants and toddlers. A toddler who falls in may die or get brain damage. Toddlers love to play in the water. But they don't know that even shallow water can hurt or kill them. Running children can fall down and hurt themselves badly. Children need to be watched around water at all times.



Choking

- Do you keep a close eye on young children at meals and at playtime?
- Do you pick out toys that are right for your child's age?

Young children like to put things in their mouths. Balloons, toys, and toy parts that are small enough to fit into a child's mouth may cause choking. You also may not be able to get them out if they get stuck.

ACTION STEPS

Prevent Slips, Trips, & Falls

- Keep your floors clear of anything that may cause tripping. Pick up hazards such as toys, shoes and magazines.
- Clean up spills right away so people won't slip.
- Repair any stairs that are cracked or worn.
- If there are rugs in your home, use non-skid mats and throw rugs.
- When carrying large or heavy loads, make sure you can see where you're going. Ask for help if you need it.
- Keep your home well lit so you can see where you're walking at night.

Other tips

- Don't use chairs or tables as makeshift ladders.
- Wear shoes with non-skid soles and put young children in non-skid socks.
- Teach your children not to run indoors or jump down stairs.
- Teach your children and other family members about the dangers of falling and how to stay safe.



Poison-Proof Your Home

Use this guide to poison-proof your home room-by-room:

• **Kitchen**

Your kitchen is one of the most dangerous places for a child. Drain openers, detergents, oven cleaners, and other cleaners can hurt you and your children. Put safety latches on all cabinets and drawers with harmful products. Even better, put them in a place that children can't reach. Children often get into dangerous products while someone is using them. If you can, keep your children out of the room while you're cleaning.

• **Bathroom**

Things in your medicine chest—like medicine, makeup, mouthwash, first aid supplies, deodorants and cleaners can hurt children. Keep these out of their reach. Put a safety latch on your medicine chest.

• **Bedroom**

Keep medicine, medications, perfumes, makeup, and cigarettes out of children's reach.

• **Living Room**

Things to look for in the living room are: liquor, cigarettes, furniture polish, lamp oil, and some plants. Keep these out of reach.

• **Garage, Basement, and Laundry Room**

These are some of the most dangerous places in your home. There are lots of chemicals and poisons in them that can hurt or kill a child: bleach, anti-freeze, gasoline, kerosene, car polishes, car batteries, paints, paint removers, mothballs, bug spray, road salt, and more. It's safest to keep children out of these places altogether.

ACTION STEPS, *continued*

Make sure any medicine is stored in child-safe packaging. But remember, child safe doesn't mean child-proof, so keep medicine out of reach.

Do you know what to do if someone in your home gets poisoned? If you think someone has been poisoned, *call your local Poison Control Center right away at 1-800-222-1222.* Keep this number next to *all* of your telephones. Make sure you know:

- Brand-name of product
- Type of product
- Contents as listed on label
- About how much the person ate or drank
- How the person came in contact with the poison (mouth, skin, etc.)
- How long the person was in contact with the poison
- The person's age and weight
- How you tried to help the person, if you did

Prevent Fires and Burns

Put in a smoke alarm on every floor of your home in or near every sleeping area. This will cut in half the chances of someone dying in a fire.

Playing with fire—matches, lighters, stoves or heaters—is the leading cause of fire-related death for children five and under. Storing matches, lighters, and other heat sources in a safe place like a locked drawer will help keep your children from playing with them. Don't let children play near the stove or grill either.

Teach your children how to prevent fires, and what to do if there is a fire. It can make the difference between life and death. Talk about fire safety with your children. Your local fire department can help.

Plan and practice a fire escape route with your family. Do this at night and with the lights off so you'll be ready if there is a fire. Take special steps for getting children, the elderly, and people who may not be able to save themselves out of the building.

Space heaters such as electric or kerosene heaters cause most burns at home. Keep them out of doorways, halls, or other busy areas. Also, keep them at least three feet from curtains, bedding, or other things that could catch fire. Teach children that heaters will burn. Even better, put up a barrier to keep children and pets away.



ACTION STEPS, continued

Prevent Choking and Suffocation

Everyday foods can cause choking. Hot dogs, nuts, popcorn, and hard candy can easily get stuck in a small child's throat. Don't let your young children eat them. Even drinks, like formula, milk, or juice can make babies choke if they drink them lying down, especially from a bottle. Make sure children drink sitting up. Keep a close eye on the young children in your home.

Don't let your children play with balloons. Other household items that can cause problems are coins, marbles, and buttons, so keep your floor picked up. Finally, don't let children play near cars or old appliances. They can suffocate and die if they become trapped in a car trunk or old refrigerator.

Young children can get tangled up and suffocate in curtains, window blind cords, and extension cords. Plastic bags and covers are also dangerous. Don't tie toys or pacifiers to children's clothes. Very small children should not wear jewelry around their necks.

Toys with small parts or long cords may strangle or cause a child under the age of four to choke. Read a toy's package to make sure it's right for your child.

Watch Out Around Water

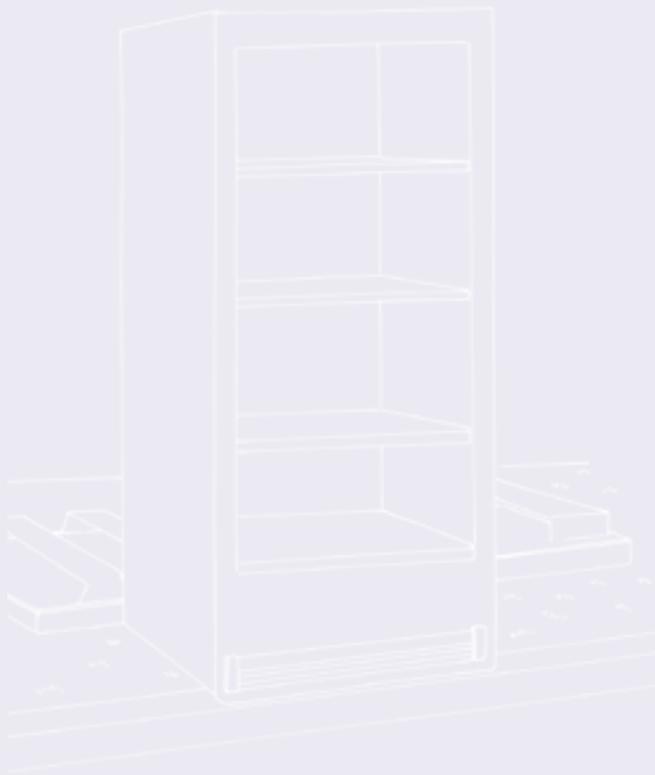
If you have or use a pool—Watch children under the age of 12 at all times around pools. Make sure they walk on the pool deck.

All pools, hot tubs, and spas should have a fence at least five feet high, with a self-closing, self-latching gate around them. It's important that this fence be one that children cannot climb. Don't think of your home as part of the fence, because children can open doors to get to a pool.

Take all toys out of the pool area after swimming so children won't go back into the water and play by themselves.

Children should wear life jackets or vests while on docks or at beaches or rivers. Never let a child swim alone!

Never leave a young child alone in the bathtub. Children can drown in only a couple inches of water.



ACTION STEPS, *continued*

Other Safety Concerns

- Older children and adults should learn first aid and CPR (Cardiopulmonary Resuscitation) so they can help if someone gets hurt. Your local Red Cross offers classes.
- Never let children ride on equipment such as lawn tractors. They may get hurt if they fall off.
- Get safety gear like helmets and kneepads for children riding bicycles, in-line skates, ATVs, scooters, and skateboards. Set a good example by wearing safety gear yourself.
- Store guns safely—unloaded and locked up.
- When traveling by car, make sure that children under 12 ride in the back seat. Use car seats for infants and toddlers under 40 pounds. Use booster seats for children until they are eight years old.

When In Doubt, Check It Out!

- Your local county Extension Office
—look in your telephone book
- Your local or state health department
—look in your telephone book
- For information on product recalls: The Consumer Products Safety Commission at 800/638-2772
—www.cpsc.gov
- National SAFE KIDS Campaign, 202/662-0600
—www.safekids.org, 1301 Pennsylvania Avenue, NW, Ste. 1000, Washington DC 20004
- The American Red Cross—www.redcross.org
- National Safety Council, 800/621-7619
—www.nsc.org

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Congratulations!

You have taken the first step toward a safe and healthy home!

*If you have more questions about the health
and safety of your home contact:*

**US Department of Housing and
Urban Development:
www.hud.gov/healthyhomes**

**US Environmental Protection Agency:
www.epa.gov/children/**

**Children's Environmental Health Network:
www.cehn.org**

**National Safety Council: [www.nsc.org/ehc/
chldhlth.htm](http://www.nsc.org/ehc/chldhlth.htm)**

**US Centers for Disease
Control and Prevention:
www.cdc.gov/od/oc/childhealth/**

***Home*A*Syst:*
www.uwex.edu/homeasyst**

**The Lead Listing
www.leadlisting.org**

Home Buyer's and Seller's Guide to Radon

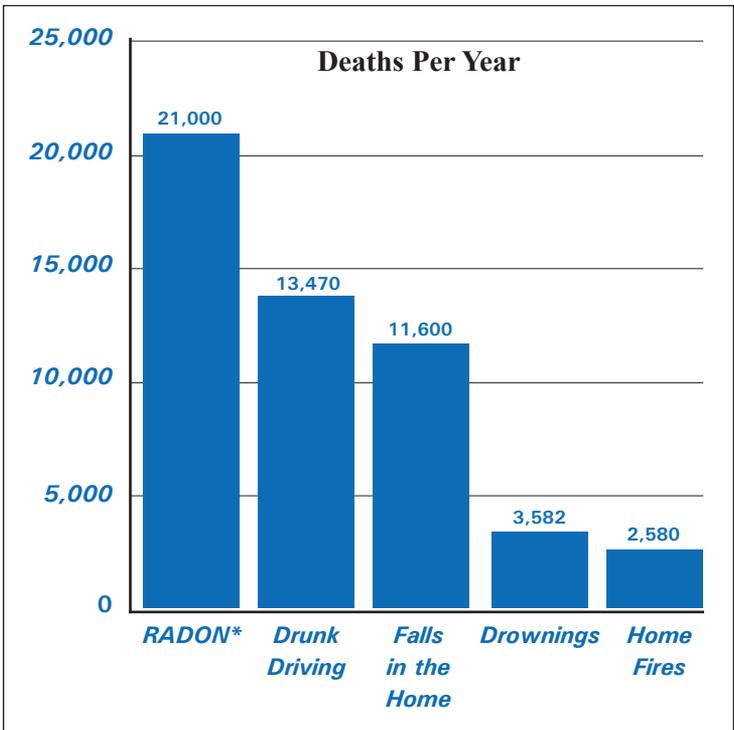


EPA RECOMMENDS:

- If you are buying or selling a home, have it tested for radon.
- For a new home, ask if radon-resistant construction features were used and if the home has been tested.
- Fix the home if the radon level is 4 picocuries per liter (pCi/L) or higher.
- Radon levels less than 4 pCi/L still pose a risk and, in many cases, may be reduced.
- Take steps to prevent device interference when conducting a radon test.



EPA estimates that radon causes thousands of cancer deaths in the U.S. each year.



**Radon is estimated to cause about 21,000 lung cancer deaths per year, according to EPA's 2003 Assessment of Risks from Radon in Homes (EPA 402-R-03-003). The numbers of deaths from other causes are taken from the Centers for Disease Control and Prevention's 2005-2006 National Center for Injury Prevention and Control Report and 2006 National Safety Council Reports.*

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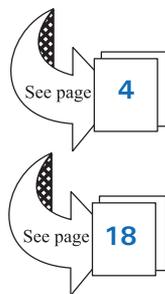
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Overview

This *Guide* answers important questions about radon and lung cancer risk. It also answers questions about testing and fixing for anyone buying or selling a home.

Radon Is a Cancer-Causing, Radioactive Gas

You cannot see, smell, or taste radon. But it still may be a problem in your home. When you breathe air containing radon, you increase your risk of getting lung cancer. In fact, the Surgeon General of the United States has warned that radon is the second leading cause of lung cancer in the United States today. *If you smoke and your home has high radon levels, your risk of lung cancer is especially high.*

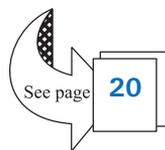


EPA Risk Assessment for Radon in Indoor Air

EPA has updated its estimate of the lung cancer risks from exposure to radon in indoor air. The Agency's updated risk assessment, *EPA Assessment of Risks from Radon in Homes* (EPA 402-R-03-003, June 2003), is available at <http://www.epa.gov/radon/pdfs/402-r-03-003.pdf> as a downloadable Adobe Acrobat PDF file. EPA's reassessment was based on the National Academy of Sciences' (NAS) report on the *Health Effects of Exposure to Radon* (BEIR VI, 1999). The Agency now estimates that there are about 21,000 annual radon-related lung cancer deaths, an estimate consistent with the NAS Report's findings.

You Should Test for Radon

Testing is the only way to find out your home's radon levels. EPA and the Surgeon General recommend testing all homes below the third floor for radon.



You Can Fix a Radon Problem

If you find that you have high radon levels, there are ways to fix a radon problem. Even very high levels can be reduced to acceptable levels.

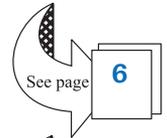
If You Are Selling a Home...

EPA recommends that you test your home before putting it on the market and, if necessary, lower your radon levels. Save the test results and all information you have about steps that were taken to fix any problems. This could be a positive selling point.

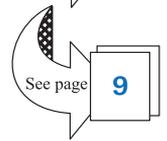
If You Are Buying a Home...

EPA recommends that you know what the indoor radon level is in any home you consider buying. Ask the seller for their radon test results. If the home has a radon-reduction system, ask the seller for any information they have about the system.

If the home has not yet been tested, you should have the house tested.

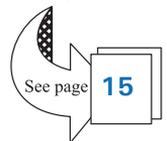


If you are having a new home built, there are features that can be incorporated into your home during construction to reduce radon levels.



The radon testing guidelines in this *Guide* have been developed specifically to deal with the time-sensitive nature of home purchases and sales, and the potential for radon device interference. These guidelines are slightly different from the guidelines in other EPA publications which provide radon testing and reduction information for *non-real estate* situations.

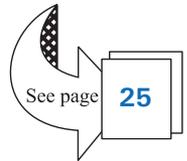
This *Guide* recommends three short-term testing options for real estate transactions. EPA also recommends testing a home in the lowest level that could be used regularly, since a buyer may choose to live in a lower area of the home than that used by the seller.



1. Why Should I Test for Radon

a. Radon Has Been Found In Homes All Over the United States

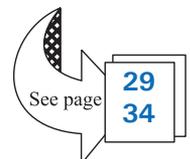
Radon is a radioactive gas that has been found in homes all over the United States. It comes from the natural breakdown of uranium in soil, rock, and water and gets into the air you breathe. Radon typically moves up through the ground to the air above and into your home through cracks and other holes in the foundation. Radon can also enter your home through well water. Your home can trap radon inside.



Any home can have a radon problem. This means new and old homes, well-sealed and drafty homes, and homes with or without basements. In fact, you and your family are most likely to get your greatest radiation exposure at home. That is where you spend most of your time.



Nearly one out of every 15 homes in the United States is estimated to have an elevated radon level (4 pCi/L or more). Elevated levels of radon gas have been found in homes in your state. Contact your state radon office for information about radon in your area.



b. EPA and the Surgeon General Recommend That You Test Your Home

Testing is the only way to know if you and your family are at risk from radon. EPA and the Surgeon General recommend testing all homes below the third floor for radon.

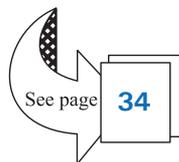
U.S. SURGEON GENERAL HEALTH ADVISORY

“Indoor radon is the second-leading cause of lung cancer in the United States and breathing it over prolonged periods can present a significant health risk to families all over the country. It’s important to know that this threat is completely preventable. Radon can be detected with a simple test and fixed through well-established venting techniques.” January 2005



You cannot predict radon levels based on state, local, and neighborhood radon measurements. Do not rely on radon test results taken in other homes in the neighborhood to estimate the radon level in your home. Homes which are next to each other can have different indoor radon levels. Testing is the only way to find out what your home’s radon level is.

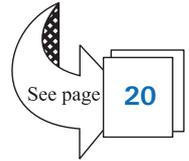
In some areas, companies may offer different types of radon service agreements. Some agreements let you pay a one-time fee that covers both testing and radon mitigation, if needed. Contact your state radon office to find out if these are available in your state.



2. I'm Selling a Home. What Should I Do?

a. If Your Home Has Already Been Tested for Radon...

If you are thinking of selling your home and you have already tested your home for radon, review the *Radon Testing Checklist* to make sure that the test was done correctly. If so, provide your test results to the buyer.



No matter what kind of test was done, a potential buyer may ask for a new test, especially if:

- The *Radon Testing Checklist* items were not met;
- The last test is not recent, e.g., within two years;
- You have renovated or altered your home since you tested; or
- The buyer plans to use a lower level of the house than was tested, such as a basement that could be used regularly by the buyer.

A buyer may also ask for a new test if your state or local government requires disclosure of radon information to buyers.

b. If Your Home Has *Not Yet* Been Tested for Radon...

Have a test taken as soon as possible. If you can, test your home before putting it on the market. You should test in the lowest level of the home that could be used regularly. This means testing in the lowest level that you currently live in or a lower level not currently used, but which a buyer might use as a family room or play area, etc.

The radon test result is important information about your home's radon level. Some states require radon measurement testers to follow a specific testing protocol. If you do the test yourself, you should carefully follow the testing protocol for your area or EPA's *Radon Testing Checklist*. If you hire a contractor to test your residence, protect yourself by hiring a **qualified*** individual or company.



You can determine a service provider's qualifications to perform radon measurements or to mitigate your home in several ways. **Check with your state radon office.** Many states require radon professionals to be licensed, certified, or registered. Most states can provide you with a list of knowledgeable radon service providers doing business in the state. In states that don't regulate radon services, **ask the contractor if they hold a professional proficiency or certification credential.** Such programs usually provide members with a photo-ID card, which indicates their qualification(s) and its expiration date. If in doubt, you should check with their credentialing organization. Alternatively, **ask the contractor if they've successfully completed formal training** appropriate for testing or mitigation, e.g., a course in radon measurement or radon mitigation.

* You should first call your state radon office for information on qualified radon service providers and state-specific radon measurement or mitigation requirements. See Section 9 (p. 34) for information on which states have certification, licensing, or registration programs. For up-to-date information on state radon program offices, visit <http://www.epa.gov/iaq/contacts.html>. EPA's detailed and technical guidance on radon measurement and mitigation is included in Section 8 (p. 29); however, state requirements or guidance may be more stringent. Visit <http://www.epa.gov/radon/radontest.html> for links to private sector radon credentialing programs.

3. I'm Buying a Home. What Should I Do?



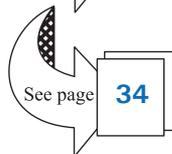
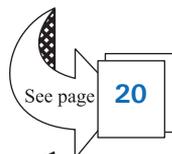
a. If the Home Has Already Been Tested for Radon...

If you are thinking of buying a home, you may decide to accept an earlier test result from the seller or ask the seller for a new test to be conducted by a qualified radon tester. Before you accept the seller's test, you should determine:

- The results of previous testing;
- Who conducted the previous test: the homeowner, a radon professional, or some other person;
- Where in the home the previous test was taken, especially if you may plan to live in a lower level of the home. For example, the test may have been taken on the first floor. However, if you want to use the basement as living space, test there; and
- What, if any, structural changes, alterations, or changes in the heating, ventilation, and air conditioning (HVAC) system have been made to the house since the test was done. Such changes might affect radon levels.

If you accept the seller's test, make sure that the test followed the *Radon Testing Checklist*.

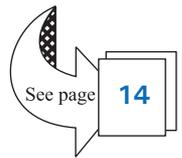
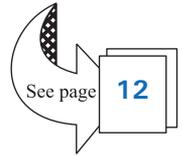
If you decide that a new test is needed, discuss it with the seller as soon as possible. If you decide to use a qualified radon tester, contact your state radon office to obtain a copy of their approved list of radon testing companies.



b. If the Home Has *Not Yet* Been Tested for Radon...

Make sure that a radon test is done as soon as possible. Consider including provisions in the contract specifying:

- Where the test will be located;
- Who should conduct the test;
- What type of test to do;
- When to do the test;
- How the seller and the buyer will share the test results and test costs (if necessary); and
- When radon mitigation measures will be taken, and who will pay for them.



Make sure that the test is done in the lowest level of the home that could be used regularly. This means the lowest level that you are going to use as living space whether it is finished or unfinished. A state or local radon official or qualified radon tester can help you make some of these decisions.

If you decide to finish or renovate an unfinished area of the home in the future, a radon test should be done before starting the project and after the project is finished. Generally, it is less expensive to install a radon-reduction system before (or during) renovations rather than afterwards.

4. I'm Buying or Building a New Home. How Can I Protect My Family?

a. Why Should I Buy a Radon-Resistant Home?

Radon-resistant techniques work. When installed properly and completely, these simple and inexpensive passive techniques can help to reduce radon levels. In addition, installing them at the time of construction makes it easier to reduce radon levels further if the passive techniques don't reduce radon levels to below 4 pCi/L. Radon-resistant techniques may also help to lower moisture levels and those of other soil gases. Radon-resistant techniques:

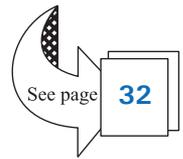
- ✓ **Make Upgrading Easy:** Even if built to be radon-resistant, **every new home should be tested for radon as soon as possible after occupancy.** If you have a test result of 4 pCi/L or more, a vent fan can easily be added to the passive system to make it an active system and further reduce radon levels.
- ✓ **Are Cost-Effective:** Building radon-resistant features into the house during construction is easier and cheaper than fixing a radon problem from scratch later. Let your builder know that radon-resistant features are easy to install using common building materials.
- ✓ **Save Money:** When installed properly and completely, radon-resistant techniques can also make your home more energy efficient and help you save on your energy costs.



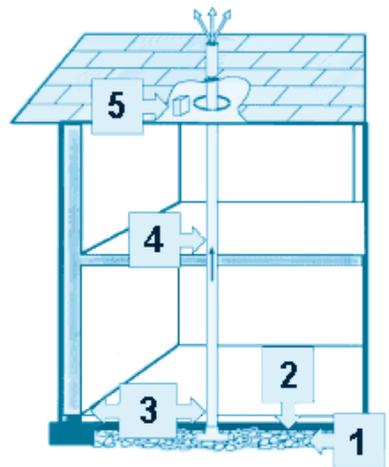
Including passive radon-resistant features in a **new home** during construction usually costs less than fixing the home later. If your radon level is 4 pCi/L or more, consult a qualified mitigator to estimate the cost of upgrading to an active system by adding a vent fan to reduce the radon level. In an **existing home**, the cost to install a radon mitigation system is about the same as for other common home repairs. Check with, and get an estimate from, one or more qualified mitigators before fixing.

b. What Are Radon-Resistant Features?

Radon-resistant techniques (features) may vary for different foundations and site requirements. If you're having a house built, ask your builder if they're using EPA's recommended approach (International Residential Code, Appendix F, or ASTM E 1465-08). If your new house was built (or will be built) to be radon-resistant, it will include these basic elements:



- 1. Gas-Permeable Layer:** This layer is placed beneath the slab or flooring system to allow the soil gas to move freely underneath the house. In many cases, the material used is a 4-inch layer of clean gravel. This gas-permeable layer is used only in homes with basement and slab-on-grade foundations; it is not used in homes with crawlspace foundations.
- 2. Plastic Sheeting:** Plastic sheeting is placed on top of the gas-permeable layer and under the slab to help prevent the soil gas from entering the home. In crawl spaces, the sheeting (with seams sealed) is placed directly over the crawlspace floor.
- 3. Sealing and Caulking:** All below-grade openings in the foundation and walls are sealed to reduce soil gas entry into the home.
- 4. Vent Pipe:** A 3- or 4-inch PVC pipe (or other gas-tight pipe) runs from the gas-permeable layer through the house to the roof, to safely vent radon and other soil gases to the outside.
- 5. Junction Boxes:** An electrical junction box is included in the attic to make the wiring and installation of a vent fan easier. For example, you decide to activate the passive system because your test result showed an elevated radon level (4 pCi/L or more). A separate junction box is placed in the living space to power the vent fan alarm. An alarm is installed along with the vent fan to indicate when the vent fan is not operating properly.

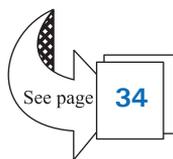
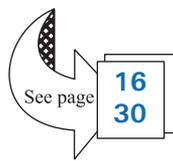


5. How Can I Get Reliable Radon Test Results?

Radon testing is easy and the only way to find out if you have a radon problem in your home.

a. Types of Radon Devices

Since you cannot see or smell radon, special equipment is needed to detect it. When you're ready to test your home, you can order a radon test kit by mail from a qualified radon measurement services provider or laboratory. You can also hire a qualified radon tester, very often a home inspector, who will use a radon device(s) suitable to your situation. The most common types of radon testing devices are listed below. As new testing devices are developed, you may want to check with your state radon office before you test to get the most up-to-date information.



✓ *Passive Devices*

Passive radon testing devices do not need power to function. These include **charcoal canisters**, **alpha-track detectors**, **charcoal liquid scintillation devices**, and **electret ion chamber detectors**, which are available in hardware, drug, and other stores; they can also be ordered by mail or phone. These devices are exposed to the air in the home for a specified period of time and then sent to a laboratory for analysis. Both short-term and long-term passive devices are generally inexpensive. Some of these devices may have features that offer more resistance to test interference or disturbance than other passive devices. Qualified radon testers may use any of these devices to measure the home's radon level.

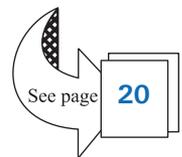
✓ *Active Devices*

Active radon testing devices require power to function. These include **continuous radon monitors** and **continuous working level monitors**. They continuously measure and record the amount of radon or its decay products in the air. Many of these devices provide a report of this information which can reveal any unusual or abnormal swings in the radon level during the test period. A qualified tester can explain this report to you. In addition, some of these devices are specifically designed to deter and detect test interference. Some technically advanced active devices offer anti-interference features. Although these tests may cost more, they may ensure a more reliable result.

b. General Information for All Devices

A state or local radon official can explain the differences between devices and recommend the ones which are most appropriate for your needs and expected testing conditions.

Make sure to use a radon measurement device from a qualified laboratory. Certain precautions should be followed to avoid interference during the test period; see the *Radon Testing Checklist* for more information on how to get a reliable test result.



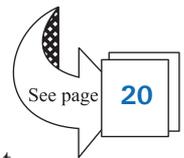
Radon Test Device Placement

EPA recommends that the test device(s) be placed in the lowest level of the home that could be used regularly, whether it is finished or unfinished. Conduct the test in any space that could be used by the buyer as a bedroom, play area, family room, den, exercise room, or workshop. Based on their client's intended use of the space, the qualified testing professional should identify the appropriate test location and inform their client (buyer). Do **not** test in a closet, stairway, hallway, crawl space or in an enclosed area of high humidity or high air velocity. An enclosed area may include a kitchen, bathroom, laundry room or furnace room.

c. Preventing or Detecting Test Interference

There is a potential for test interference in real estate transactions. There are several ways to prevent or detect test interference:

- Use a test device that frequently records radon or decay product levels to detect unusual swings;
- Employ a motion detector to determine whether the test device has been moved or if testing conditions have changed;
- Use a proximity detector to reveal the presence of people in the room which may correlate to possible changes in radon levels during the test;
- Record the barometric pressure to identify weather conditions which may have affected the test;
- Record the temperature to help assess whether doors and windows have been opened;
- Apply tamper-proof seals to windows to ensure closed-house conditions; and
- Have the seller/occupant sign a non-interference agreement.



Home buyers and sellers should consult a qualified radon test provider about the use of these precautions.

d. Length of Time to Test

Because radon levels tend to vary from day to day and season to season, a short-term test is less likely than a long-term test to tell you your year-round average radon level. However, if you need results quickly, a short-term test may be used to decide whether to fix the home.

There Are Two General Ways to Test Your Home for Radon:

✓ *Short-Term Testing*

The quickest way to test is with short-term tests. Short-term tests remain in your home from two to 90 days, depending on the device. There are two groups of devices which are more commonly used for short-term testing. The passive device group includes **alpha track detectors, charcoal canisters, charcoal liquid scintillation detectors, and electret ion chambers**. The active device group consists of different types of **continuous monitors**.

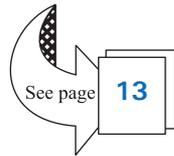
Whether you test for radon yourself or hire a qualified tester, all radon tests should be taken for a minimum of 48 hours. Some devices require a longer (minimum) length of time, e.g., a 7-day charcoal canister device.

✓ *Long-Term Testing*

Long-term tests remain in your home for more than 90 days. **Alpha track and electret ion chamber detectors** are commonly used for this type of testing. A long-term test result is more likely to tell you your home's year-round average radon level than a short-term test. If time permits (more than 90 days), long-term tests can be used to confirm initial short-term results. When long-term test results are 4 pCi/L or higher, EPA recommends fixing the home.

e. Doing a Short-Term Test...

If you are testing in a real estate transaction and you need results quickly, any of the following three options for short-term tests are acceptable in determining whether the home should be fixed. Any real estate test for radon should include steps to prevent or detect interference with the test device.



When Choosing a Short-Term Testing Option...

There are trade-offs among the short-term testing options. Two tests taken at the same time (simultaneous) would improve the precision of this radon test. One test followed by another test (sequential) would most likely give a better representation of the seasonal average. Both active and passive devices may have features which help to prevent test interference. Your state radon office can help you decide which option is best.

Short-Term Testing Options

Passive:

Take two short-term tests at the same time in the same location for at least 48 hours.

or

Take an initial short-term test for at least 48 hours. Immediately upon completing the first test, do a second test using an identical device in the same location as the first test.

Active:

Test the home with a continuous monitor for at least 48 hours.

What to Do Next

Fix the home if the average of the two tests is 4 pCi/L or more.

Fix the home if the average of the two tests is 4 pCi/L or more.

Fix the home if the average radon level is 4 pCi/L or more.

f. Using Testing Devices Properly for Reliable Results

✓ *If You Do the Test Yourself*

When you are taking a short-term test, close windows and doors to the outside and keep them closed, except for normal entry and exit. If you are taking a short-term test lasting less than four days, be sure to:

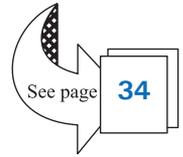


- Close your windows and outside doors at least 12 hours before beginning the test;
- Do not conduct short-term tests lasting less than four days during severe storms or periods of high winds;
- Follow the testing instructions and record the start time and date;
- Place the test device at least 20 inches above the floor in a location where it will not be disturbed and where it will be away from drafts, high heat, high humidity, and exterior walls;
- Leave the test kit in place for as long as the test instructions say; and
- Once the test is finished, record the stop time and date, reseal the package, and return it immediately to the lab specified on the package for analysis.

You should receive your test results within a few days or weeks. If you need results quickly, you should find out how long results will take and, if necessary, request expedited service.

✓ *If You Hire a Qualified Radon Tester*

In many cases, home buyers and sellers may decide to have the radon test done by a qualified radon tester who knows the proper conditions, test devices, and guidelines for obtaining a reliable radon test result. They can also:



- Evaluate the home and recommend a testing approach designed to make sure you get reliable results;
- Explain how proper conditions can be maintained during the radon test;
- Emphasize to a home's occupants that a reliable test result depends upon their cooperation. Interference with, or disturbance of, the test or closed-house conditions will invalidate the test result;
- Analyze the data and report the measurement results; and
- Provide an independent test result.

Your state radon office may also have information about qualified radon testers and certification requirements.

g. Interpreting Radon Test Results

The average indoor radon level is estimated to be about 1.3 pCi/L; roughly 0.4 pCi/L of radon is normally found in the outside air. The U.S. Congress has set a long-term goal that indoor radon levels be no more than outdoor levels. While this goal is not yet technologically achievable for all homes, radon levels in many homes *can* be reduced to 2 pCi/L or less. A radon level below 4 pCi/L still poses a risk. Consider fixing when the radon level is between 2 and 4 pCi/L.

Radon and Smoking

RADON RISK IF YOU SMOKE

Radon Level	If 1,000 people who smoked were exposed to this level over a lifetime* . . .	The risk of cancer from radon exposure compares to** . . .	WHAT TO DO: Stop Smoking and . . .
20 pCi/L	About 260 people could get lung cancer	◀ 250 times the risk of drowning	Fix your home
10 pCi/L	About 150 people could get lung cancer	◀ 200 times the risk of dying in a home fire	Fix your home
8 pCi/L	About 120 people could get lung cancer	◀ 30 times the risk of dying in a fall	Fix your home
4 pCi/L	About 62 people could get lung cancer	◀ 5 times the risk of dying in a car crash	Fix your home
2 pCi/L	About 32 people could get lung cancer	◀ 6 times the risk of dying from poison	Consider fixing between 2 and 4 pCi/L
1.3 pCi/L	About 20 people could get lung cancer	(Average indoor radon level)	(Reducing radon levels below 2 pCi/L is difficult)
0.4 pCi/L		(Average outdoor radon level)	

Note: If you are a former smoker, your risk may be lower.

RADON RISK IF YOU HAVE NEVER SMOKED

Radon Level	If 1,000 people who never smoked were exposed to this level over a lifetime* . . .	The risk of cancer from radon exposure compares to** . . .	WHAT TO DO:
20 pCi/L	About 36 people could get lung cancer	◀ 35 times the risk of drowning	Fix your home
10 pCi/L	About 18 people could get lung cancer	◀ 20 times the risk of dying in a home fire	Fix your home
8 pCi/L	About 15 people could get lung cancer	◀ 4 times the risk of dying in a fall	Fix your home
4 pCi/L	About 7 people could get lung cancer	◀ The risk of dying in a car crash	Fix your home
2 pCi/L	About 4 people could get lung cancer	◀ The risk of dying from poison	Consider fixing between 2 and 4 pCi/L
1.3 pCi/L	About 2 people could get lung cancer	(Average indoor radon level)	(Reducing radon levels below 2 pCi/L is difficult)
0.4 pCi/L		(Average outdoor radon level)	

Note: If you are a former smoker, your risk may be higher.

*Lifetime risk of lung cancer deaths from *EPA Assessment of Risks from Radon in Homes* (EPA 402-R-03-003).

**Comparison data calculated using the Centers for Disease Control and Prevention's 1999-2001 National Center for Injury Prevention and Control Reports.

Sometimes short-term tests are less definitive about whether the radon level in the home is at or above 4 pCi/L; particularly when the results are close to 4 pCi/L. For example, if the average of two short-term tests is 4.1 pCi/L, there is about a 50 percent chance that the year-round average is somewhat below, or above, 4 pCi/L.

However, EPA believes that any radon exposure carries some risk; no level of radon is safe. Even radon levels below 4 pCi/L pose some risk. You can reduce your risk of lung cancer by lowering your radon level.

As with other environmental pollutants, there is some uncertainty about the magnitude of radon health risks. However, we know more about radon risks than risks from most other cancer-causing substances. This is because estimates of radon risks are based on data from human studies (underground miners). Additional studies on more typical populations are under way.

Your radon measurement will give you an idea of your risk of getting lung cancer. Your chances of getting lung cancer from radon depend mostly on:

- ✓ Your home's radon level;
- ✓ The amount of time you spend in your home; and
- ✓ Whether you are a smoker or have ever smoked.

Smoking combined with radon is an especially serious health risk. If you smoke or are a former smoker, the presence of radon greatly increases your risk of lung cancer. If you stop smoking now and lower the radon level in your house, you will reduce your lung cancer risk.

Radon Testing Checklist

For reliable test results, follow this *Radon Testing Checklist* carefully. Testing for radon is not complicated. Improper testing may yield inaccurate results and require another test. Disturbing or interfering with the test device, or with **closed-house conditions***, may invalidate the test results and is illegal in some states. If the seller or qualified tester cannot confirm that all items have been completed, take another test.

✓ *Before Conducting a Radon Test:*

- Notify the occupants of the importance of proper testing conditions. Give the occupants written instructions or a copy of this *Guide* and explain the directions carefully.
- Conduct the radon test for a minimum of 48 hours; some test devices have a minimum exposure time greater than 48 hours.
- When doing a short-term test ranging from 2-4 days, it is important to maintain closed-house conditions for at least 12 hours before the beginning of the test and during the entire test period.
- When doing a short-term test ranging from 4-7 days, EPA recommends that closed-house conditions be maintained.
- If you conduct the test yourself, use a qualified radon measurement device and follow the laboratory's instructions. Your state may be able to provide you with a list of do-it-yourself test devices available from qualified laboratories.
- If you hire someone to do the test, hire only a qualified individual. Some states issue photo identification (ID) cards; ask to see it. The tester's ID number, if available, should be included or noted in the test report.



*Closed-house conditions means keeping all windows closed, keeping doors closed except for normal entry and exit, and not operating fans or other machines which bring in air from outside. Fans that are part of a radon-reduction system or small exhaust fans operating for only short periods of time may run during the test.

Radon Testing Checklist

(continued)

- The test should include method(s) to prevent or detect interference with testing conditions or with the testing device itself.
- If the house has an active radon-reduction system, make sure the vent fan is operating properly. If the fan is not operating properly, have it (or ask to have it) repaired and then test.
- ✓ ***During a Radon Test:***
 - Maintain closed-house conditions during the entire duration of a short-term test, especially for tests shorter than one week in length.
 - Operate the home's heating and cooling systems normally during the test. For tests lasting less than one week, operate only air-conditioning units which recirculate interior air.
 - Do not disturb the test device at any time during the test.
 - If a radon-reduction system is in place, make sure the system is working properly and will be in operation during the entire radon test.
- ✓ ***After a Radon Test:***
 - If you conduct the test yourself, be sure to promptly return the test device to the laboratory. Be sure to complete the required information, including start and stop times, test location, etc.
 - If an elevated radon level is found, fix the home. Contact a qualified radon-reduction contractor about lowering the radon level. EPA recommends that you fix the home when the radon level is 4 pCi/L or more.
 - Be sure that you or the radon tester can demonstrate or provide information to ensure that the testing conditions were not violated during the testing period.

6. What Should I Do if the Radon Level is High?

a. High Radon Levels Can Be Reduced

EPA recommends that you take action to reduce your home's indoor radon levels if your radon test result is 4 pCi/L or higher. It is better to correct a radon problem before placing your home on the market because then you have more time to address a radon problem.

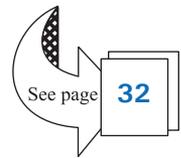
If elevated levels are found during the real estate transaction, the buyer and seller should discuss the timing and costs of radon reduction. The cost of making repairs to reduce radon levels depends on how your home was built and other factors. Most homes can be fixed for about the same cost as other common home repairs. Check with and get an estimate from one or more qualified mitigators.

b. How to Lower the Radon Level In Your Home

A variety of methods can be used to reduce radon in homes. Sealing cracks and other openings in the foundation is a basic part of most approaches to radon reduction. EPA does not recommend the use of sealing alone to limit radon entry. Sealing alone has not been shown to lower radon levels significantly or consistently.

In most cases, a system with a vent pipe(s) and fan(s) is used to reduce radon. These “sub-slab depressurization” systems do not require major changes to your home. Similar systems can also be installed in homes with crawl spaces. These systems prevent radon gas from entering the home from below the concrete floor and from outside the foundation. Radon mitigation contractors may use other methods that may also work in your home. The right system depends on the design of your home and other factors.

Techniques for reducing radon are discussed in EPA's *Consumer's Guide to Radon Reduction*. As with any other household appliance, there are costs associated with the operation of a radon-reduction system.

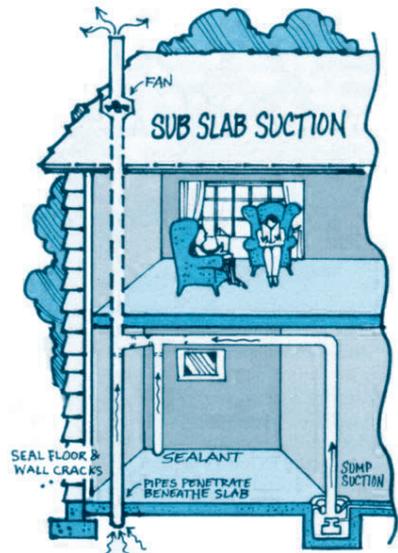


Radon and Home Renovations

If you are planning any major renovations, such as converting an unfinished basement area into living space, it is especially important to test the area before you begin.

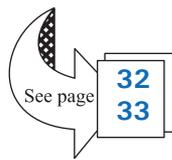
If your test results indicate an elevated radon level, radon-resistant techniques can be inexpensively included as part of the renovation. Major renovations can change the level of radon in any home. Test again after the work is completed.

You should also test your home again after it is fixed to be sure that radon levels have been reduced. If your living patterns change and you begin occupying a lower level of your home (such as a basement), you should retest your home on that level. In addition, it is a good idea to retest your home sometime in the future to be sure radon levels remain low.



c. Selecting a Radon-Reduction (Mitigation) Contractor

Select a qualified radon-reduction contractor to reduce the radon level in your home. Any mitigation measures taken or system installed in your home must conform to your state's regulations. In states without regulations covering mitigation, EPA recommends that the system conform to ASTM E 2121.



EPA recommends that the mitigation contractor review the radon measurement results before beginning any radon-reduction work. Test again after the radon mitigation work has been completed to confirm that previous elevated levels have been reduced. EPA recommends that the test be conducted by an independent, qualified radon tester.



d. What Can a Qualified Radon-Reduction Contractor Do for You?

A qualified radon-reduction (mitigation) contractor should be able to:

- Review testing guidelines and measurement results, and determine if additional measurements are needed;
- Evaluate the radon problem and provide you with a detailed, written proposal on how radon levels will be lowered;
- Design a radon-reduction system;
- Install the system according to EPA recommended standard, or state and local codes; and
- Make sure the finished system effectively reduces radon levels to acceptable levels.

Choose a radon mitigation contractor to fix your radon problem just as you would for any other home repair. You may want to get more than one estimate, and ask for and check their references. Make sure the person you hire is qualified to install a mitigation system. Some states regulate or certify radon mitigation services providers.

Be aware that a potential conflict of interest exists if the same person or firm performs the testing and installs the mitigation system. Some states may require the homeowner to sign a waiver in such cases. If the same person or firm does the testing and mitigation, make sure the testing is done in accordance with the *Radon Testing Checklist*. Contact your state radon office for more information.

e. Radon In Water

The radon in your home's indoor air can come from two sources, the soil or your water supply. Compared to radon entering your home through the water, radon entering your home through the soil is a much larger risk. If you've tested for radon in air and have elevated radon levels **and** your water comes from a private well, have your water tested. The devices and procedures for testing your home's water supply are different from those used for measuring radon in air.

The radon in your water supply poses an inhalation risk and an ingestion risk. Research has shown that your risk of lung cancer from breathing radon in air is much larger than your risk of stomach cancer from swallowing water with radon in it. Most of your risk from radon in water comes from radon released into the air when water is used for showering and other household purposes.

Radon in your home's water is not usually a problem when its source is surface water. A radon in water problem is more likely when its source is ground water, e.g., a private well or a public water supply system that uses ground water. Some public water systems treat their water to reduce radon levels before it is delivered to your home. If you are concerned that radon may be entering your home through the water and your water comes from a public water supply, contact your water supplier.

If you've tested your private well and have a radon in water problem, it can be fixed. Your home's water supply can be treated in one of two ways. **Point-of-entry** treatment can effectively remove radon from the water before it enters your home. Point-of-entry treatment usually employs either granular activated carbon (GAC) filters or aeration devices. While GAC filters usually cost less than aeration devices, filters can collect radioactivity and may require a special method of disposal. **Point-of-use** treatment devices remove radon from your water at the tap, but only treat a small portion of the water you use, e.g., the water you drink. Point-of-use devices are not effective in reducing the risk from breathing radon released into the air from all water used in the home.

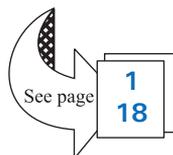
For information on radon in water, testing and treatment, and existing or planned radon in drinking water standards, or for general help, call EPA's Drinking Water Hotline at (800) 426-4791 or visit <http://www.epa.gov/safewater/radon.html>, an EPA web site. If your water comes from a private well, you can also contact your state radon office.



7. Radon Myths and Facts

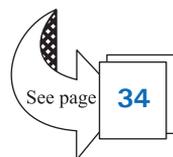
MYTH #1: Scientists are not sure that radon really is a problem.

FACT: Although some scientists dispute the precise number of deaths due to radon, all the major health organizations (like the Centers for Disease Control, the American Lung Association, and the American Medical Association) agree with estimates that radon causes thousands of preventable lung cancer deaths every year. This is especially true among smokers, since the risk to smokers is much greater than to non-smokers.



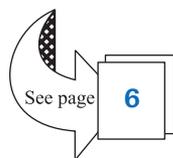
MYTH #2: Radon testing devices are not reliable and are difficult to find.

FACT: Reliable radon tests are available from qualified radon testers and companies. Active radon devices can continuously gather and periodically record radon levels to reveal any unusual swings in the radon level during the test. Reliable testing devices are also available by phone or mail-order, and can be purchased in hardware stores and other retail outlets. Call your state radon office for a list of qualified radon test companies.



MYTH #3: Radon testing is difficult and time-consuming.

FACT: Radon testing is easy. You can test your home yourself or hire a qualified radon test company. Either approach takes only a small amount of time and effort.



MYTH #4: Homes with radon problems cannot be fixed.

FACT: There are solutions to radon problems in homes. Thousands of home owners have already lowered their radon levels. Most homes can be fixed for about the same cost as other common home repairs. Call your state radon office for a list of qualified mitigation contractors.

MYTH #5: Radon only affects certain types of homes.

FACT: Radon can be a problem in all types of homes, including old homes, new homes, drafty homes, insulated homes, homes with basements, and homes without basements. Local geology, construction materials, and how the home was built are among the factors that can affect radon levels in homes.

MYTH #6: Radon is only a problem in certain parts of the country.

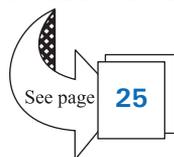
FACT: High radon levels have been found in every state. Radon problems do vary from area to area, but the only way to know a home's radon level is to test.

MYTH #7: A neighbor's test result is a good indication of whether your home has a radon problem.

FACT: It is not. Radon levels vary from home to home. The only way to know if your home has a radon problem is to test it.

MYTH #8: Everyone should test their water for radon.

FACT: While radon gets into some homes through the water, it is important to first test the air in the home for radon. If your water comes from a public water system that uses ground water, call your water supplier. If high radon levels are found and the home has a private well, call the Safe Drinking Water Hotline at (800) 426-4791 for information on testing your water. Also, call your state radon office for more information about radon in air.



MYTH #9: It is difficult to sell a home where radon problems have been discovered.

FACT: Where radon problems have been fixed, home sales have not been blocked. The added protection will be a good selling point.

MYTH #10: I have lived in my home for so long, it does not make sense to take action now.

FACT: You will reduce your risk of lung cancer when you reduce radon levels, even if you have lived with an elevated radon level for a long time.

MYTH #11: Short-term tests cannot be used for making a decision about whether to reduce the home's high radon levels.

FACT: Short-term tests can be used to decide whether to reduce the home's high radon levels. However, the closer the short-term testing result is to 4 pCi/L, the less certainty there is about whether the home's year-round average is above or below that level. Keep in mind that radon levels below 4 pCi/L still pose some risk and that radon levels can be reduced to 2 pCi/L or below in most homes.

8. Need More Information about Radon?

If you have a radon-related question, you should contact your state radon office. The following web sites, hotlines, and publications are your best sources of information. Visit our Frequent Questions web site at <http://iaq.custhelp.com>. You can also find indoor air quality information and publications on EPA's many web sites.

a. World Wide Web Sites (EPA)

These are EPA's most important web sites for information on radon and indoor air quality in homes. All the EPA publications listed in this section are available on EPA's web sites.

- <http://www.epa.gov/radon/>. EPA's main radon page. Includes links to the NAS radon report, radon-resistant new construction, the map of radon zones, radon publications, hotlines, and more.
- <http://www.epa.gov/iaq/wherelive.html>. Provides detailed information on contacting your state's radon office, including links to some state web sites. State indoor air quality contacts are also included.
- <http://www.epa.gov/iaq/radon/pubs/index.html>. Offers the full text version of EPA's most popular radon publications, including the *Home Buyer's and Seller's Guide to Radon*, the *Consumer's Guide to Radon Reduction*, and the *Model Standards and Techniques for Control of Radon in New Residential Buildings*, and others.
- <http://www.epa.gov/iaq>. EPA's main page on indoor air quality. Includes information on indoor risk factors, e.g., asthma, secondhand smoke, carbon monoxide, duct cleaning, ozone generating devices, indoor air cleaners, flood cleanup, etc.
- <http://www.epa.gov/safewater/radon.html>. EPA's main page on radon in water. Includes information on statutory requirements and links to the drinking water standards program.

b. Radon Hotlines (Toll-Free)

EPA supports the following hotlines to best serve consumers with radon-related questions and concerns.



-  **1-800-SOS-RADON (767-7236).** * Purchase radon test kits by phone.
-  **1-800-55RADON (557-2366).** * Get live help for your radon questions.
-  **1-800-644-6999.** * Radon Fix-It Hotline. For general information on fixing or reducing the radon level in your home.
-  **1-866-528-3187.** * Línea Directa de Información sobre Radón en Español. Hay operadores disponibles desde las 9:00 AM hasta las 5:00 PM para darle información sobre radón y como ordenar un kit para hacer la prueba de radón en su hogar.
-  **1-800-426-4791.** Safe Drinking Water Hotline. For general information on drinking water, radon in water, testing and treatment, and standards for radon in drinking water. Operated under a contract with EPA.

*Operated by the National Safety Council in partnership with EPA.

c. Printed Documents

Radon Risk and Testing

□ *Home Buyer's and Seller's Guide to Radon*

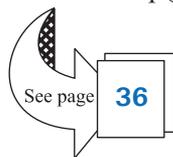
(EPA 402/K-09/002, January 2009).

Everything you need to know about effectively dealing with radon during a residential real estate transaction. This publication can be viewed at <http://www.epa.gov/iaq/radon/pubs/hmbyguid.html> and is available as a portable document format (pdf) file. The publication is in the public domain and may be reproduced or reprinted in its entirety and without changes. A franking/imprint space for organizations and businesses is available on the lower half of the back cover. This publication was prepared by EPA's Indoor Environments Division (IED), Office of Radiation and Indoor Air (6609-J), 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20460.

Single copies are available *free* from the following sources (multiple copies may be available in some instances; ask for details):

- ✓ State radon offices; see <http://www.epa.gov/iaq/whereyoulive.html>.
- ✓ National Service Center for Environmental Publications (NSCEP) at 1-800-490-9198, <http://www.epa.gov/nscep/> or via email at nscep@bbs-lmit.com.

Single or multiple copies are available for a *fee* from the following sources (ask for details):



- ✓ The Conference of Radiation Control Program Directors (CRCPD) at (502) 227-4543 (multiple copy orders only).
- ✓ The American Association of Radon Scientists and Technologists (AARST) at (866) 772-2778 (multiple copy orders only).
- ✓ The National Radon Safety Board (NRSB) at (866) 329-3474 (multiple copy orders only).
- ✓ The National Environmental Health Association (NEHA) at (800) 269-4174.

- ***A Citizen’s Guide to Radon: The Guide to Protecting Yourself and Your Family From Radon*** (EPA 402/K-09/001, January 2009).
Provides basic information on radon, sources of radon, radon health risks, and how to test when you’re *not* in a real estate transaction.
- ***A Radon Guide For Tenants*** (EPA 402-K-98-004, August 1998).
Provides tenants with basic information about radon, testing, and fixing. It also contains information directed to building owners and landlords.

Reducing Radon Levels In a Home

- ***Consumer’s Guide to Radon Reduction*** (EPA 402-K-06-094, December 2006).
The consumer’s basic source of information on how to reduce radon levels in a home’s indoor air. It includes information about the key mitigation system components, installation and operating costs, radon health risks, and testing (when not in a real estate transaction).

Building a New Home to Be Radon-Resistant

- ***Appendix F: Radon Control Methods (IRC, 2003)***.
Published in the International Residential Code by the International Code Council (ICC) as a guide to building radon-resistant homes. Available from the ICC, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041-3401. Contact information: 1-888-ICC-SAFE, or via the Internet at <http://www.iccsafe.org>
- ***Radon Control Methods (Section 49.2.5)***
Published in the National Fire Protection Association’s (NFPA, 2003) Building Construction and Safety Code: NFPA 5000. NFPA, 1 Batterymarch Park, Quincy, Massachusetts 02169-7471. Contact information: 617 -770-3000, or via the Internet at www.nfpa.org
- ***Standard Practice for Radon Control Options for the Design and Construction of New-Low Rise Residential Buildings*** (ASTM E 1465-08, EPA 402-K-08-004*).
This consensus standard provides technical details on how to make radon-resistant features an integral part of a new home during construction. A must for builders or anyone building a new or custom home.

Radon Technical Guidance

- Standard Practice for Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings*** (ASTM E 2121-03, EPA 402-K-03-007*). This consensus standard provides technical details on mitigating existing buildings. A must for professional mitigators.

- Protocols for Radon and Radon Decay Product Measurements in Homes*** (EPA 402-R-92-003, June 1993). This document is intended for use by qualified radon measurement technicians and testers, and laboratories that analyze radon devices and prepare radon test results reports. These protocols were written to guide routine radon measurements (*Citizen's Guide*) and those made in conjunction with real estate transactions (*Home Buyer's and Seller's Guide*).

- Indoor Radon and Radon Decay Product Measurement Device Protocols*** (EPA 402-R-92-004, July 1992). This document is intended for use by qualified radon measurement technicians and testers. It contains detailed technical information on the types of radon measurement devices, their proper use and maintenance, and quality assurance procedures. These protocols were written to guide routine radon measurements (*Citizen's Guide*) and those made in conjunction with real estate transactions (*Home Buyer's and Seller's Guide*).

*A single copy of ASTM E 2121 and E 1465 is free on request from EPA's National Service Center for Environmental Publications (NSCEP); 1-800-490-9198, <http://www.epa.gov/nscep/>, or via email at nscep@bps-lmit.com.

9 State Radon Offices

(www.epa.gov/iaq/wherelive.html)

Call your state radon office or EPA Regional office for additional help with any of your radon questions. Up-to-date information on how to contact your state radon office is also available on the web (above). You will also find a list of state hotlines, state indoor air coordinators, and state web sites (if available). Some states can also provide you with a list of qualified radon services providers. Native Americans living on Tribal Lands should contact their Tribal Health Department or Housing Authority for assistance.

<u>STATE¹</u>	<u>LOCAL-TOLL</u>	<u>TOLL-FREE²</u>
Alabama	334-206-5391	800-582-1866
Alaska	907-465-3090	800-478-8324
Arizona	602-255-4845 x244	None
Arkansas	501-661-2301	800-482-5400
California ¹	916-324-2208	800-745-7236
Colorado	303-692-3090	800-846-3986
Connecticut	860-509-7367	None
Delaware ¹	302-739-4731	800-464-4357
Dist. of Columbia	202-535-2302	None
Florida ¹	850-245-4288	800-543-8279
Georgia	404-872-3549	800-745-0037
Guam	671-475-1611	None
Hawaii	808-586-4700	None
Idaho	208-332-7319	800-445-8647
Illinois ¹	217-785-9958	800-325-1245
Indiana ¹	317-233-7147	800-272-9723
Iowa ¹	515-281-4928	800-383-5992
Kansas	785-296-1561	800-693-5343
Kentucky ¹	502-564-4856	None
Louisiana	225-925-7042	800-256-2494
Maine ¹	207-287-5676	800-232-0842
Maryland	215-814-2086	800-438-2472 x2086
Massachusetts	413-586-7525	800-RADON95
Michigan	517-335-8037	800-723-6642
Minnesota	651-215-0909	800-798-9050
Mississippi	601-987-6893	800-626-7739
Missouri	573-751-6160	866-628-9891
Montana	406-444-6768	800-546-0483

¹ Some states “regulate” or “qualify” providers of radon measurement and mitigation services by requiring registration, certification, or licensing; some issue identification cards. Your state can provide you with more information.

² The toll-free numbers shown are for in-state callers and are subject to change.

State Radon Offices

(www.epa.gov/iaq/wherelive.html)

(continued)

Nebraska ¹	402-471-0594	800-334-9491
Nevada	775-687-7531	888-723-6610
New Hampshire	603-271-4674	800-852-3345 x4674
New Jersey ¹	609-984-5425	800-648-0394
New Mexico	505-476-8531	None
New York	800-458-1158	800-458-1158
North Carolina	919-571-4141	None
North Dakota	701-328-5188	800-252-6325
Ohio ¹	614-644-2727	800-523-4439
Oklahoma	405-702-5100	None
Oregon	503-731-4272	None
Pennsylvania ¹	717-783-3594	800-237-2366
Puerto Rico	787-767-3563	None
Rhode Island ¹	401-222-2438	None
South Carolina	803-898-3893	800-768-0362
South Dakota	605-773-3151	800-438-3367
Tennessee	615-299-9725	800-232-1139
Texas	512-834-6688	800-572-5548
Utah	801-536-4250	800-458-0145
Vermont	802-865-7730	800-439-8550
Virginia ¹	804-786-5932	800-468-0138
Washington	360-236-3253	None
West Virginia ¹	304-558-3427	800-922-1255
Wisconsin	608-267-4796	888-569-7236
Wyoming	307-777-6015	800-458-5347

¹ Some states “regulate” or “qualify” providers of radon measurement and mitigation services by requiring registration, certification, or licensing; some issue identification cards. Your state can provide you with more information.

10. EPA Regional Offices

(www.epa.gov/iaq/wherelive.html)

REGION	STATES	PHONE / FAX
US EPA New England/ Region 1 One Congress Street, Suite 1100 John F. Kennedy Federal Bldg. Boston, MA 02114-2023	CT, MA, ME, NH, RI, VT	617-918-1630 617-918-4940-fax
US EPA/ Region 2 290 Broadway, 28th Floor New York, NY 10007-1866	NJ, NY, PR, VI	212-637-3745 212-637-4942-fax
US EPA/ Region 3 1650 Arch Street Philadelphia, PA 19103	DC, DE, MD, PA, VA, WV	800-438-2474 Toll-free 215-814-2086 215-814-2101-fax
US EPA/ Region 4 61 Forsyth Street, SW Atlanta, GA 30303-3104	AL, FL, GA, KY, MS, NC, SC, TN	404-562-9145 404-562-9095-fax
US EPA/ Region 5 77 West Jackson Blvd., (AE-17J) Chicago, IL 60604	IL, IN, MI, MN, OH, WI	312-353-6686 312-886-0617-fax
US EPA/ Region 6 1445 Ross Avenue (6PD-T) Dallas, TX 75202-2733	AR, LA, NM, OK, TX	800-887-6063 Toll-free 214-665-7550 214-665-6762-fax
US EPA/ Region 7 901 North 5 th Street (ARTD/ RALI) Kansas City, KS 66101	IA, KS, MO, NE	913-551-7260 913-551-7065-fax
US EPA/ Region 8 999 18th Street, Suite 500 (8P-AR) Denver, CO 80202-2466	CO, MT, ND, SD, UT, WY	800-227-8917 Toll-free 303-312-6031 303-312-6044-fax
US EPA/ Region 9 75 Hawthorne Street (Air-6) San Francisco, CA 94105	AZ, CA, HI, NV, GUAM	415-744-1046 415-744-1073-fax
US EPA/ Region 10 1200 Sixth Avenue (OAQ-107) Seattle, WA 98101	AK, ID, OR, WA	206-553-7299 206-553-0110-fax

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U.S. SURGEON GENERAL HEALTH ADVISORY

“Indoor radon is the second-leading cause of lung cancer in the United States and breathing it over prolonged periods can present a significant health risk to families all over the country. It’s important to know that this threat is completely preventable. Radon can be detected with a simple test and fixed through well-established venting techniques.” January 2005

Consumers need to know about the health of a house they are considering purchasing, including whether there is a radon problem, and if so, how to fix it. *The Home Buyer’s and Seller’s Guide to Radon* provides practical consumer information that every home buyer needs to know.



Consumer Federation of America Foundation



American Society of Home Inspectors



National Safety Council



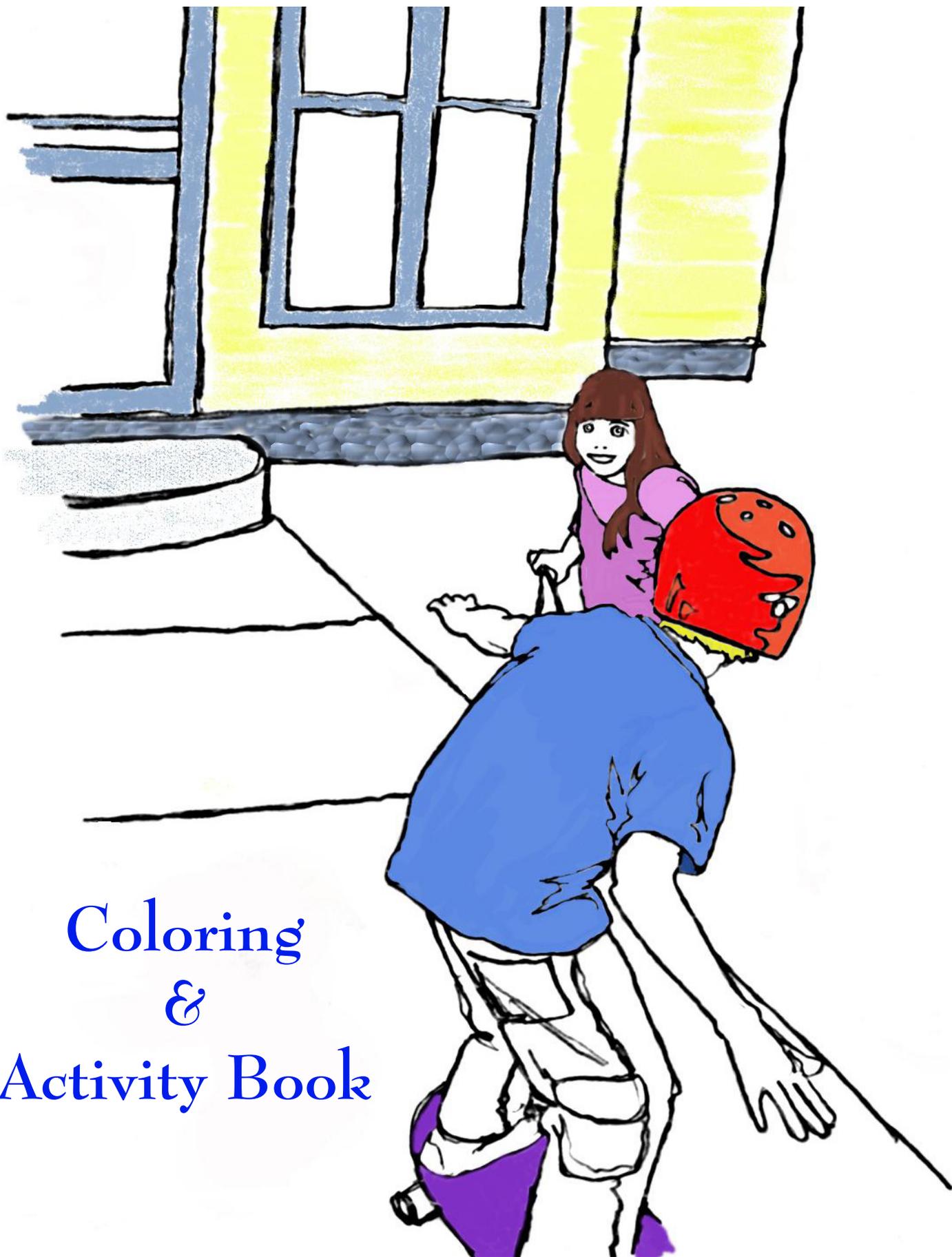
Indoor Environments Division (6609J)
EPA 402/K-09/002 | January 2009 | www.epa.gov/iaq



Printed on 100% recycled/recyclable paper with a minimum of 50% post-consumer fiber using vegetable-based ink.

Indoor Air Quality (IAQ)

IS YOUR HOME A HEALTHY HOME?



Coloring
&
Activity Book

Is your home a healthy home? A healthy home is a safe & happy home.

Children depend on adults to make their homes safe and healthy.

Children can be good detectives to help make sure their home is safe and healthy. We want to avoid health concerns and solve problems.

If problems are found, solutions can be found.

If you have questions or concerns,
please contact your local County Extension office.

Developed by Healthy Colorado Homes Work Team

Kenneth R. Tremblay, Jr., PhD, Housing Specialist
Extension, Colorado State University, Fort Collins CO

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Robert Work, MFA, illustrator

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Colorado State University, U.S. Department of Agriculture and Colorado counties cooperating.
Extension programs are available to all without discrimination.

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Is Your Home a Healthy Home?

Coloring & Activity Book

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Keys to a healthy home	2 & 3	Fireplace	18 & 19
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Maria and Tommy will help you see if your house is a healthy home.

We want to live in a safe and comfortable home.

Here are a few questions to answer:

Is the air in your home clean and healthy?

Is someone in your home allergic to mold?

Does anyone have a breathing problem like asthma?

Do you know the signs of carbon monoxide poisoning?

Is there lead anywhere in your home?

Does your smoke alarm work?

Be sure to tell adults in your house that you are looking for hidden dangers and safety problems in your home.

They will be able to help find answers to problems found in your home.

Have the adults in your home help when you need assistance.

Let's explore together!



KEYS TO A HEALTHY HOME

- Keep it dry Prevent water leaks & excess moisture
- Keep it clean Control dust
- Keep it safe Install smoke & CO alarms
- Keep it well-ventilated Supply fresh air in your home
- Keep it pest-free Seal cracks & repair screens
- Keep it contaminant-free Reduce lead hazards
- Keep it well-maintained Inspect, clean, & repair equipment



The search is on!

Maria and Tommy have the tools they need
to see if their home is a healthy home.

What are they holding in their hands?

Rearrange letters to spell the answer: fngygianmi salgses



What will you be looking for?



Mold & mildew



Lead



Pests



Pets ~ clean & healthy



Smoke & carbon monoxide alarms



Safe fireplace



NO secondhand smoke



Hazards in the basement



Maintained home equipment



Avoid Mold and Mildew

What is mold?

- Mold and mildew are alive and grow on wet surfaces in the open or in hidden places
- Mold and moisture can be seen in and around the home
- Mold often smells musty and is different colors: white, orange, green, gray, and black
- Mold spores float through air and can cause problems with lungs where they can lead to health problems such as watery eyes, runny or stuffy noses, sneezing, itching, wheezing, difficulty breathing, and headaches

Where should we look for mold and mildew?

- Bathrooms – tub, shower, walls, ceiling, and floor
- Damp basement and crawlspace
- Around leaky bathroom and kitchen sinks
- Windows and walls where you can see water spots

What should we do to avoid mold?

- Keep surfaces clean and dry – moisture can damage your house
- Store clothes and towels clean and dry
- Don't leave water in drip pans, basements, and air conditioners
- Wipe down shower walls after bathing or showering
- Run a fan or open a window while showering

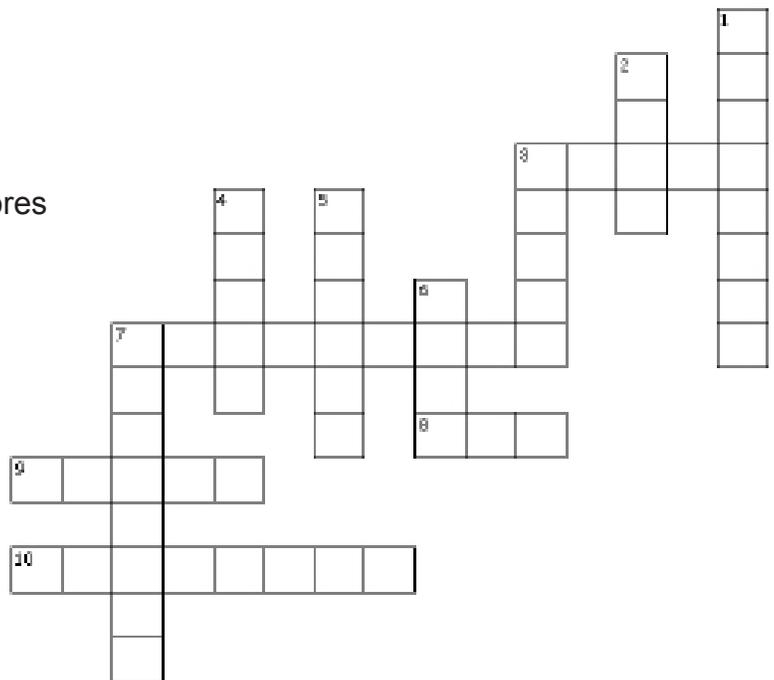
Find answers to the puzzle

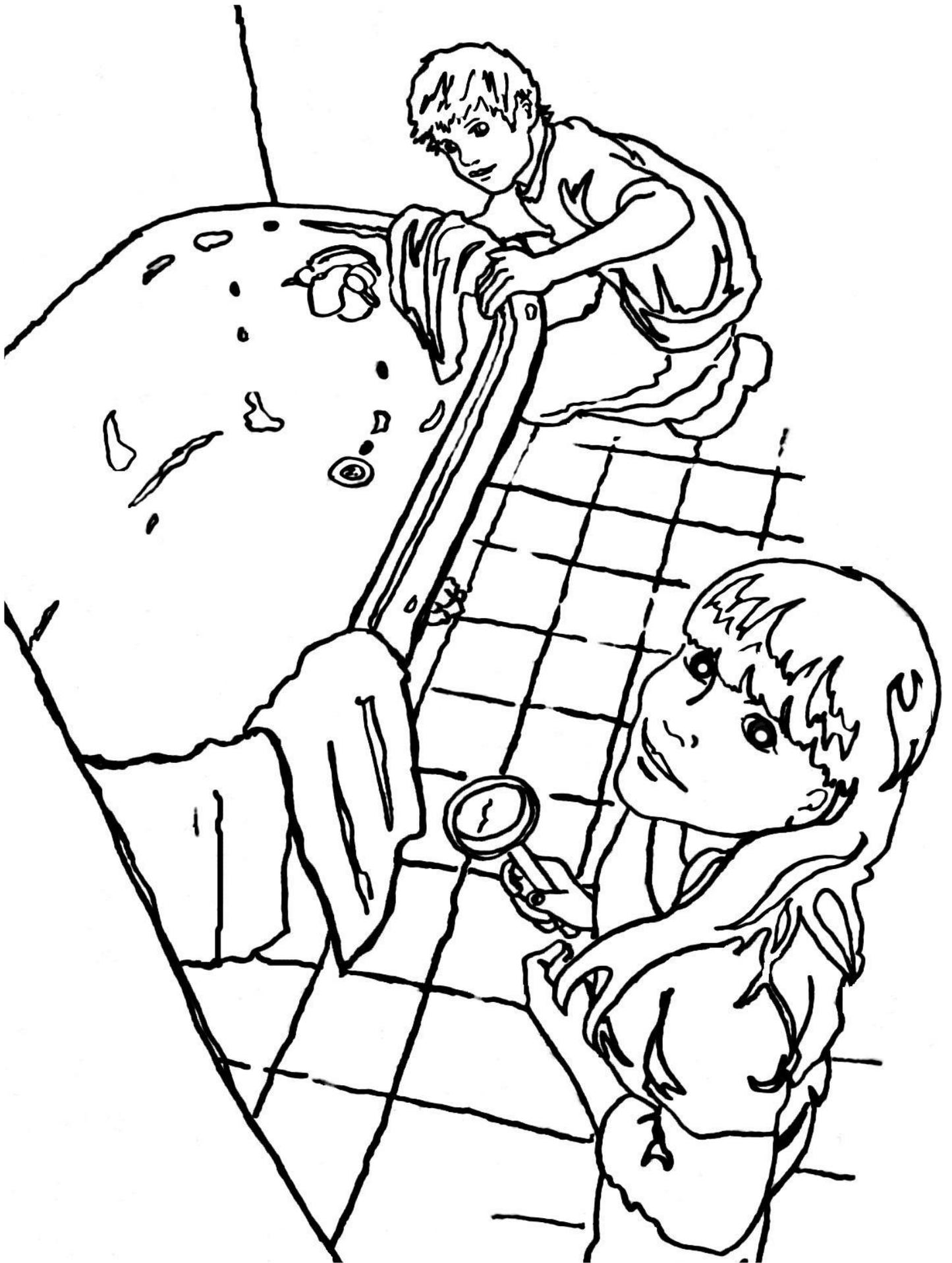
Down

1. too much _____ can damage your house
2. one color of mold
3. _____ may have health problems with mold spores
4. mold often smells _____
5. mold produces these _____ that float in air
6. _____ can grow on wet surfaces
7. avoid damp _____ and crawlspace

Across

3. avoid _____ around all sinks
7. a place to check for mold
8. very important way to avoid mold
9. another color of mold
10. health problem caused by mold





Avoid Lead Problems

Lead in the home is a very serious health problem. Some house paints, water pipes, pottery, and gasoline can contain different amounts of lead. Many hardware stores sell low-cost lead testing kits.

Lead can poison children if they get it in their mouths or breathe it from the air. A blood test is the only way to tell if someone has been exposed to lead. Ask your doctor if you have any questions.

How can children be poisoned by lead?

- ⇒ eating dust or paint chips with lead
- ⇒ putting toys in mouth
- ⇒ playing outside in the dirt

GOOD HABIT = ALWAYS WASH
 Wash hands and face especially before eating.
 Wash toys!

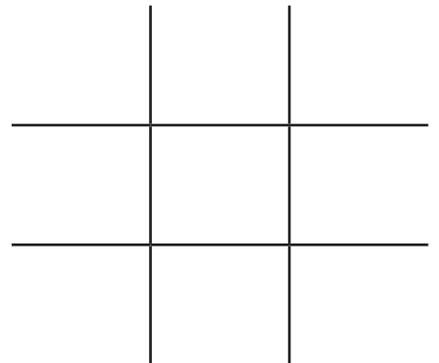
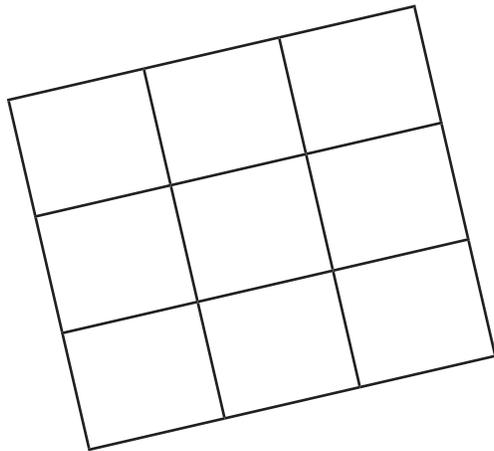
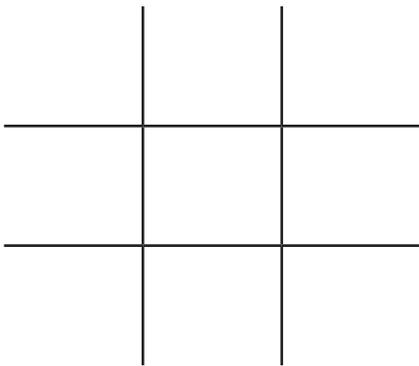
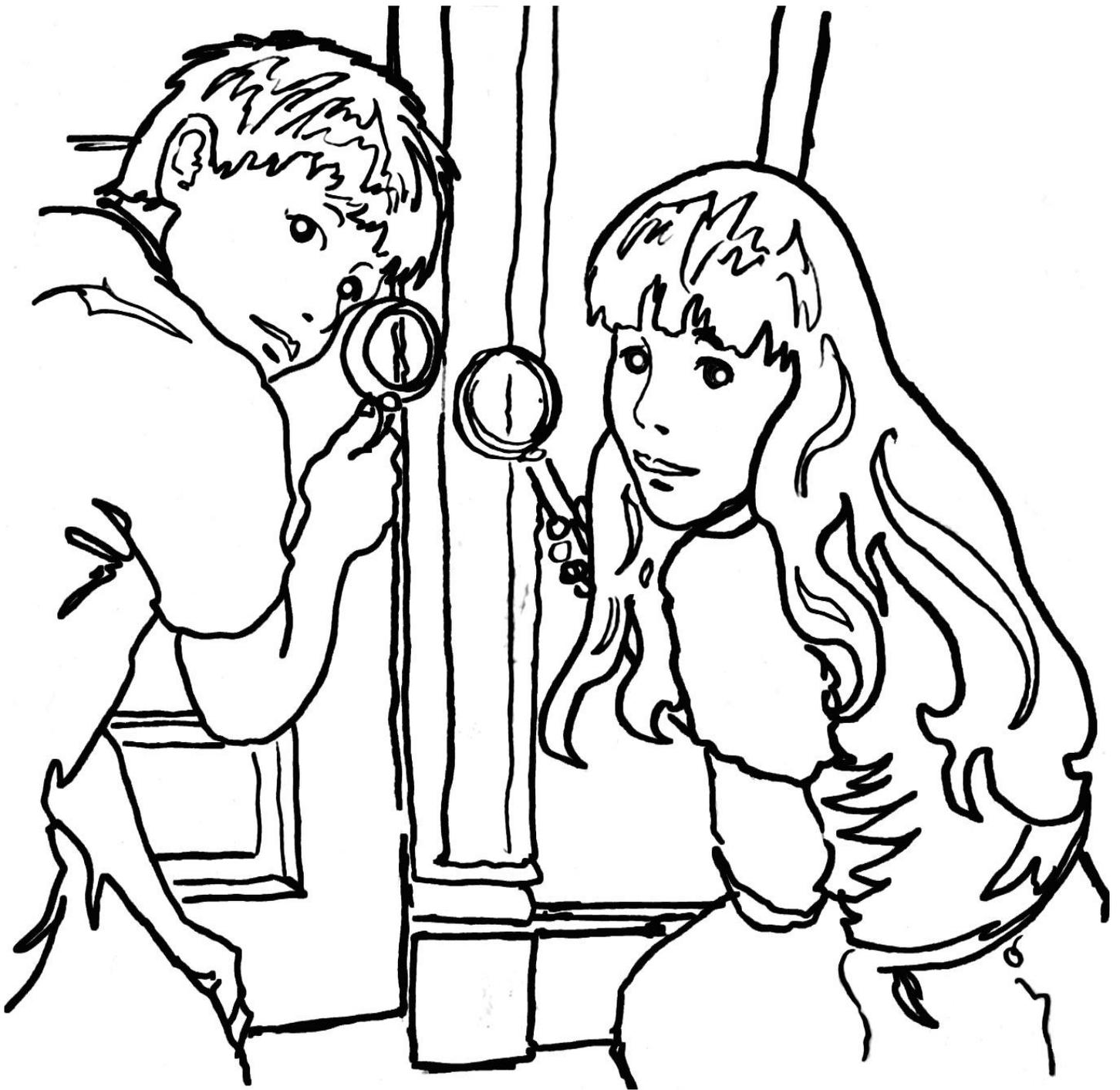
Check your home for lead

What year was your home built? _____	YES	NO
Do you live in an older home? Lead paint was banned in 1978.	<input type="checkbox"/>	<input type="checkbox"/>
Is there cracking, chipping, or flaking paint in the house?	<input type="checkbox"/>	<input type="checkbox"/>
Are there places where paint is being rubbed causing paint dust? (Look at the window frames and door frames.)	<input type="checkbox"/>	<input type="checkbox"/>
Are there lead pipes (dull gray and scratch easily with a penny)?	<input type="checkbox"/>	<input type="checkbox"/>

WORD SEARCH

- CHILDREN
- CHIPPING
- CRACKING
- DUST
- FLAKING
- GASOLINE
- HAPPY
- HEALTH
- HOUSE
- LEAD
- PAINT
- PIPES
- POISON
- SAFE
- SOIL
- TEST
- WASH
- WINDOWS

S	Y	Q	G	X	Y	P	E	R	I	H	R	B	R	Y
J	N	I	N	N	O	N	A	H	H	F	R	L	P	P
V	O	Y	V	I	I	B	F	X	E	G	F	S	W	P
K	T	J	S	L	R	P	F	L	A	K	I	N	G	A
S	K	O	O	X	M	T	P	L	L	M	C	W	U	H
M	N	S	L	H	W	G	N	I	T	Y	U	S	G	D
I	A	J	N	E	R	D	L	I	H	C	S	O	N	Y
G	J	U	W	I	A	U	E	F	A	C	D	I	I	H
W	E	S	U	O	H	D	H	E	M	P	R	L	K	V
O	I	Q	S	R	M	S	E	S	N	R	C	G	C	S
A	U	N	T	J	F	G	E	B	V	D	A	P	A	B
C	D	E	D	L	D	P	F	C	S	A	F	E	R	J
G	S	I	W	O	I	W	Y	P	F	D	D	F	C	J
T	I	A	N	P	W	D	U	S	T	R	S	X	S	Q
P	K	D	Y	H	S	S	E	D	U	H	H	S	A	W



Keep Away Pests

Pests are a nuisance and can cause health issues. Flies, cockroaches, mice, fleas, and ticks can carry disease. Roaches and house dust mites can trigger allergies and asthma.

Adults in your house may use pesticides to prevent and kill pests. You can help to be sure that adults carefully follow instructions on labels and store pesticides safely away from young children.

What might cause pests to be in your home?

	YES	NO
Does your house have broken, loose, or torn screens?	<input type="checkbox"/>	<input type="checkbox"/>
Are counter tops and floors sometimes dirty?	<input type="checkbox"/>	<input type="checkbox"/>
Is garbage kept where bugs can get into it?	<input type="checkbox"/>	<input type="checkbox"/>

Identify these pest repellents

gbu pysra

14 8 — 5 11 — — —

etp fela larclo

— 16 — — — 2 — 6 13 — — —

uesom patr

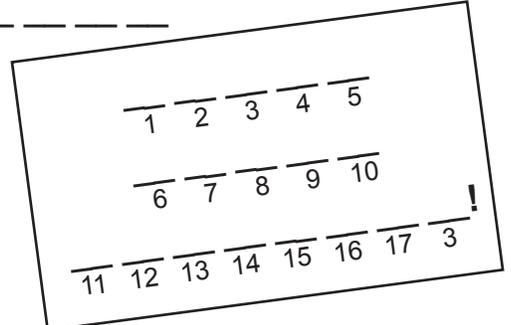
17 — — 3 10 4 — — —

nta ratp

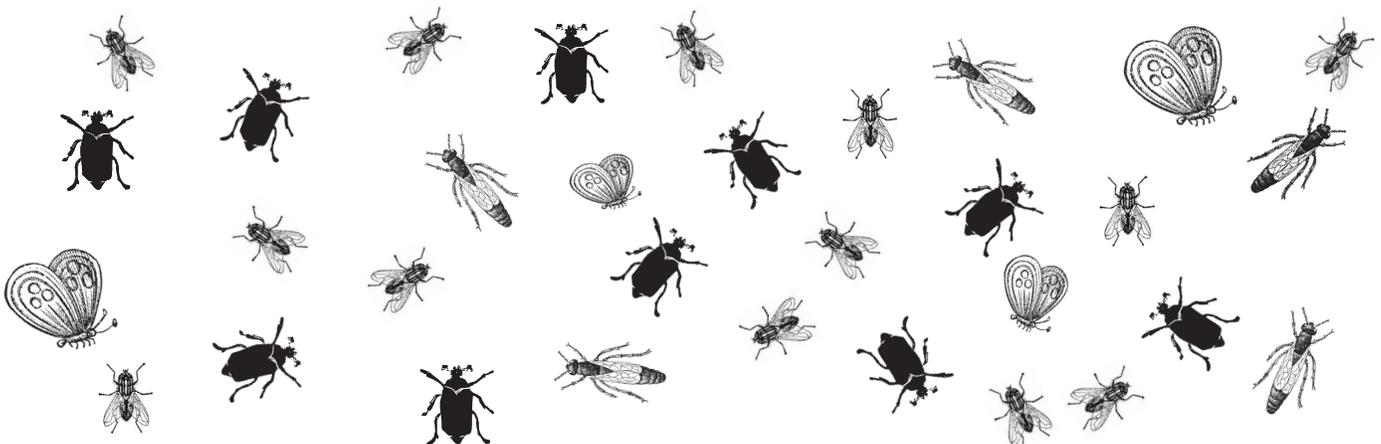
7 — — — — — 1 — — —

lyf rttewsa

— 15 — 9 — 4 — — 12



Link 10 black beetles without raising your pencil. You can't touch other bugs or go between two bugs more than once. There is more than one way to do this.





Be an artist.
Draw several types of bugs you see in and outside your home?

Keep Pets Clean

Pets in your home can cause allergies and asthma problems. Be sure your pets and the places where they eat and sleep are kept clean. Dander in the fur of cats and dogs may cause health problems. Also pets may bring in ticks and other bugs from outdoors. Help vacuum your home, give your pets baths, and brush their fur. Keep your pets clean and healthy.

Tommy and Maria have a cat named _____.

Rearrange the letters to spell the name of their cat.

l f y f u f = _____

If you have pets what are their names? _____

How often do you play with pets? _____

Check how you help care for your pet. Complete the missing words.

I help ₆ their fur when we are outdoors.

I feed them healthy pet .

I keep their drinking ₂₁₂ fresh.

I ₉₇ up their messes.

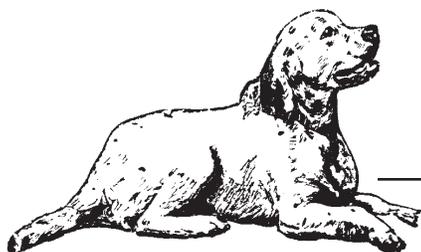
I help clean where pets ₁₃₁₁₃ (and take naps).

I help ₈ our home every week.

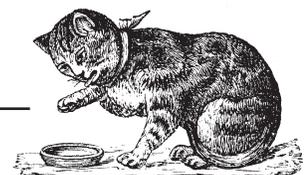
I help give my pet ₁₀₁ or go to a pet groomer.

I ₄₉₅ with my pet every day.

It's fun to have ₁ ₂ ₃ ₄ ₅ and ₆ ₇ ₈ ₉ ₁₀ ₁ ₅ ₄ ₁₁ ₁₂ ₁₃ !



Name these pets:





Avoid Carbon Monoxide

Carbon monoxide (CO) is a deadly gas you can't see, taste, or smell. CO is made by fuel-burning appliances that use gas, oil, or wood to produce heat. The signs of CO poisoning seem like you have the flu.

Prevent CO poisoning by finding all your fuel-burning appliances. Have the adults make sure they are working right and are used correctly in your home. Provide good ventilation for all heating appliances. Do not block an appliance's air openings.

Every home needs at least one carbon monoxide detector with a loud alarm that sounds when CO levels become too high in the house.

Where does carbon monoxide gas come from?

- Check each of the following that you have in your home:
 - gas or oil furnace
 - gas water heater
 - wood burning fireplace or gas heater
 - gas appliances (stove & dryer)
 - gas and kerosene space heater
 - gas or charcoal grill
 - car, truck, camper & other vehicles with motors such as a boat
 - gas & liquid propane fueled equipment such as a lawn mower
 - gas fireplace



Where is the carbon monoxide alarm found in your home?

Answer: _____



Test the Smoke Alarm

A smoke detector alarm should be on each level of your home or near every sleeping area. This helps you know to get out of the house fast if there is a fire.

How many smoke alarms does your home have? _____

Playing with fire is the leading cause of fire-related death for children under five. Help prevent accidents by keeping family members – and YOU and your friends – safe. *DO NOT PLAY WITH MATCHES!*

Safety tips:

Have adults store matches and lighters in a safe place like a locked drawer.

Do not play with candles, lighters, or matches.

Do not play near stoves, electric heaters, or grills.

Talk with adults about a fire escape route in your home.

When the smoke alarm goes off — get out & stay out!

Write your family escape plan here:

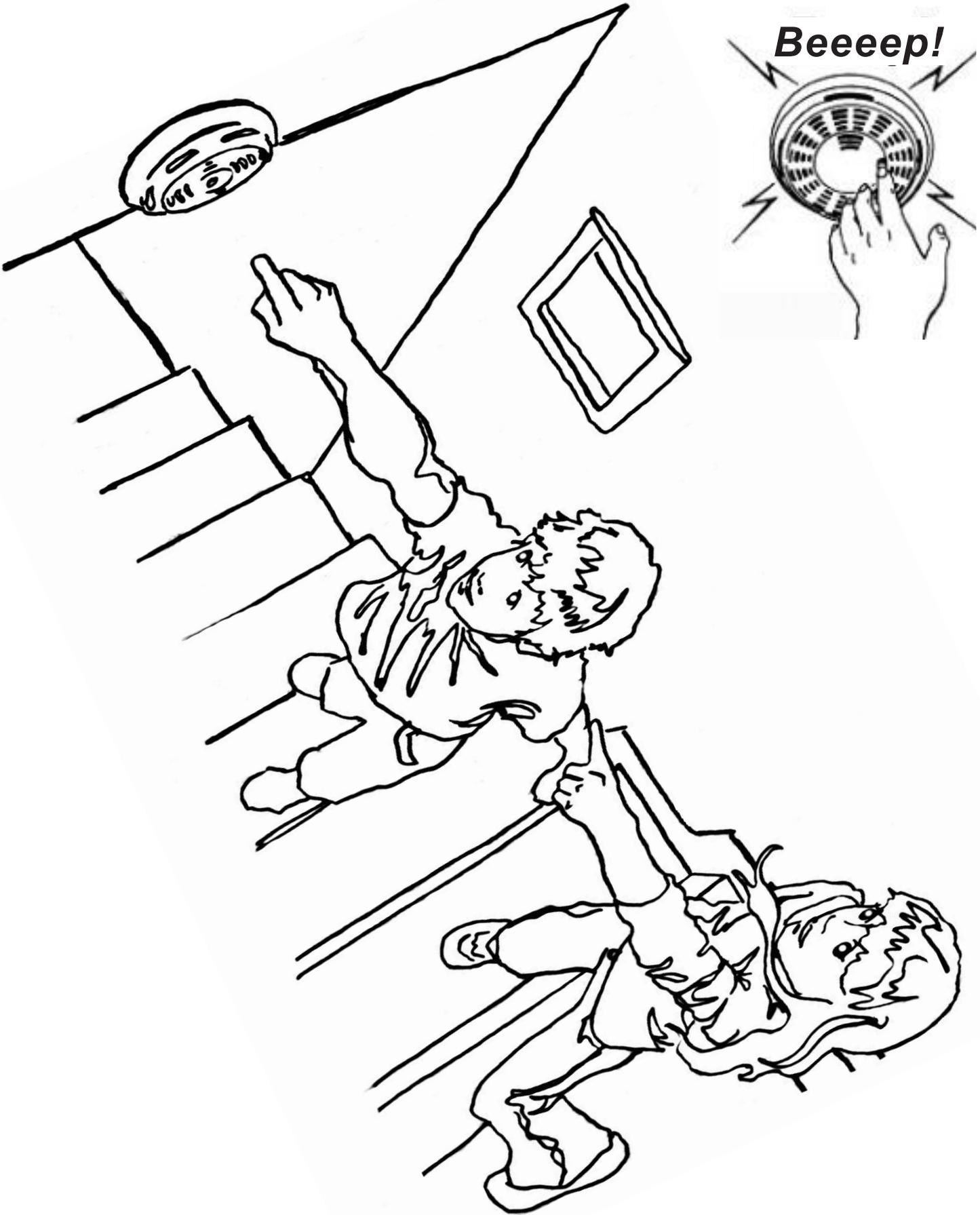
With your family, practice your escape plan during the **day**.

Record dates of your practice: _____ and _____

With your family, practice your escape plan during the **night**.

Record dates of your practice: _____ and _____

Where will your family meet together outside? _____



Fireplace Safety

A fireplace is pretty and fun to watch while enjoying its warmth. Safety precautions need to be taken as a fireplace can be a source of carbon monoxide and combustion pollutants. Escaped sparks may cause a fire.

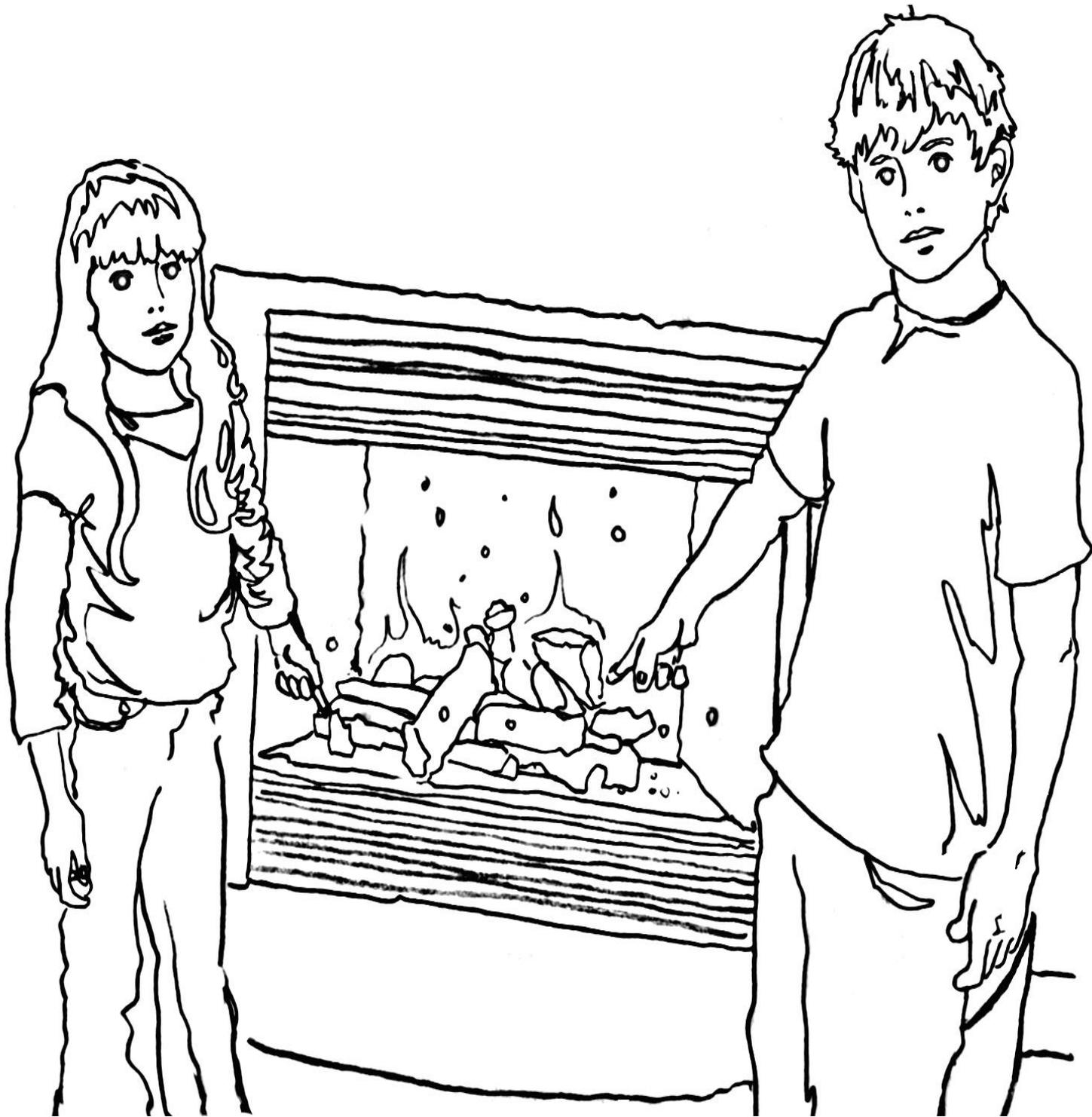
Be sure your family knows **FIREPLACE SAFETY TIPS:**

- Open the flue when using the fireplace.
- Have the flue and chimney inspected annually.
- Install smoke and carbon monoxide alarms.
- Use a metal, mesh fire screen. Fires can spark and send hot cinders flying.
- Only fire-resistant rugs should be in front of a fireplace.
- Never throw trash in the fireplace.
- Keep mantel decorations away from the firebox opening.
- Keep drapes and furniture at least 3 feet away from the firebox.
- Never leave the fire burning unattended.
- After burning wood remove ashes regularly and carefully when cool.
- Have a fire extinguisher nearby.

Create short words from
FIRE EXTINGUISHER

You may combine letters from both words.

MATCHING WORDS	
Draw a line to fit words together to spell 6 larger words. Use each word only once.	
FIRE	HOLD
WATER	BASKET
HOUSE	PLACE
CANDLE	ALARM
WASTE	STICK
SMOKE	HOSE



Help Maria and Tommy by drawing a fireplace screen in front of the fire.

A good fireplace screen is made of fine steel mesh that fully covers the firebox – the opening that contains the fire.

NO Smoking in Your Home

Tobacco smoking can cause lung cancer, heart disease, and other serious health problems. It is not safe for you to be around smokers.

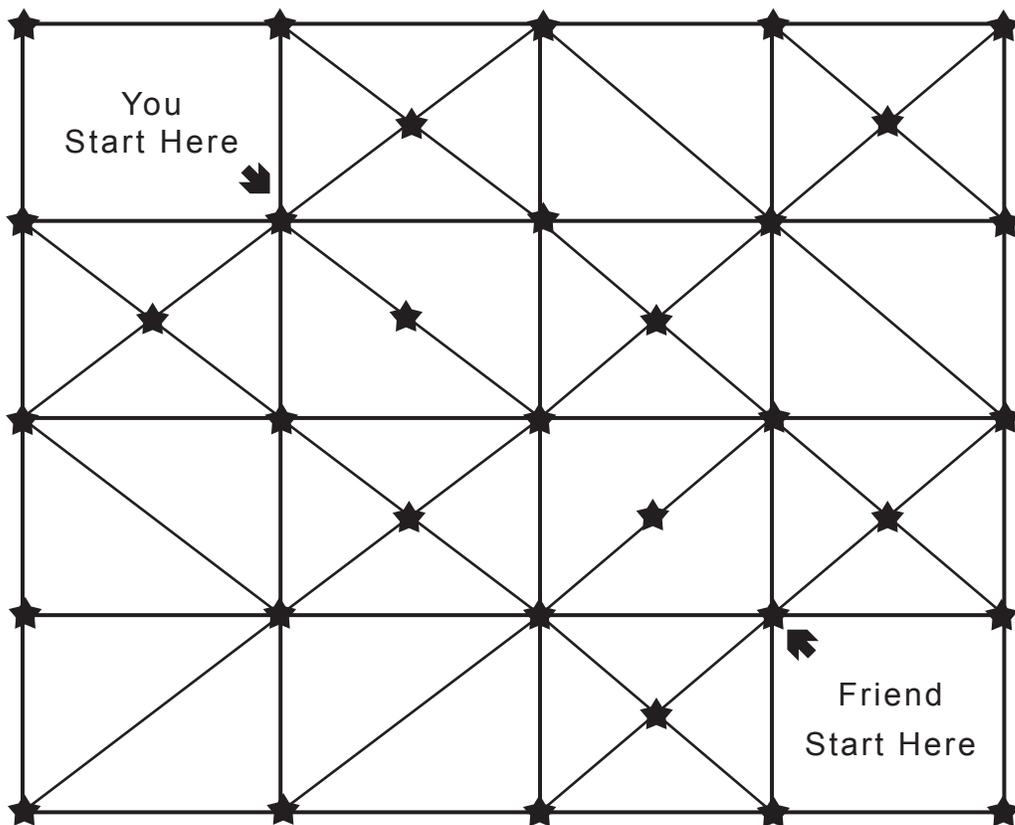
Tell adults in your home or baby-sitters not to smoke around you and other children—ask them to smoke outside.

Secondhand smoke can cause breathing problems and trigger asthma attacks. There are many dangerous chemicals in smoke that you do not want to breath.

SAY NO to cigarette, pipe, and cigar smoking in your home!

Game of Pencil Tag

Each player uses a different colored pencil or marker to make moves. Take turns moving along the lines to one star ★ at a time. The player who tags the opponent by landing directly on the other's line wins this game of tag.





Check the Basement

- Check the unsafe items you might find in the basement.
- Holiday decorations
- Can of gasoline
- Opened bag of weed killer
- Paint cans with loose lids
- Unmarked containers
- Old trunk with locked lid
- Bucket with old water
- Refrigerator not being used
- Boxes of books
- A stepstool
- Old couch & chairs
- Pile of boards

Be sure to tell an adult in your home if there are any hidden hazards in the basement, storage area, or garage.

Safety tips:

Be sure there are no loose rugs or toys on the stairs.

Do not play on the stairs.

Avoid playing on the basement's dirt floor for long periods of time.

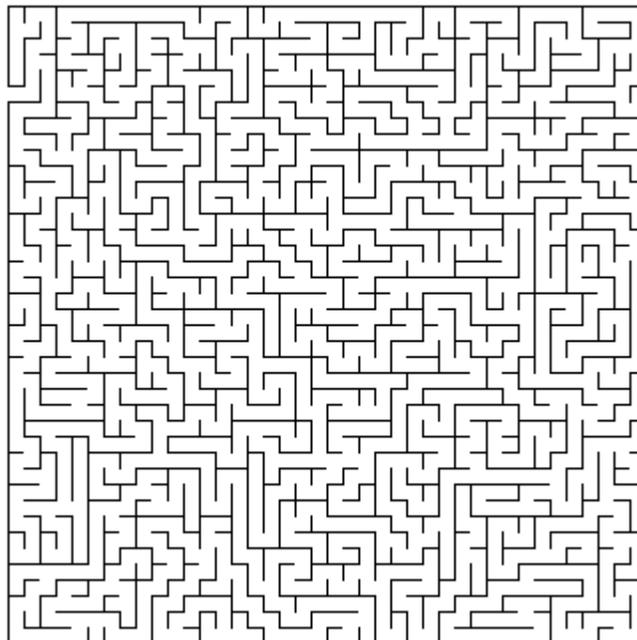
Don't leave water standing in pans or on the floor.

The basement must be dry so there is no mold.

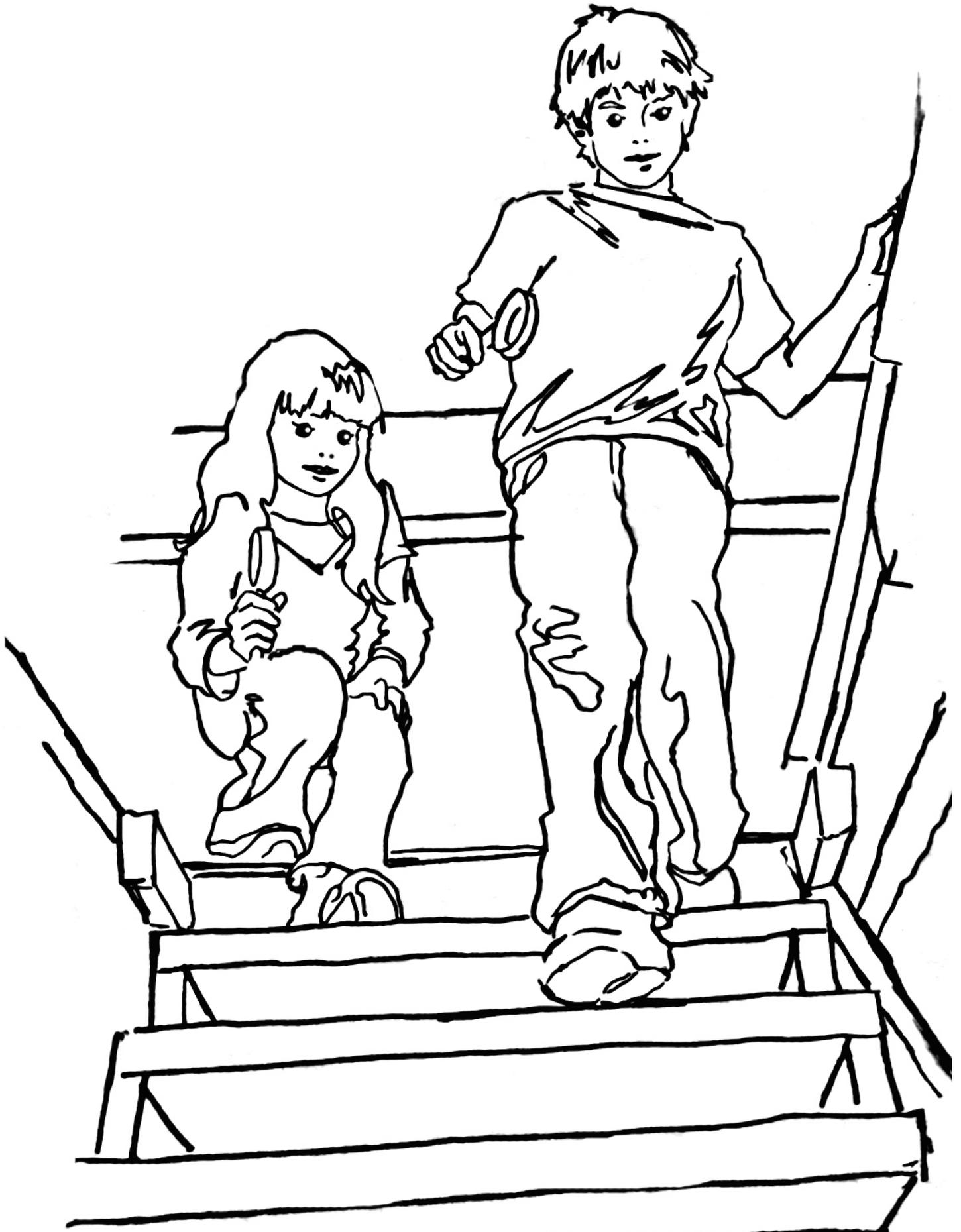
Make sure that all containers have tight lids.

Find your way to the other side of this maze.

Check the basement.



Safe basement!



Test for Radon

Radon is an invisible, odorless, radioactive gas created during the natural decay of uranium in the soil. It can be harmful when there is too much radon in the house.

Homes can be tested for radon using inexpensive test kits. Ask an adult to see if your home has been tested for radon in the last year.

Measurements are made in the basement or lowest-lived area in the house because radon enters the home from the dirt under the foundation.

Radon has been identified as a risk factor in developing lung cancer over a long period of time. If there is a radon problem in your home ask an adult to call a radon expert.

— — — — — — — — — — — — — — — —

What is radon? _____

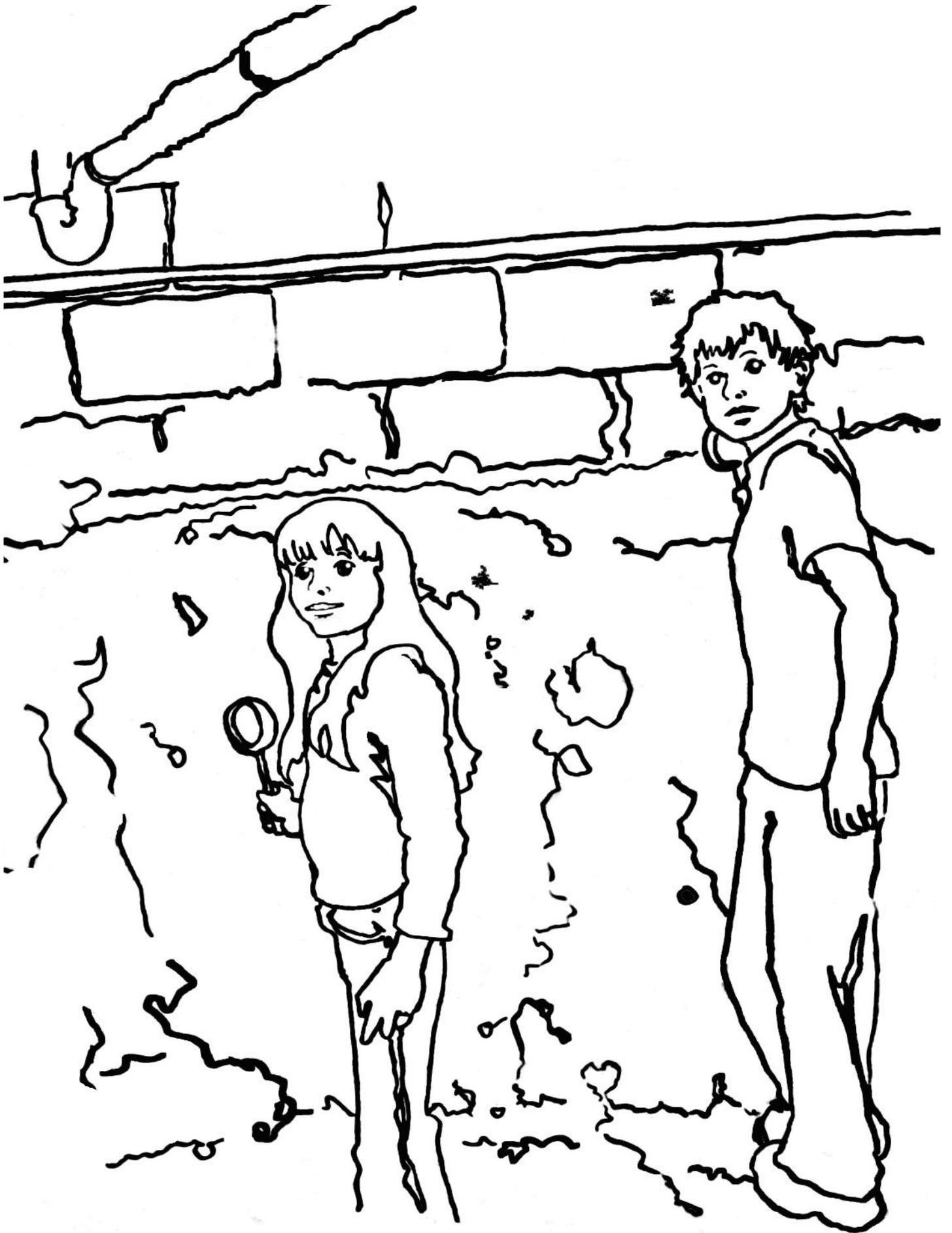
Where is radon found? _____

Where does radon come from? _____

What health problem can be caused from excess radon in your home over a long time? _____

How do you know if your home has excess radon? _____

What should adults do if there is excess radon in your home?



Maintain Home Equipment

The adults in your home make sure gas appliances, fireplace, furnace, or wood burning stove have annual checkups to keep them maintained.

A check up once a year keeps equipment clean and working correctly.

Check with an adult in your home to see when equipment was last maintained in your home.

Check the equipment that helps keep your home cozy and safe.

Add letters to complete the following that may be in your home.

The vowels a e i o u are missing!

- f_rn_c_
- __r c_nd_t__n_r
- w_t_r h__t_r
- h_m_d_f__r
- f_r_pl_c_
- c__l_ng f_n
- sm_k__l_rm
- c_rb_n m_n_x_d_ d_t_ct_r
- l_wn m_w_r

You can help remind your family to check batteries and test smoke and carbon monoxide alarms once a month.

What day of the month is good for testing the alarms in your home?

Mark your “safety alarm test” day on the calendar every month.

Draw your back yard or play area.

What makes your back yard safe?

Congratulations!

You have helped to find out if your home is safe and healthy.

Draw *Healthy Home* pictures or logos on t-shirts for Tommy and Maria.



Resources

If you have questions about the health and safety of your home:

Check your phone book for the local County Extension office

US Department of Housing and Urban Development

www.hud.gov/healthy

US Environmental Protection Agency

www.epa.gov/children
www.epa.gov/mold
www.epa.gov/lead
www.epa.gov/radon
www.epa.gov/smokefree
www.epa.gov/iaq

Healthy Homes Partnership

www.healthyhomespartnership.net



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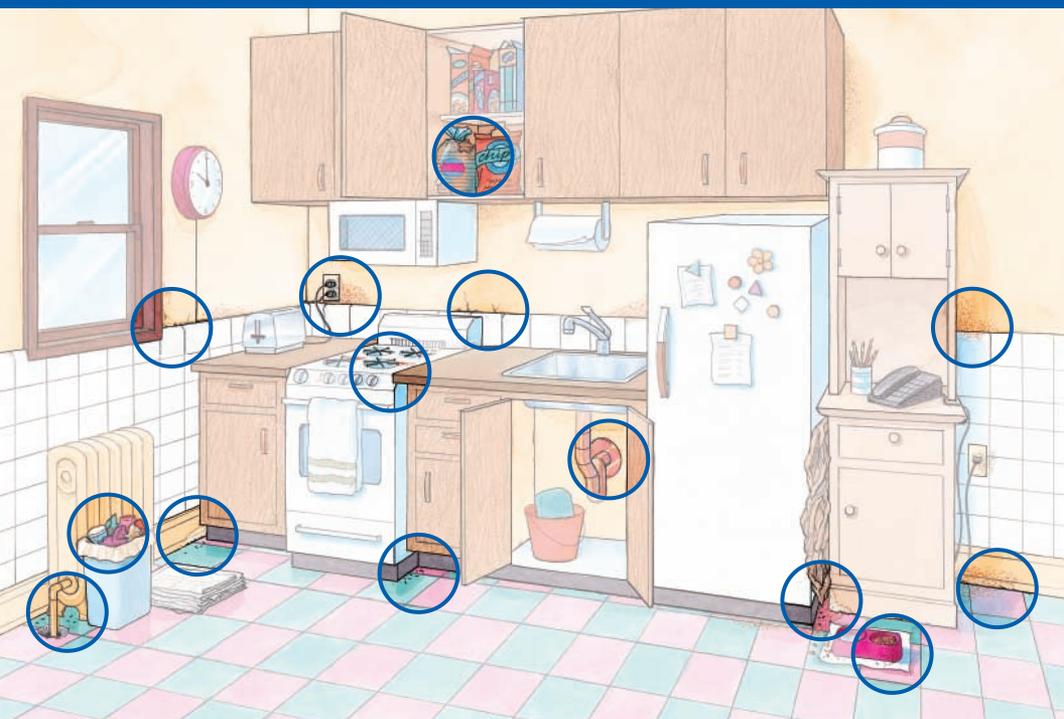
Note: Web site addresses may change.

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United States Department of Agriculture
National Institute of Food and Agriculture

How to Control Pests Safely



Getting Rid of Roaches and Mice



A Healthy Homes Guide



THE NEW YORK CITY
DEPARTMENT OF HEALTH
and MENTAL HYGIENE

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How to Choose Safer Pest-Control Products

*For Cockroaches: dusts, gel baits, bait stations
and sticky traps*

For Rodents: baits and traps

When to Hire a Professional



Why You Need This Guide

Too many New Yorkers live in homes or buildings that have cockroaches, mice, or rats.

Nobody wants to live with pests!

Insects and rodents can contaminate food, damage homes, and make allergies and asthma worse. Chemicals people use to get rid of pests also cause problems. Pesticides can cling to carpets, furniture, and other surfaces, and many are dangerous to people and pets. The Poison Control Center takes about 1,000 reports of accidental pesticide poisonings or exposures every year – half of them to children under five.

What Are People Doing Wrong?

Many tenants, landlords, and pest control professionals make the same mistake: they turn to pesticides *first*. But chemicals kill only a *small number* of pests. Pests can become resistant, so the poison no longer kills them and their offspring. Pesticides – chemicals that kill pests – are often unnecessary. When they are needed, only safer products should be used.

Why This Guide Works

Good pest control gets to the root of the problem. To get rid of pests and keep them from coming back, you have to deprive them of everything they need to survive: food, water, shelter, and ways to get around.

This guide explains how to clean up, seal off trouble spots, and pest-proof your home in 3 easy-to-understand steps. *To get the most from this guide:*

- Don't try to do everything at once. It can take a few weeks to get rid of pests and keep them out. Just take it a step at a time and remember: *This guide works*. Most people who undertake this project only need to do it once every couple of years.
- Show this guide to your neighbors and give a copy to your landlord or building superintendent. Encourage them to use it!
- If you hire a pest control company, show them this guide and ask them to use it. Even professionals can benefit from these techniques.

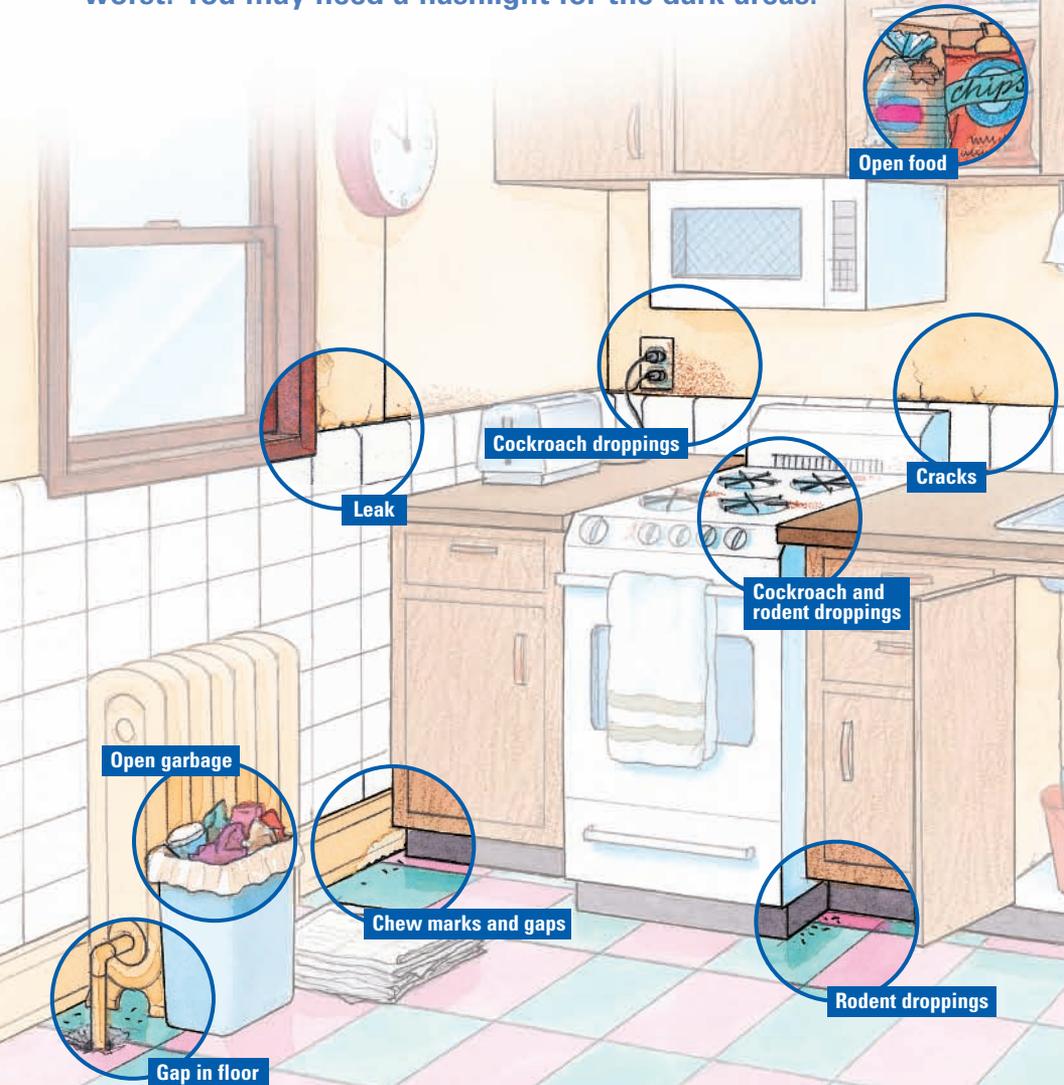


The good news is, you can control pests safely.

How to Find Pests

You probably already know if you have roaches, mice, or rats. But it is important to know how big the problem is, how pests are entering, and where pests are getting their food and water.

To find out, go through every room in your home, focusing on the kitchen and bathroom, where pests are usually worst. You may need a flashlight for the dark areas.



Start in Your Kitchen

Look for the problems shown below:

1 Waste and droppings:

- Cockroach droppings look like dark smudges with dark dots. Their egg cases are yellowish and ribbed, about the size of a small fingernail.
- Rodent droppings are brown, the size and shape of rice grains.

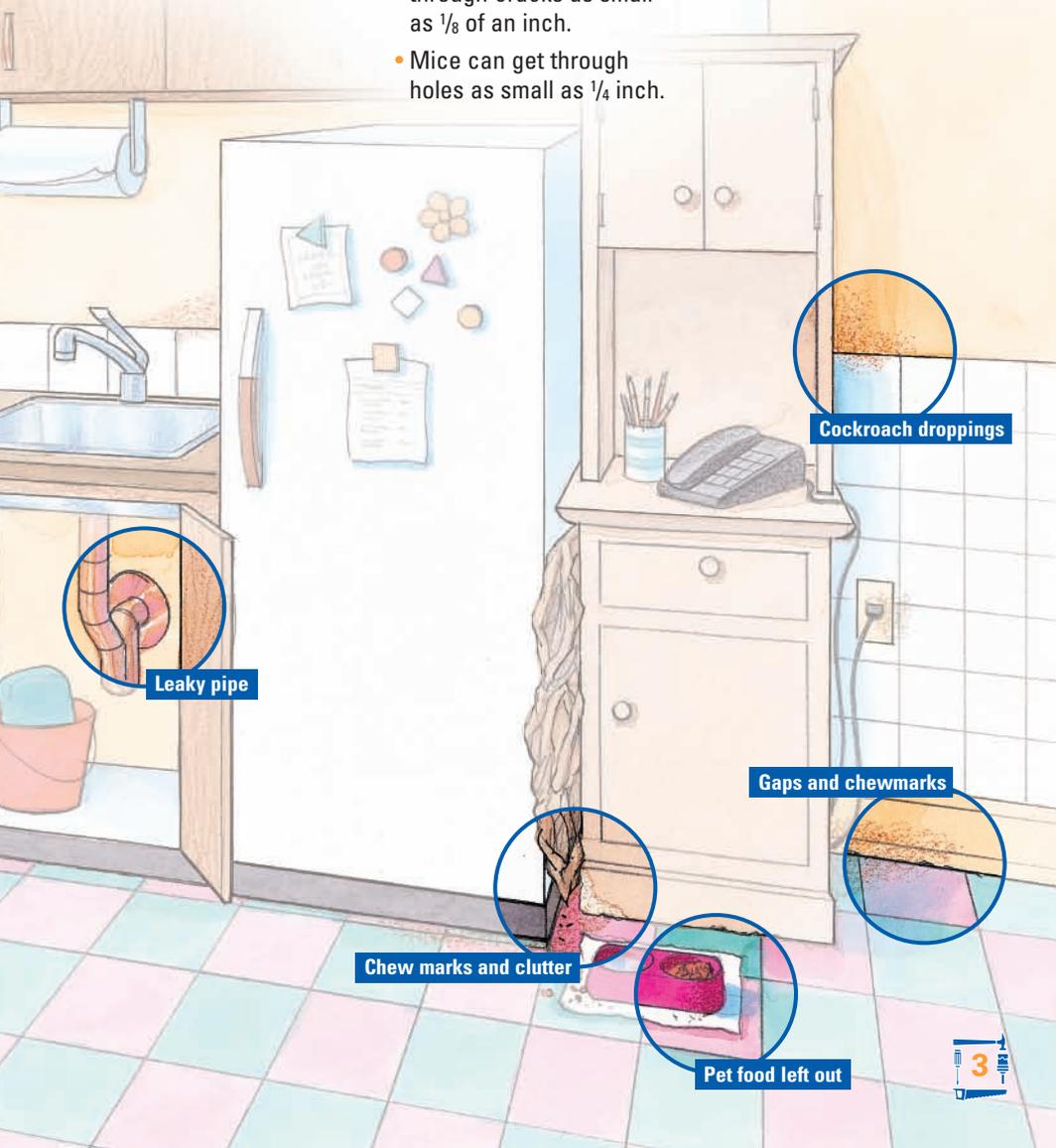
2 Chew marks in woodwork, walls, and food containers.

3 Gaps, cracks, and holes in walls, along baseboards and windows, and around pipes and wires, and drains.

- Cockroaches can squeeze through cracks as small as $\frac{1}{8}$ of an inch.
- Mice can get through holes as small as $\frac{1}{4}$ inch.

4 Leaky faucets and pipes or leaks in ceilings and walls.

5 Open food packages, sticky surfaces, pet food left out and garbage cans that don't close tightly.



Leaky pipe

Cockroach droppings

Gaps and chewmarks

Chew marks and clutter

Pet food left out

How to Control Pests Safely

Make it harder for roaches and rodents to get in, move freely, and find food, water, and shelter.



Step 1: Clean Up

To get rid of pests and keep them from coming back, these steps are key.

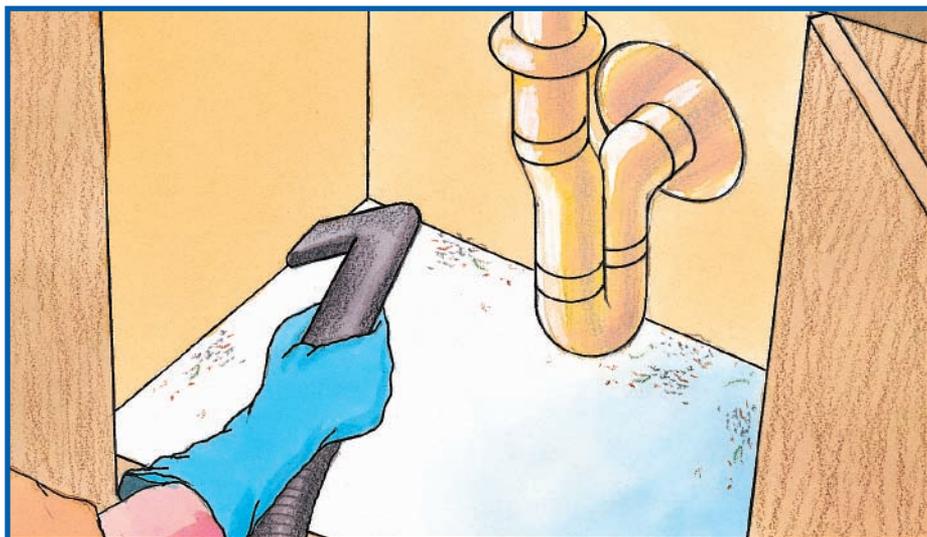
Reduce Clutter

- Recycle piles of newspapers, paper bags, cardboard, and bottles, especially around stoves and refrigerators.
- Store clothing and linens you don't use in sealed plastic boxes or bags.



Vacuum Thoroughly

- Use a vacuum with a hose and crevice tool. Special filter vacuums, known as HEPA or allergen-reducing vacuums, work best.
- Vacuum behind and under refrigerators and stoves.
- Empty cabinets, throwing away old food and items with signs of pests.
- Vacuum inside gaps and holes in walls and in and behind cabinets. Start high and work down.
- When you're done, seal the vacuum bag in plastic and throw it out.



Wash Hard Surfaces

- Wear household gloves.
- Fill two buckets with warm water: one with a mild soap or detergent, and one with plain water for rinsing. Separate rinse water will help you avoid spreading insect eggs, food, and other wastes. Change the water often.
- Use a sponge and plastic scouring pad or scrub brush to scrub and rinse:
 - Countertops, tables, and surfaces where food is stored, prepared, or eaten.
 - Under the stovetop, inside burners, and under and behind the stove, refrigerator, and dishwasher.
 - Inside the rubber seal of the refrigerator door.
 - Inside drawers, cabinets, and shelves in the kitchen and bathroom.
 - Floors.
- For hard-to-remove stains, use a mild bleach solution (1 part bleach, 10 parts water) or a cleaning product with bleach.
- ***Never mix bleach with ammonia or other cleaning products!***



Wash Small Area Rugs and Curtains

This gets rid of egg cases and reduces allergens.

Clean Small Appliances

Cockroaches like warm, dark places such as toasters, countertop grills, microwave ovens, and clocks.

- Unplug the appliances and vacuum them out.
- For serious infestations, after vacuuming, seal the appliance in a plastic bag and put it in the freezer overnight.





Step 2: Shut Pests Out

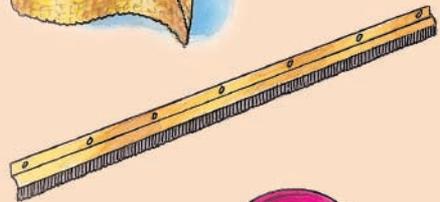
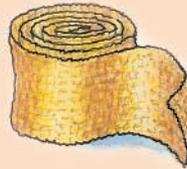
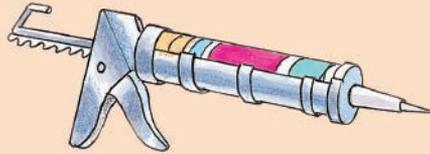
Cockroaches and rodents can squeeze into your home through very small cracks and holes. To keep pests out for good, fill holes and seal cracks in walls, floors, woodwork, and around the tub, shower, and sink.

If you have had a lot of cockroaches, first insert some boric acid, silica gel, or diatomaceous earth into the spaces. *For more information on these products, see page 10.*

These repairs are easy to do. The materials are inexpensive and can be found at most hardware stores. If you can't or don't want to do the repairs yourself, ask your landlord or superintendent.

Inexpensive Materials for Filling Holes and Sealing Cracks

- **100% silicone caulk and caulking gun**
- **Steel wool or copper mesh**
- **Mesh screening**
- **Weather-stripping and door-sweeps**
- **Spackle or joint compound and 1" spackling knife**
- **Duct tape**
- **House paint and brushes**



Seal Cracks and Small Holes

- Seal narrow gaps with 100% silicone caulk. Caulk around bathtubs, showers, and sinks, where walls meet the floor, inside cabinets, and where cabinets meet the wall.
- Paint over small cracks in the walls, floor, or woodwork with a water-based latex paint.



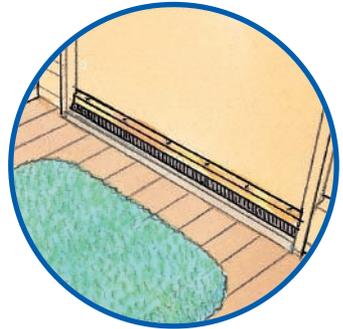
Fill Larger Holes and Gaps (more than 1/2" wide)

- Stuff soapless steel wool or copper mesh inside holes before sealing. This keeps rodents from chewing through.
- Use spackle or joint compound to fill gaps and holes that are too large to caulk. Do a little at a time, letting it dry between applications.



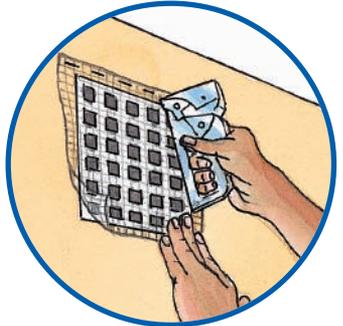
Close Gaps Under Doors and Around Windows

- Attach door sweeps to the bottom of doors leading outside or to a building common space.
- Mend holes in screens by weaving in small pieces of screen. You can also use staples or duct tape to mend small cuts or tears.



Screen Bathroom and Kitchen Vents

- Pests can enter through vents. Block their entry and keep air flowing through vents by using mesh screens, cut to size and placed under or over the vent cover. Secure the screen with caulk or a staple gun.



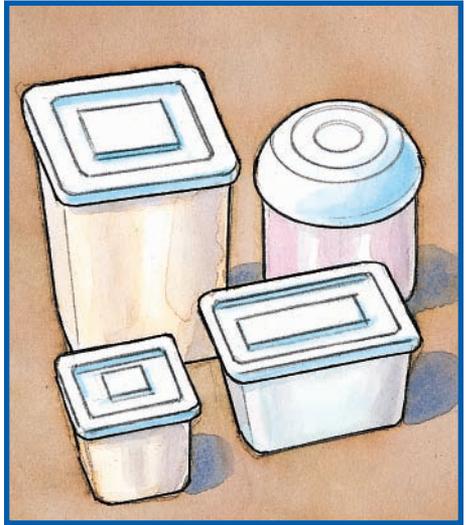


Step 3: Starve Them and Parch Them

Like all creatures, roaches and rodents need food and water to live.

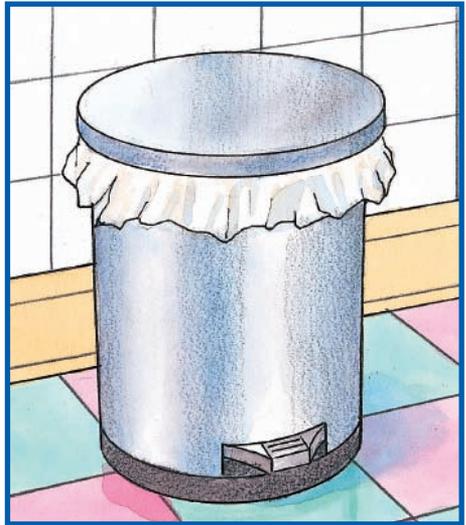
Pest-Proof Your Food

- Store all boxed or loose food in containers that seal tight – plastic, glass, or coffee cans with lids.
- Store as much food in your refrigerator as you can, especially foods you keep for a long time, such as flours, rice, and nuts.
- To store large bags of pet food, use a metal garbage can with a lid.



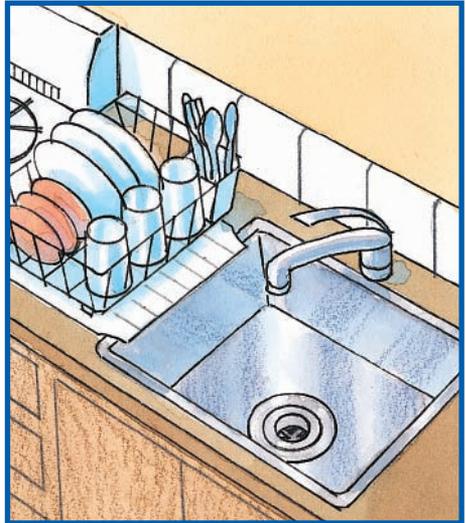
Manage Your Garbage

- Use garbage cans with tight-fitting lids (metal ones are best) for garbage and recycling.
- Clean them often, inside and out.
- In apartment buildings, put garbage down the chute or bring to the common room nightly.
- Bring garbage cans or bags to the curb as close to pickup as possible. Leaving them out overnight invites rats.



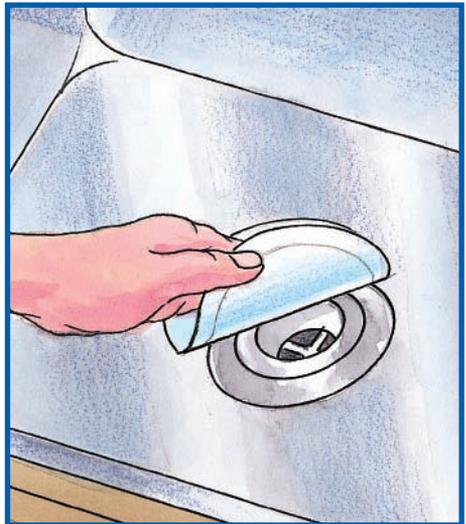
Put Food Away at Night

- Wash the dishes.
- Wipe down the stovetop, counters, and tables.
- Sweep up or vacuum away food on the floor.
- Don't leave pet food out.



Remove Water Sources

- Fix leaky faucets by replacing washers.
- Have a plumber fix leaks as quickly as possible.
- Use your bathroom window or fan to vent steam after showers and baths to prevent mildew and mold. Report or fix vents that aren't drawing air out.
- If possible, close off drains in showers, bathtubs, and sinks when not in use. You can use inexpensive rubber drain covers or metal drain screens.



How to Choose Safer Pest-Control Products

Pesticides are poisons. Some of the properties that make them hazardous to pests also make them potentially dangerous to people and pets. Use pesticides carefully.

- Avoid sprays, foggers, and bombs. They spread everywhere and land on surfaces where people sit, prepare food, play, or eat.
- Never purchase or use a product without a manufacturer's label and never buy pesticides from street vendors.
- Never use products called Chinese Chalk, Tres Pasitos, or Tempo®.
- Use the smallest amount that will be effective.
- Always follow the manufacturer's label. Never use a product for a different insect or rodent than is named on the label.
- Store chemicals safely and place traps where children or pets can't get to them.



For Cockroaches

Dusts

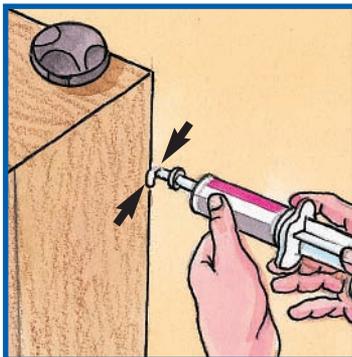
Dusts include boric acid, diatomaceous earth, and silica gel, all available at hardware and home improvement stores. Keep children and pets away, and wear safely goggles when you're applying them.

- Load a bulb duster or squeeze bottle (such as an empty, clean mustard or dish soap bottle) with boric acid, diatomaceous earth, or silica gel.
- Squeeze dust into cracks and holes and underneath and behind large appliances and cabinets – wherever roaches are active.
- Apply a *thin* layer. Cockroaches avoid large clumps.
- Afterward, seal up crevices, cracks and holes with caulk or spackle.
See page 7 for more details.
- Don't worry if you see cockroaches after applying dusts. They can take several days or weeks to work.



Gel Bait

- Baits do not kill pests right away, but are very effective. Pests eat them and die slowly, after they go back to their nests. Other cockroaches in the nest die when they eat the droppings and remains of cockroaches that ate the bait.
- Squeeze pea-sized dabs of gel every foot or so along crevices, cabinet shelves, and baseboards. Reapply after it gets eaten.
- Insert gels into cracks and holes before sealing them up.



Bait Stations and Sticky Traps

- Peel off the sticky tape on the bottom of the bait station or trap before pressing it to a surface.
- Place the bait or sticky trap where cockroaches travel – along edges, in crevices and corners, and inside, under, and behind cabinets, appliances, and sinks.
- Replace bait stations every 2 or 3 months. Change brands or types each year. Replace sticky traps every 2 weeks (more often if they fill up).

For Rodents

Rodenticide Bait

If you see mice only occasionally, you may be able to solve the problem yourself using rodenticide baits.

- Only use baits that come in tamper-proof containers. Never use loose bait.
- Wear gloves when handling the baits.
- Replace when empty.
- Remove them after mice have disappeared.



Traps

Many people hate the idea of trapping or handling animals. If you don't mind, choose glue traps or snap traps. Follow the directions on the package.

- Place traps out of the reach of children and pets.
- Check the traps daily and dispose mice in sealed plastic bags.
- Keep replacing the traps until you do not catch anything for at least one week.

When to Hire a Professional

If you have rats in your home, or a severe mouse or cockroach problem, then you need a pest control professional. Be sure the professional is a licensed exterminator. Ask to see a copy of the license or check directly with the New York State Department of Environmental Conservation by calling (718) 482-4994.

A good professional exterminator will identify the conditions that are contributing to the pests and will come up with a plan for getting rid of the pests. Some pest problems require several visits. It may take him days or even weeks to get rid of a serious rodent problem. Tell the exterminator you want him to use the least hazardous pesticide that will be effective. Don't allow him to use insect bombs or foggers. If you have children or pets, make sure the exterminator knows.

If you rent, your landlord is required to keep your home pest-free and must hire a professional if necessary. If you see rodents, tell your landlord immediately.

If your landlord does not correct the problem, **call 311**.



**For additional copies of this booklet, call 311.
For more information about pesticides,
visit nyc.gov/health.**



The good news is, you can control pests safely.

“There was a big change after I followed this advice in my apartment. To control mice, I used to use glue traps and loose rodent bait, but it didn’t work because there were a lot of holes around the radiator.

After the cleaning and sealing and fixing the holes, I haven’t seen any mice... I learned that I should never use dangerous pesticides, especially the illegal ones.”

Naomi Gomez, Bronx, NY

“I used to have a very bad cockroach infestation in my apartment that started to affect my asthma. I was controlling the roaches with sprays but the problem persisted. Fixing the crevices and removing the grease on top of the cabinets was very helpful.

Now I have zero roaches. Zero! I stopped using sprays and I am more aware now of how important it is to keep things clean.”

John McDulty, Queens, NY



THE NEW YORK CITY
DEPARTMENT of HEALTH
and MENTAL HYGIENE

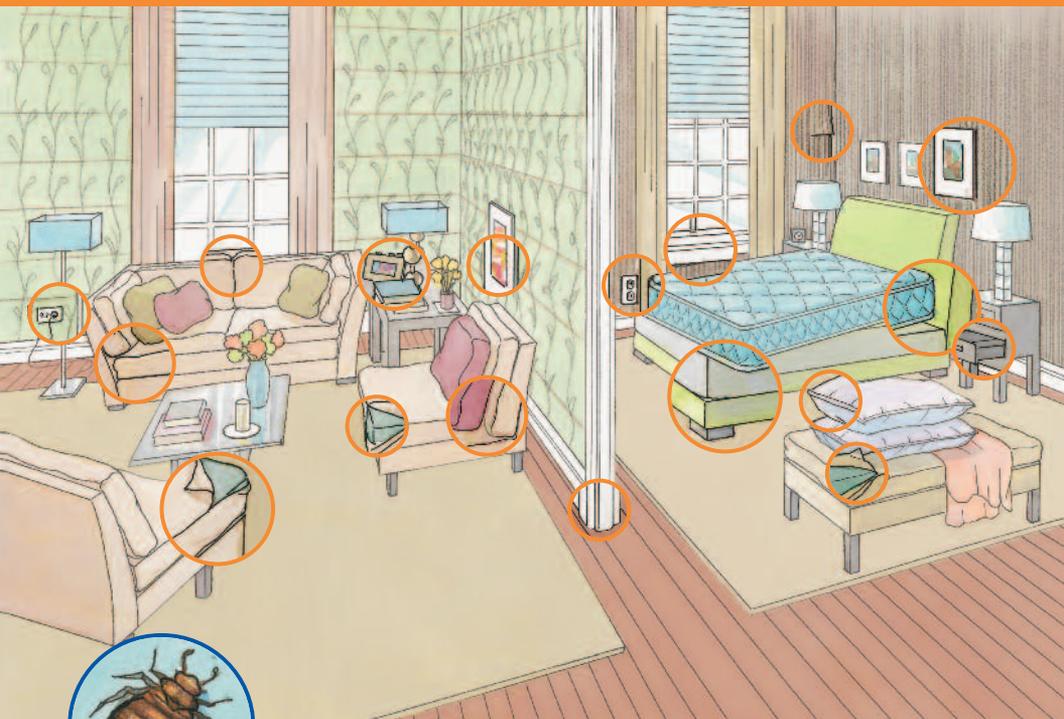


nyc.gov/hpd



***Keeping Homes
Healthy & Safe***

Preventing and Getting Rid of Bed Bugs Safely



*A Guide for Property Owners,
Managers and Tenants*



A Healthy Homes Guide

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Using This Guide

Bed bug infestations are increasingly common in New York City. There are steps that can be taken to prevent bed bugs from infesting your home. When bed bugs are present, they can be safely controlled.

This guide will help you:

1. Learn more about bed bugs and how they thrive.
2. Prevent bed bugs from infesting your home.
3. Safely rid your home of bed bugs if they do occur.
4. Select and work with a pest control professional.

Recognizing a Bed Bug

From its appearance

Bed bugs are small insects that feed mainly on human blood. A newly hatched bed bug is semi-transparent, light tan in color, and the size of a poppy seed. Adult bed bugs are flat, have rusty-red-colored oval bodies, and are about the size of an apple seed.

Bed bugs can be easily confused with other small household insects, including carpet beetles, spider beetles and newly hatched cockroaches (nymphs).

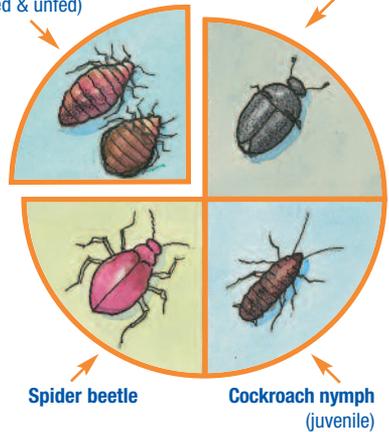
From its markings, droppings and eggs

Blood stains, droppings and eggs can be found in several locations including:

- Mattress seams and tufts, sheets, pillow cases and upholstered furniture.
- Crannies and cracks in furniture.
- Baseboards of walls.

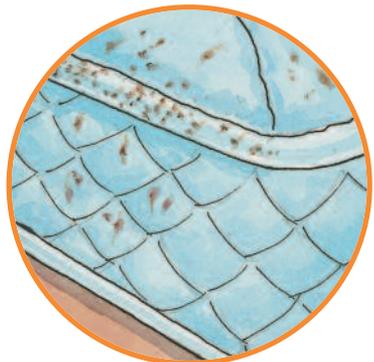
Bed bug adult
(fed & unfed)

Carpet beetle



Spider beetle

Cockroach nymph
(juvenile)



From its bite

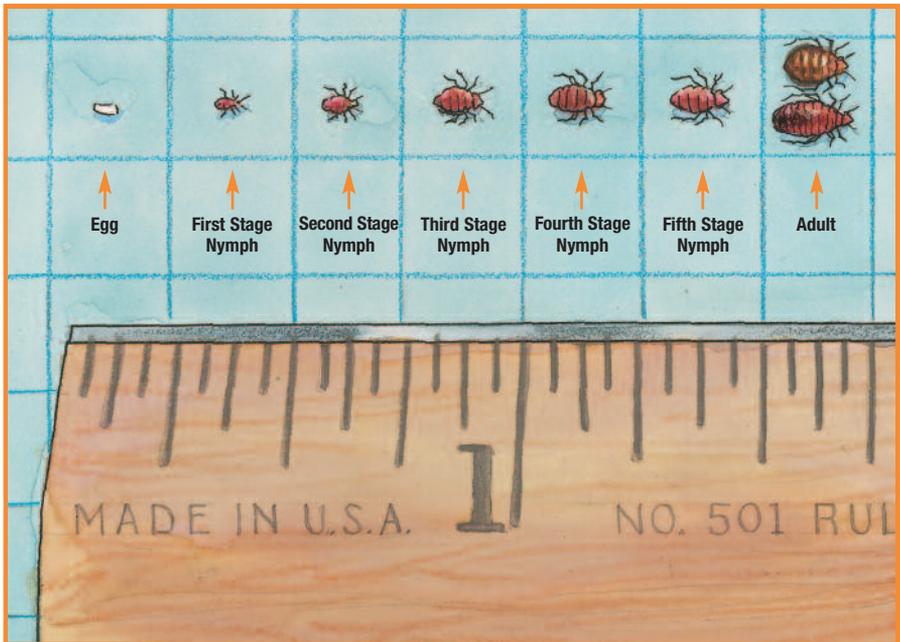
Some people do not react to bed bug bites. But for those who do, bite marks may appear within minutes or days, usually where skin is exposed during sleep. They can be small bumps or large itchy welts. The welts usually go away after a few days. Because the bites may resemble mosquito and other insect bites, a bump or welt alone does not mean there are bed bugs.



How Bed Bugs Grow and Reproduce

Bed bugs are most active when we sleep. They crawl onto exposed skin, inject a mild anesthetic and suck up a small amount of blood. Most people never feel the actual bite.

Bed bugs need a blood meal to grow and lay eggs. A female lays 5-7 eggs per week and if fed, will lay 200-500 eggs in her life. Eggs take about 10 days to hatch. Bed bugs are fully grown in 2 to 4 months and can live as long as a year.



The Health Effects of Bed Bugs

Although bed bugs and their bites are a nuisance, they are not known to spread disease.

- Bed bug bites can be very itchy and irritating. Most welts heal in a few days but in unusual cases, the welt may persist for several weeks. Usually an anti-itching ointment will help, but if bites become infected, people should see their doctor.
- The anxiety about being bitten can lead to sleeplessness, which can affect one's wellbeing. Properly and effectively responding to bed bugs helps to keep anxiety in check.

Some people become so desperate that they use illegal or excessive amounts of pesticides that can lead to poisonings. This guide provides advice on how to get rid of bed bugs safely.

Preventing Bed Bugs from Infesting Your Home

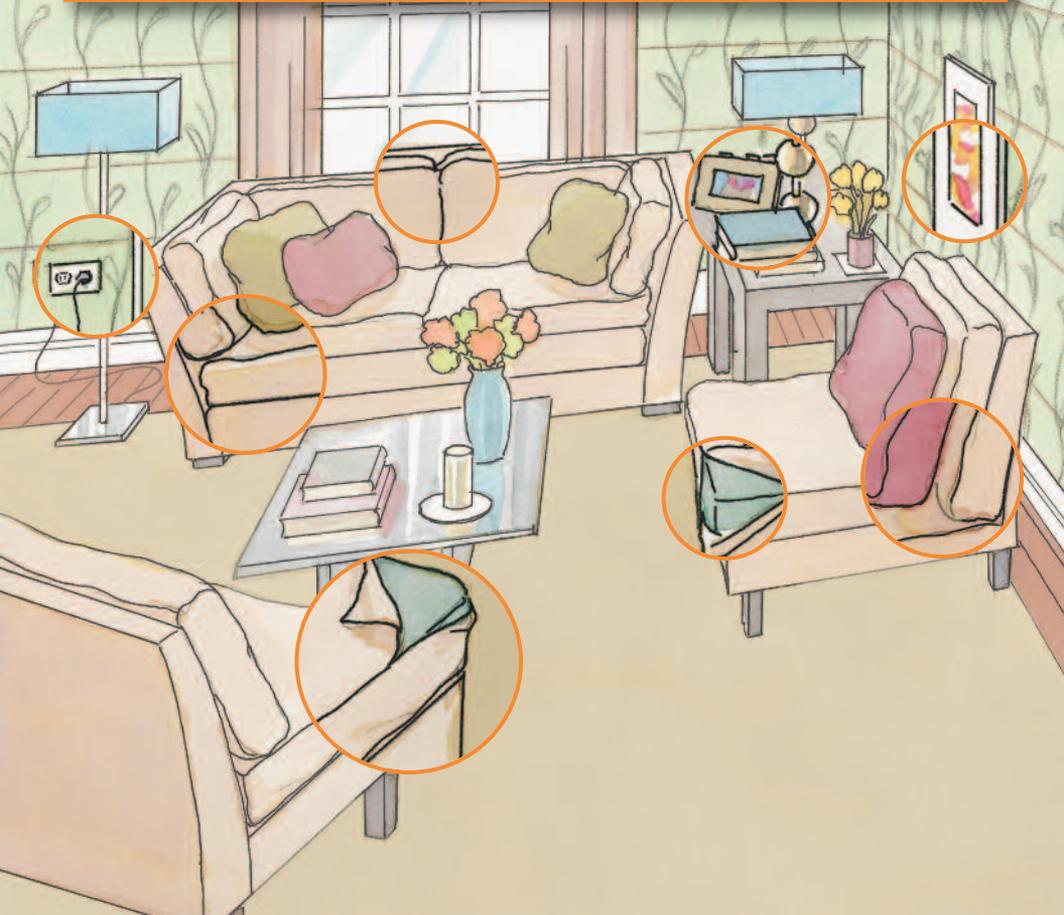
Bed bugs can enter homes by latching onto used furniture, luggage and clothing, and by traveling along connecting pipes and wiring.

- Never bring bed frames, mattresses, box springs or upholstered furniture found on the street into your home.
- Check all used or rented furniture for bed bugs.
- When traveling, inspect the bed and furniture. Keep suitcases off the floor and bed, and inspect them before you leave.
- If you suspect you have been around bed bugs, immediately wash and dry your clothing on hot settings or store it in a sealed plastic bag until you can.
- Seal cracks and crevices with caulk, even if you don't have bed bugs. This will help prevent bed bugs and other pests from coming in.



Inspecting for Bed Bugs

Look for bed bugs, blood stains, droppings and eggs (a flashlight and a magnifying glass will help). Start by looking in an area 10-20 feet around where you sleep or sit. That's the distance a bed bug will usually travel. Keep a written record of every room and location where you find signs of bed bugs. Share this record with a pest control professional.



Check mattresses, box springs, bed frames and bedding

- Check the top and bottom seams, tufts and any rips in the covers of mattresses and box springs.
- Look underneath the bed and along the bed frame and headboards.

Check cracks and crevices in bedroom furniture, floor boards and baseboards, windows and door frames

- Use a flash light to inspect cracks and crevices of furniture, windows and door frames.
- Swipe a putty knife, an old subway or playing card into cracks and crevices to force bed bugs out. A hot blow-dryer on a low setting will

also work. If live bugs do come out, crush them with a paper towel and throw them away outside your building.

- Remove drawers from furniture and check the inside, top and bottom, joints and even screw holes.



Check walls and wall hangings

- Remove and check zippers, seams and tufts in cushions of upholstered furniture, and their frames.
- Using crevice tools, check paintings, posters, pictures and mirrors.
- Check cracks in plaster and peeling wallpaper.
- Inspect the face plates of electrical outlets and light switches (by eye only – do not insert anything into areas with wires). Look in phones, clocks, smoke detectors and toys.



Getting Rid of Bed Bugs

If you have bed bugs, you shouldn't feel ashamed. Anyone can get bed bugs. Notify your landlord and neighbors. The sooner everyone responds, the more successful everyone will be.

Choosing and working with a pest control company

Bed bug infestations usually require the services of well-trained, licensed pest management professionals, also called exterminators. Tenants whose landlords do not promptly respond to bed bug complaints can call 311 and file a complaint with the Department of Housing Preservation and Development, and may also hire their own professionals.

There are many pest control companies and licensed pest professionals in the New York City area. Not all are well trained in managing bed bugs. To get rid of bed bugs, you must choose the right company, be clear about what you want done and monitor performance.

To choose a good professional...

- Find a company through dependable referrals, directories, professional associations and check to make sure they are licensed at www.dec.ny.gov.
- Interview several companies before choosing. Ask about their training, and their approach to controlling bed bugs. Make sure they follow the procedures described in this guide.
- Agree on a service plan and its cost. Expect at least two treatment visits and a third follow-up visit to confirm that bed bugs have been eliminated. Severe infestations or cluttered apartments may take more visits to eliminate bed bugs.

A good company will...

- Inspect your property before giving you a price quote or begin any pesticide application.
- Give you a written inspection report, and an action plan of how to prepare for treatment and prevent further infestation.
- Base quotes on inspection findings, not flat fees. The cheapest services are rarely the best.
- Visit often until the job is done.
- Employ qualified, well-trained pest management professionals.
- Educate you on how to prevent bed bugs.
- Work with you until the bed bugs are gone.
- Treat you with respect.

About the Use of Pesticides

Bed bug infestations usually require the use of pesticides. Only professionals should apply pesticides for bed bugs. Foggers and bug bombs are not effective against them.

Ask the professional to:

- Use the least-toxic pesticide labeled for bed bugs that will be effective.
- Follow all instructions and warnings on product labels.
- Tell you when it's safe to re-enter a treated room.
- Never spray the top of mattresses or sofas, and if needed, to use only small amounts of pesticides on their seams only.

***To report, or ask about pesticide exposures,
call the Poison Control Center 24 hours a day:***

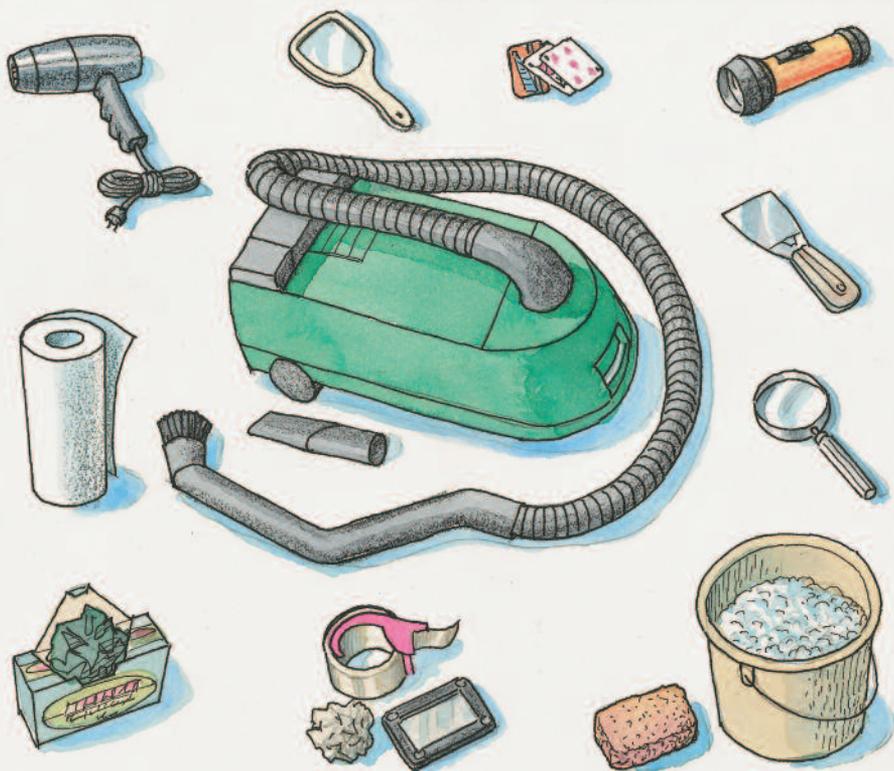
- ***English-speaking callers, call: (212) POISONS (764-7667)***
- ***Spanish-speaking callers, call: (212) VENENOS (836-3667)***

***For more information about pesticide products,
call the National Pesticide Information Center at
(800) 858-7378.***

What Can Be Done to Support the Work of a Professional

Everyone should learn how to identify bed bugs and inspect for them. Cleaning and disinfecting will help to reduce bed bugs and their spread but may not get rid of them totally.

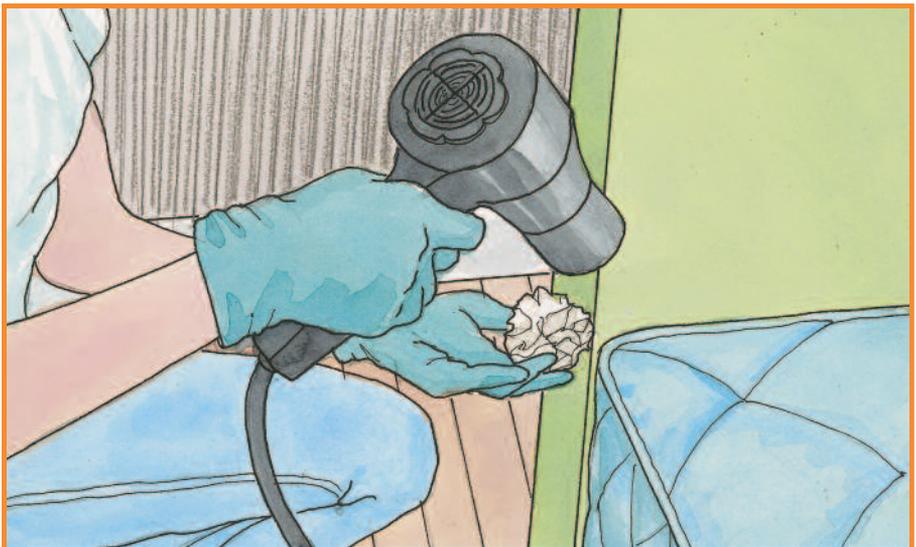
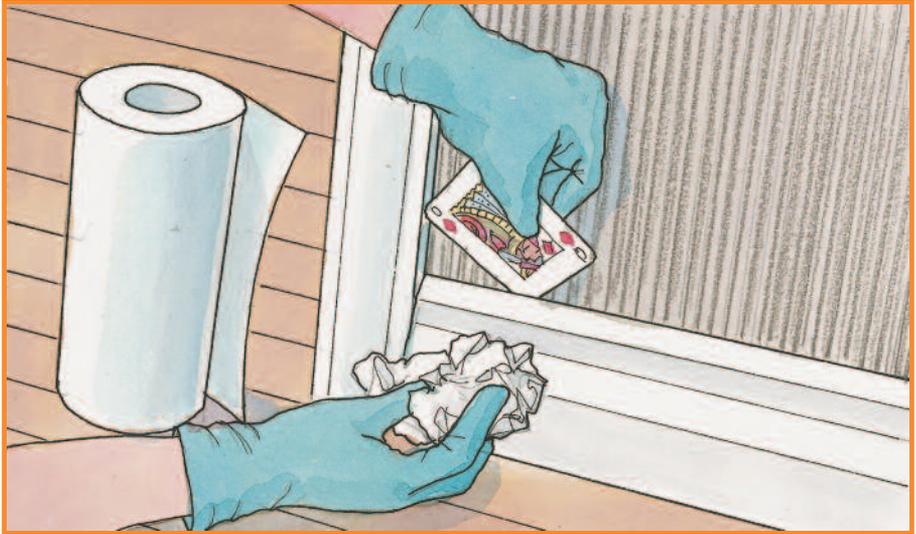
Tools You Can Use



- Bright flashlight
- Small mirror, ideally one with a handle, available from hardware stores
- Magnifying glass
- Blow-dryer
- Paper towels
- Vacuum with crevice tool, brush and plenty of vacuum bags
- Putty knife, playing card or subway card as a crevice tool
- Garbage bags
- Plastic packing tape, cockroach sticky traps or mouse glue boards
- Bucket of soapy water and sponge

Trap and Kill Bed Bugs

- Force bed bugs out of cracks and crevices with a putty knife or an old subway or playing card, or with hot air from a blow-dryer on low setting. Catch them with sticky packing tape or crush them in paper towels. The heat from blow-dryers will kill bed bugs after 30 seconds of continuous contact.



Clean and Disinfect

- Get rid of clutter to reduce places bed bugs can hide. After checking them for bed bugs, consider putting non-essential belongings into storage until the bed bugs are gone from your home. Check all items again before returning.



- Wipe off dead bugs, blood stains, eggs and droppings with hot soapy water.



- Wash all items showing bed bug stains in hot water (140°F) and dry on the highest setting for at least 20 minutes. Other clean items suspected of having bed bugs should be placed in a hot dryer for at least 20 minutes to kill bed bugs. After drying store items in sealed plastic bags until you are sure you have gotten rid of bed bugs.



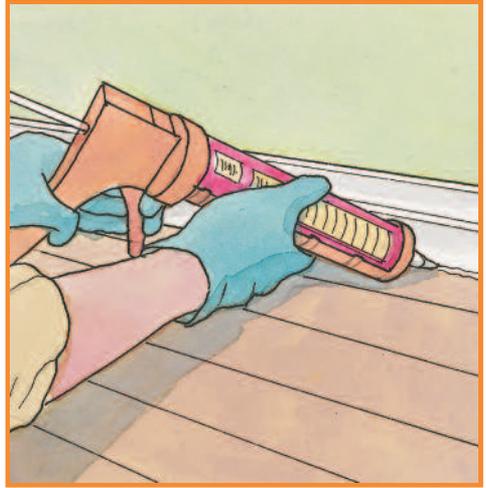
- Vacuum carpets, floors, bed frames, furniture, cracks and crevices daily, using the brush and crevice tools. Empty the vacuum or seal and dispose of its bag outside of your home after each use.



- Enclose infested mattresses and box springs in a cover that is labeled "allergen rated," "for dust mites," or "for bed bugs" for at least a full year. Periodically check for rips or openings and tape these up.

Seal Cracks and Crevices

- Repair cracks in plaster, repair or remove any loose wallpaper and tighten light switch covers.
- Apply caulk to seal crevices and joints in baseboards and gaps on shelving or cabinets.



Getting Rid of Infested Items

- Usually, it is not necessary to get rid of furniture or bedding at the first signs of bed bugs. Cleaning and enclosing is often adequate.
- Box springs should only be discarded if they cannot be covered and are heavily infested.
- Use plastic sheeting (shrink /pallet wrap) or place securely in plastic bags any items to be thrown away. Label with a sign that says “infested with bed bugs.”



What Landlords and Building Managers Can Do

- Provide tenants with information about bed bugs. Share this guide.
- Encourage everyone to report bed bugs as soon as they know of a problem.
- Notify tenants, and inspect all units adjacent to, above and below apartments found to have bed bugs.
- Hire a pest management professional to treat for bed bugs. Be wary of companies that make unrealistic claims that bed bugs can be controlled with one visit.
- Help tenants if they cannot move furniture themselves or need help to get rid of clutter.
- Give advance notice of the planned use of pesticides.
- Inspect upon vacancy and if necessary treat units to ensure they have no bed bugs or other pests before renting.



More Information?

For additional copies of this guide,
call 311 and ask for a copy of
“Preventing and Getting Rid of Bed Bugs Safely.”

More information on bed bugs and other pests
is available at <http://nyc.gov/health>.

*To report, or ask about pesticide exposures,
call the New York City Poison Control Center
at (212) Poisons.*



A Healthy Homes Guide



Key Messages about Bed Bugs

- Learn to identify the signs of bed bugs.
- Dirty living conditions do not cause bed bugs but cleaning and removing clutter will help in controlling them.
- Anyone can get bed bugs. Seek help immediately if you find them.
- Sealing cracks and small holes will help to reduce hiding places and prevent bed bugs from crawling between apartments.
- Cooperate with your neighbors, landlord and pest management provider. Getting rid of bed bugs needs to involve everyone.
- Do not use pesticide bombs or foggers to control pests. They can make conditions worse.
- It is hard, but not impossible to get rid of bed bugs. The advice in this guide will help.



Michael R. Bloomberg
Mayor

Department of
Health & Mental
Hygiene

Thomas Farley, M.D., M.P.H.
Commissioner

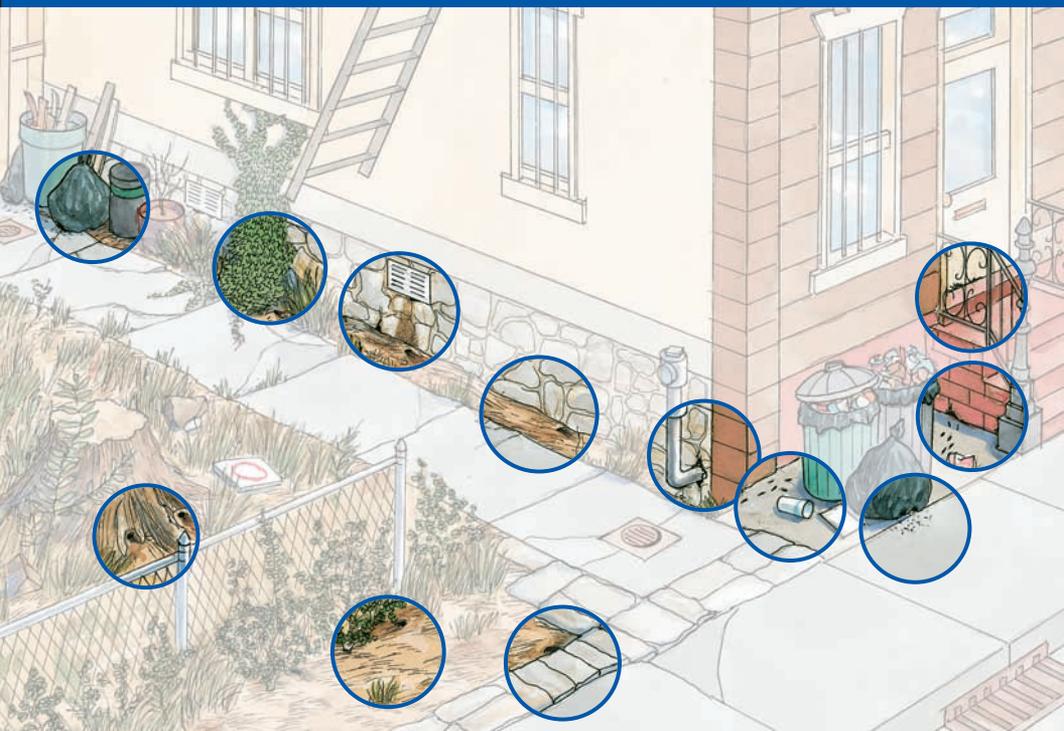
Department of
Housing Preservation
& Development

Rafael E. Cestero
Commissioner



Keeping Homes
Healthy & Safe

Preventing Rats on Your Property



A Guide for Property Owners and Tenants



A Healthy Homes Guide

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How to Use This Guide

Too many New Yorkers live in communities with rats. If you have rats, or received a notice from the City of New York that rats were found on your property, this guide is for you.

To use this guide:

1. Follow the steps to find and control rats – or hire a good pest control company to do it.
2. When you hire a pest control company, show them this guide and ask them to use it.
3. Rats are a community problem. Show this guide to your neighbors, tenants or landlord. Call 311 for more copies.

How the Health Department Inspects for Rats

The Health Department inspects private and public properties for rats. The property will fail an inspection if any of the following signs are found:

- Live rats
- Rat droppings
- Burrows (places where rats live)
- Gnaw marks from rats' teeth
- Tracks or runways, such as rub marks or flattened paths outside burrows
- Excessive garbage or clutter that give rats a place to hide

Property owners who fail an inspection will receive a Commissioner's Order and a copy of the inspection report in the mail. Owners will have five days to correct the problem. If the property fails a second inspection, the owner may receive a Notice of Violation, which could result in fines. Depending on the severity of the problem, the Health Department may exterminate or clean up the property, and bill the owner.

How to Control Rats

To control rats, you have to remove everything they need to survive: food, water, shelter and ways to get around.

Step One: Look for Evidence



- Look for places where rats live. Most rats live in nests or burrows. Burrows are holes in dirt or concrete from one to four inches wide, with smooth edges. Burrows can be found under bushes and plants. They will often have an entrance and exit hole.
- Look for droppings. They are often found close to garbage. If they're moist and dark, it's a sign that rats are in the area.
- Look for holes and gnaw marks on wood and plastic garbage cans.
- Check walls and grass for signs of runways. Rats run along the same path many times a day, leaving dark greasy track marks along walls and worn down paths in grass.





- Rats come out at night, so walk around outside with a flashlight after dark. This will help you see where rats are going, so you can check for burrows when it gets light.



Runways and tracks



Gnaw marks



Rat droppings



Gnaw marks



Rat droppings



Gnaw marks on trash bags



Burrow near sidewalk

Step Two: Clean Up

Wash Away Droppings and Track Marks

Rats communicate and attract each other through their urine and droppings.

- Sweep up droppings and clean up dark greasy track marks. Wash down the area with water and a mild bleach solution (one part bleach, 10 parts water).
- Talk to your neighbors and work together to clean up, so rats don't move from one place to another.

Get Rid of Clutter

Clutter gives rats lots of places to hide, sleep, nest and reproduce.

- Remove (and recycle) piles of newspapers, paper bags, cardboard and bottles.
- Clear out your basement and yard.
- Store items away from walls and off the ground.



Control Weeds, Shrubs and Bushes

Rats are often found in burrows under bushes and plants.

- Keep tall grass, bushes, shrubs and mulch away from building foundations. Pull out ivy around burrows.
- Keep ground bare six inches from buildings, and trim under shrubs.
- Make space between plants and avoid dense planting.
- Keep gardens free of weeds and trash.



Step Three: Starve Them

Rats only need one ounce of food each day. Don't make your garbage their food.

Manage Your Garbage

- Bring garbage cans and bags to the curb as close to pick-up time as possible. Leaving them out overnight invites rats.
- Make sure you have enough garbage cans to hold trash between pickups.
- Use hard plastic or metal cans with tight fitting lids.
- Insist that tenants put garbage *inside* cans.

Keep Food Away

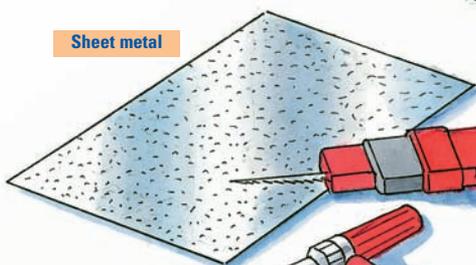
- Keep all food in tightly sealed containers.
- Don't put food out for stray cats, pigeons or squirrels.



Step Four: Shut Them Out

Rats chew holes into buildings, and can squeeze through cracks and holes as small as a half inch. To keep rats out for good, seal all holes and cracks in foundations, walls, floors, underneath doors and around windows. Most repairs can be done by maintenance staff, superintendents, handy men or pest control professionals. Materials are inexpensive and available at most hardware stores.

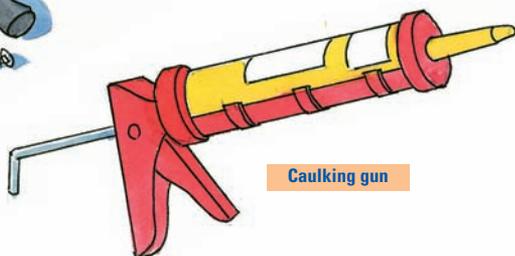
Sheet metal



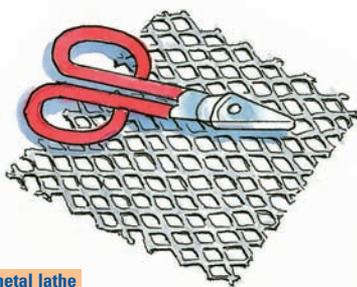
Metal door sweeps



Roof cement and trowel



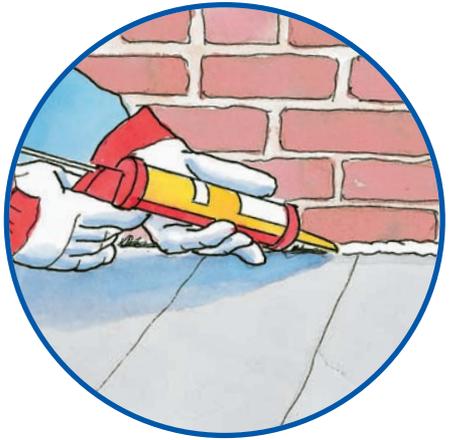
Caulking gun



Tin snips and metal lath

Seal Cracks and Small Holes

- Seal cracks and small holes with caulk. Or use roofing cement – it's durable and easily applied with a caulking gun.
- Close gaps under doors with rodent-resistant metal door sweeps.
- Close window gaps with metal flashing.
- Put screens on vents, especially on lower floors.



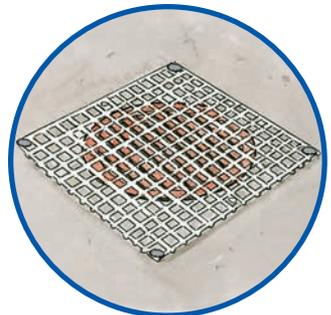
Fill Large Gaps and Holes

The way to close large gaps and holes depends on the building material and amount of space behind the hole.

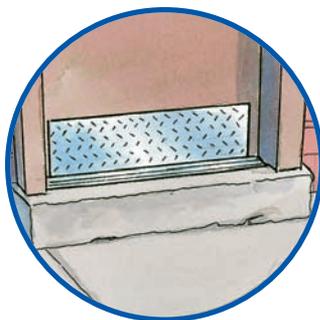
- Use mortar or ready-mix cement to fill gaps and holes in cement and stone foundations. Cover large holes with metal lath or screening, then seal with mortar or cement.



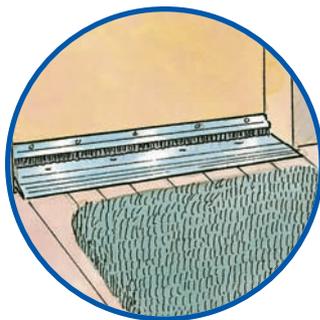
- Cover floor drains and vents with heavy-duty metal screening, secured with masonry nails or cement.



- Install sheet metal kick plates on the lower exterior of doors where rats have been gnawing or entering the building. Install metal thresholds underneath.



- Use door sweeps to keep gaps under doors smaller than a quarter inch.



- Consider installing heavy gauge sheet metal between foundations and the ground.

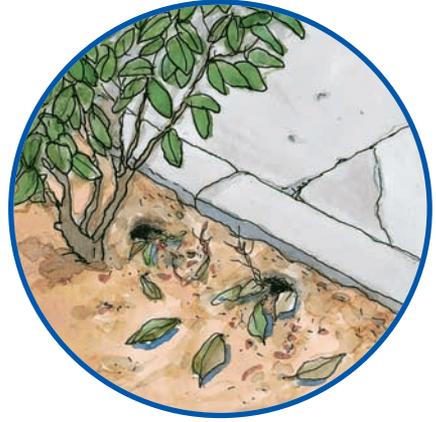


- Seal pipes leading into walls with escutcheon plates ("pipe collars"). Check pipes regularly for leaks.



Close Inactive Burrows

An inactive burrow will often have leaves, cobwebs or other debris around the entrance. These burrows should be closed so rats can't get back in.



- Close burrows in soil by filling with soil and tamping down with a shovel, or by stepping on them.



- Close burrows in cracked or broken sidewalks with metal filler and cement.



Step Five: Wipe Them Out

Rodent Baiting

Rodent bait is an effective way to wipe out rats. But applying these poisons is a job for professionals. If you live in your own home without tenants, the law allows you to place rodent bait yourself. *But commercial and multi-unit property owners must hire a pest control company – it is against the law for them to place their own bait.*

Make sure your pest control company follows these guidelines:

- Always read and follow the manufacturer's label, and use the smallest effective amount of bait.
- Use disposable gloves when handling bait and wash your hands afterwards.
- Use secured bait chunks (called bait "blocks") inside tamper-resistant bait stations. Secure or anchor bait stations to the ground or fence with cement, caulk or wire.
- Place bait stations on the same path as rats normally travel – often along building walls and fence lines. Since rats always travel on the same path, they're more likely to eat from stations along it.
- Use a funnel to place loose pellet bait into burrows. This will help ensure pellets are placed deep into the burrow, so rats can't push them out.
- Bagged bait should not be used in burrows or bait stations. Rats can push or carry them out of burrows or stations, where children, pets or wildlife can get to them.



- Store and place bait stations where children and pets can't get to them.
- Never use a product that doesn't have a U.S. Environmental Protection Agency (EPA) Registration Number.
- Replace bait after it's been eaten. Leave bait stations and bait in place for at least two weeks after all rat activity has stopped. Monitor on a monthly basis.
- Never use Tres Pasitos or other illegal bait products.



For more information about pesticides, call the National Pesticide Information Center at (800) 858-7378.

Choosing and Working with a Pest Control Company

There are more than 1,000 pest control companies and 3,500 licensed pest professionals in the New York City area. Not all are well trained in managing rats. To get rid of rats, you must choose the right company, be clear about what you want done and monitor performance.

How to Find the Right Company

Ask Around and Interview Companies

- Ask your neighbors and friends for referrals.
- Look in the phone book and online for "integrated pest management" services. These companies are more likely to inspect, monitor and make recommendations and repairs.
- Interview companies. Ask for references, including previous customers.
- Make sure the company is licensed with the New York State Department of Environmental Conservation. To check, call (718) 482-4994, or visit <http://www.dec.ny.gov>.

A good company will...

- Inspect your property before giving you a price quote.
- Give you a written inspection report, and an action plan.
- Base quotes on inspection findings, not flat fees. The cheapest services are rarely the best.
- Make referrals for structural repair, if required.
- Visit often until the job is done.
- Put bait in tamper-resistant containers.
- Employ qualified, well-trained exterminators.
- Educate you on how to prevent rats.
- Work with you until rats are gone.

Work Together

- Walk around with the pest control professional during each visit, and keep track of work.
- Agree on a service plan and cost.
- Follow-up on referrals and recommendations.





Myths and Facts About Rats

1. Myth: Rats the size of cats live in NYC.

Fact: Most rats in our area weigh no more than one pound. When a rat is scared, it will fluff up its fur and look bigger, to scare away its enemies.

2. Myth: “Rat cities” are in our sewers and subway system.

Fact: Only small pockets live in NYC sewers and subways. Most rats live in burrows at ground or basement level.

3. Myth: City rats are “immune” to poison.

Fact: Today’s poisons work fine – but only if rats eat them. When garbage is easily accessible, rats don’t take the bait.

4. Myth: More than one kind of rat lives in NYC.

Fact: Only the Norway rat lives here. It varies in color and size, depending on how old it is and where it lives. As a result, people call it different names (city rat, brown rat, sewer rat, wharf rat, river rat, alley rat, house rat). It’s all one species.

5. Myth: Cats, dogs, hawks and other animals help control city rats.

Fact: They may kill an occasional rat, but they can’t keep up with rats’ rapid breeding rates. **Only people can make a difference!**



Michael R. Bloomberg
Mayor

Department of
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Pediatric Environmental Home Assessment Scenario

The scenario is fictional. The photos are taken from a variety of homes to highlight key issues.

It is a warm summer day and you are going out on a home visit to see a family. The family has a six-year old child who is being treated for asthma. The mom has concerns about recent problems with her child's asthma and the need for more frequent use of “rescue” inhalers.

You note that the family lives in a multi-family building in an urban neighborhood. The building appears to have been built in the late 1950s. That is consistent with other buildings in the neighborhood. Given its urban location, you know that the home is connected to a public water system.

As you go along, you make notes and check off any relevant information on the [PEHA Survey form](#). Let's get started!

Welcome and Introductions

- [View photos of basement conditions.](#)
- [View photos of outside conditions.](#)

As you talk further, the mom reports that she is a Section 8 tenant. When she moved in, she says the landlord told her that the house was built in 1958 and that lead hazard control work was completed before she moved in 18 months ago. She could not remember getting any booklet or warnings about lead when she signed her lease.

You ask the mom about other general housing characteristics. She knows there is a basement but has not been in there. She says she has seen the oil truck connect up to the fittings on the side of the house. She shows you the unlocked door to the basement in the common area. You check out the basement.

The mom says that the oil heat can be hard to control in the winter. Some rooms are too hot and others are too cold. She sometimes has to open windows to make the rooms comfortable.

You observe, and the mom reports, that there are no pets in the home.

The mom is focused on the construction dust and mice. She says she has not seen any mold. You follow along on the [PEHA Survey Form](#) and ask about other pests. The mom reports no trouble with cockroaches, rats, or bedbugs.

You ask about asbestos and radon. The mom reports that she has no knowledge about whether the building has been tested or treated.

You do not observe any air fresheners or scented candles present, but you ask about their use. The mom confirms that she does not use those items because they aggravate her child's asthma.

Next you do a kitchen walkthrough with the mom.

Kitchen

- [View photos of other kitchen conditions.](#)

You review the [PEHA Survey Form](#) and ask to move on to the bedroom and bathroom.

Living Room Walkthrough and Neighborhood Review

- [View photos of living room conditions.](#)

You note the active construction outside and the dust that is accumulating in the window sill even though the window is closed. You also note that there are no window guards on the windows and that the blinds have looped cords.

You ask the mom about the last time the young children were tested for lead. Mom notes that it was within the last year and the results were less than 10.

You sit down again with the mom to review home safety questions. You provide her with a poison control hotline sticker to place on the phone. You ask about fire safety issues. She notes that there is no smoking allowed in the house and matches are stored in a high, safety-locked cabinet. The family does not have a formal fire escape plan.

The mom reports that the hallway lighting is good. She has no safety concerns about lighting. In the kitchen you note the coffee maker and tea kettle. You ask about the child's access to hot liquids. The mom notes that her son is older and is aware that he should not touch hot things. You ask the mom if she knows what the hot water temperature is set at. She does not know.

Bedroom and Bathroom

- [View photos of bedroom conditions.](#)
- [View photos of bathroom conditions.](#)

You ask the mom about the use of humidifiers in the bedroom. She notes that she sometimes uses them in the winter because the air gets too dry from the hard to control heat.

As you talk further, the mom confirms that the bathroom fan does function although it is a bit noisy. You observe a hair dryer on the edge of the sink. You ask the mom about adult supervision when her child is bathing. She notes that she is right there most of the time but may sometimes leave the room to grab a towel or item of clothing for the child.

Pediatric Environmental Home Assessment

Last updated 6/7/06

RESIDENT REPORTED INFORMATION

Bolded responses indicate areas of greater concern.

General Housing Characteristics

Type of ownership	<input type="checkbox"/> Own house	<input type="checkbox"/> Market rate rental hsg.	<input type="checkbox"/> Subsidized rental hsg.	<input type="checkbox"/> Shelter	
Age of home	<input type="checkbox"/> Pre-1950	<input type="checkbox"/> 1950 - 1978	<input type="checkbox"/> Post-1978	<input type="checkbox"/> Don't know	
Structural foundation	<input type="checkbox"/> Basement	<input type="checkbox"/> Slab on grade	<input type="checkbox"/> Crawlspace	<input type="checkbox"/> Don't know	
Floors lived in (check all that apply)	<input type="checkbox"/> Basement	<input type="checkbox"/> 1 st	<input type="checkbox"/> 2 nd	<input type="checkbox"/> 3 rd or higher	
Heating	Fuel used	<input type="checkbox"/> Natural gas	<input type="checkbox"/> Oil	<input type="checkbox"/> Electric	<input type="checkbox"/> Wood
	Sources in home	<input type="checkbox"/> Baseboards	<input type="checkbox"/> Radiators	<input type="checkbox"/> Forced hot air vents	<input type="checkbox"/> Other: _____
	Filters changed	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> HEPA air filter	<input type="checkbox"/> Don't know
	Control	<input type="checkbox"/> Easy to control heat	<input type="checkbox"/> Hard to control heat		
Cooling	<input type="checkbox"/> Windows	<input type="checkbox"/> Central/window AC	<input type="checkbox"/> Fans	<input type="checkbox"/> None	
Ventilation (check all that apply)	<input type="checkbox"/> Open windows	<input type="checkbox"/> Kitchen & bathroom fans	<input type="checkbox"/> Central ventilation		

Indoor Pollutants

Mold and moisture	<input type="checkbox"/> Uses dehumidifier <input type="checkbox"/> No damage	<input type="checkbox"/> Uses vaporizer or humidifier	<input type="checkbox"/> Musty odor evident	<input type="checkbox"/> Visible water / mold damage	
Pet	Presence	<input type="checkbox"/> No pets	<input type="checkbox"/> Cat # _____	<input type="checkbox"/> Dog # _____	<input type="checkbox"/> Other: _____
	Management	<input type="checkbox"/> Kept strictly outdoors	<input type="checkbox"/> Not allowed in bedroom	<input type="checkbox"/> Full access in home	<input type="checkbox"/> Sleeping location: _____
Pests	Cockroaches	<input type="checkbox"/> None	<input type="checkbox"/> Family reports	<input type="checkbox"/> Family shows evidence	Present in <input type="checkbox"/> kitchen <input type="checkbox"/> bedroom <input type="checkbox"/> other
	Mice	<input type="checkbox"/> None	<input type="checkbox"/> Family reports	<input type="checkbox"/> Family shows evidence	Present in <input type="checkbox"/> kitchen <input type="checkbox"/> bedroom <input type="checkbox"/> other
	Rats	<input type="checkbox"/> None	<input type="checkbox"/> Family reports	<input type="checkbox"/> Family shows evidence	Present in <input type="checkbox"/> kitchen <input type="checkbox"/> bedroom <input type="checkbox"/> other
	Bedbugs	<input type="checkbox"/> None	<input type="checkbox"/> Family reports	<input type="checkbox"/> Family shows evidence	Present in <input type="checkbox"/> bedroom <input type="checkbox"/> other
Lead paint hazards	<input type="checkbox"/> Tested and passed	<input type="checkbox"/> Tested, failed, and mitigated	<input type="checkbox"/> Not tested/Don't know	<input type="checkbox"/> Loose, peeling, or chipping, paint	
Asbestos	<input type="checkbox"/> Tested – None present	<input type="checkbox"/> Tested, failed, and mitigated	<input type="checkbox"/> Not tested/Don't know	<input type="checkbox"/> Damaged material	
Radon	<input type="checkbox"/> Tested and passed	<input type="checkbox"/> Tested, failed, and mitigated	<input type="checkbox"/> Not tested/Don't know	<input type="checkbox"/> Failed test but not mitigated	
Health and Safety Alarms	<input type="checkbox"/> Smoke alarm working and well placed	<input type="checkbox"/> CO alarm working and one on each floor	<input type="checkbox"/> CO alarm does not log peak level	<input type="checkbox"/> No smoke alarm <input type="checkbox"/> No CO alarm	
Tobacco smoke exposure	<input type="checkbox"/> No smoking allowed	<input type="checkbox"/> Smoking only allowed outdoors	<input type="checkbox"/> Smoking allowed indoors <input type="checkbox"/> bedroom <input type="checkbox"/> playroom	<input type="checkbox"/> Total # smokers in household: _____ <input type="checkbox"/> Mother smokes	
Other irritants	<input type="checkbox"/> None	<input type="checkbox"/> Air fresheners	<input type="checkbox"/> Potpourri, incense, candles	<input type="checkbox"/> Other strong odors: _____	
Type of cleaning	<input type="checkbox"/> Vacuum (non-HEPA)	<input type="checkbox"/> HEPA vacuum	<input type="checkbox"/> Damp mop and damp dusting	<input type="checkbox"/> Sweep or dry mop	

NOTES:

OBSERVED INFORMATION

Bolded responses indicate areas of greater concern.

Home Environment					
Drinking Water Source		<input type="checkbox"/> Public water system	<input type="checkbox"/> Household Well		
Kitchen	Cleanliness	<input type="checkbox"/> No soiling	<input type="checkbox"/> Trash or garbage sealed	<input type="checkbox"/> Trash or garbage not sealed	<input type="checkbox"/> Wall/ceiling/floor damage
	Ventilation	<input type="checkbox"/> Functioning stove exhaust fan/vent	<input type="checkbox"/> Mold growth present	<input type="checkbox"/> Broken stove exhaust fan/vent	<input type="checkbox"/> No stove exhaust fan/vent
Bathroom		<input type="checkbox"/> Functioning exhaust fan/vent/window	<input type="checkbox"/> Mold growth present	<input type="checkbox"/> Needs cleaning and maintenance	<input type="checkbox"/> Wall/ceiling/floor damage
Basement		<input type="checkbox"/> None/No Access	<input type="checkbox"/> Mold growth present	<input type="checkbox"/> Needs cleaning and maintenance	<input type="checkbox"/> Wall/ceiling/floor damage
Living Room		<input type="checkbox"/> No soiling	<input type="checkbox"/> Mold growth present	<input type="checkbox"/> Needs cleaning and maintenance	<input type="checkbox"/> Wall/ceiling/floor damage
Laundry area		<input type="checkbox"/> None	<input type="checkbox"/> Well maintained	<input type="checkbox"/> Dryer not vented	<input type="checkbox"/> Hang clothes to dry

Sleep Environment				
Children's sleep area	<input type="checkbox"/> Own room	<input type="checkbox"/> Shared # in room _____	<input type="checkbox"/> Other	
# Beds	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> More than 2
Allergen impermeable encasings on beds	<input type="checkbox"/> On mattress and boxspring (zippered)	<input type="checkbox"/> On mattress only (zippered)	<input type="checkbox"/> On mattress (not zippered)	<input type="checkbox"/> No mattress covers
Pillows	<input type="checkbox"/> Allergen-proof	<input type="checkbox"/> Washable	<input type="checkbox"/> Feather/ down	
Bedding	<input type="checkbox"/> Washable	<input type="checkbox"/> Wool/not washable	<input type="checkbox"/> Feather/ down	
Flooring	<input type="checkbox"/> Hardwood/Tile/Linoleum	<input type="checkbox"/> Small area rug	<input type="checkbox"/> Large area rug	<input type="checkbox"/> Wall-to-wall carpet
Dust/mold catchers	<input type="checkbox"/> Stuffed animals/washable toys <input type="checkbox"/> No clutter	<input type="checkbox"/> Non-washable toys	<input type="checkbox"/> Plants	<input type="checkbox"/> Other _____
Window	<input type="checkbox"/> Washable shades/curtains	<input type="checkbox"/> Washable blinds	<input type="checkbox"/> Curtains/ drapes	<input type="checkbox"/> No window/poor ventilation
Other irritants	<input type="checkbox"/> Abundant cosmetics and fragrances			

Home Safety <i>* can indicate housing code violations</i>				
General				
Active renovation or remodeling	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
*Stairs, protective walls, railings, porches	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
*Hallway lighting	<input type="checkbox"/> Adequate	<input type="checkbox"/> Inadequate		
Poison control number	<input type="checkbox"/> Posted by phone	<input type="checkbox"/> Not posted by phone		
**Family fire escape plan	<input type="checkbox"/> Developed and have copy available	<input type="checkbox"/> None		
Electrical appliances (radio, hair dryer, space heater)	<input type="checkbox"/> Not used near water	<input type="checkbox"/> Used near water		
Matches and lighters stored	<input type="checkbox"/> Out of child's reach	<input type="checkbox"/> Within child's reach		
Exterior environment	<input type="checkbox"/> Well maintained	<input type="checkbox"/> Abundant trash and debris	<input type="checkbox"/> Chipping, peeling paint	<input type="checkbox"/> Broken window(s)

OBSERVED INFORMATION (continued)

Home Safety <i>* can indicate housing code violations</i>			
Young Children Present	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Coffee, hot liquids, and foods	<input type="checkbox"/> Out of child's reach	<input type="checkbox"/> Within child's reach	
Cleaning supplies stored	<input type="checkbox"/> Out of child's reach	<input type="checkbox"/> Within child's reach	
Medicine and vitamins stored	<input type="checkbox"/> Out of child's reach	<input type="checkbox"/> Within child's reach	
Child (less than six years old) been tested for lead poisoning	<input type="checkbox"/> Within past 6 months Result: _____	<input type="checkbox"/> Within past year or more. When? _____ Result: _____	<input type="checkbox"/> No
Child watched by an adult while in the tub	<input type="checkbox"/> Always	<input type="checkbox"/> Most of the time	<input type="checkbox"/> No
*Home's hot water temperature	<input type="checkbox"/> <120 F	<input type="checkbox"/> >120 F	<input type="checkbox"/> Don't know
Non-accordion toddler gates used	<input type="checkbox"/> At top of stairs	<input type="checkbox"/> At bottom of stairs	<input type="checkbox"/> No
Crib mattress	<input type="checkbox"/> Fits well	<input type="checkbox"/> Loose	<input type="checkbox"/> NA
Window guards	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Window blind cords	<input type="checkbox"/> Split cord	<input type="checkbox"/> Looped cord	

NOTES:

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The National Environmental Education & Training Foundation

We credit its *Environmental Management of Pediatric Asthma: Guidelines for Health Care Providers*
and model Pediatric Environmental History Form

and



The Center for Healthy Homes and Neighborhoods at Boston University

We credit its model Pediatric Asthma-Allergy Home Assessment form

Pediatric Environmental Home Assessment Form

ACTION PLAN

After completing the assessment, use this as a guide for education and recommending corrective action.

General Housing Characteristics		
CONCERN	TO DO	FAMILY TO DO
Age of home	<ul style="list-style-type: none"> <input type="checkbox"/> If built before 1978, educate as follows: <ul style="list-style-type: none"> o Home is likely to have lead paint. o Lead hazards can be harmful to young children's health and development. o If family has a child less than six years old then it is important to test for lead hazards. <input type="checkbox"/> Get more information about lead testing at www.epa.gov/lead/ and provide to family. <input type="checkbox"/> Review items in "Family To Do" column with family. 	<ul style="list-style-type: none"> <input type="checkbox"/> If your child is less than six years old, contact the childhood lead poisoning prevention program (CLPPP) at your state and local departments of health. <input type="checkbox"/> Consider getting a lead paint inspection or risk assessment to determine whether there are lead hazards in your home. <input type="checkbox"/> If there are hazards, repair them based on state and local regulations and requirements. Consult with state CLPPP.
Heating source - Other: Kerosene heaters, space heaters, fireplaces, wood stoves	<ul style="list-style-type: none"> <input type="checkbox"/> Counsel family about the dangers of such heating sources in terms of fire safety and indoor air quality. <input type="checkbox"/> Get more information about indoor air quality and combustion sources in the home at http://www.epa.gov/iaq/combust.html and provide to family. <input type="checkbox"/> Review items in "Family To Do" column with family. 	<ul style="list-style-type: none"> <input type="checkbox"/> Make sure kerosene heaters are vented to the outdoors or not used. <input type="checkbox"/> Make sure space heaters are at least 3 feet from anything flammable. <input type="checkbox"/> When necessary, use only 12 or 14 gauge extension cords (the lower the better). <input type="checkbox"/> Ensure that there is a good seal on fireplace screen or woodstove doors.
Filters	<ul style="list-style-type: none"> <input type="checkbox"/> Counsel family to do proper filter maintenance. <input type="checkbox"/> Review items in "Family To Do" column with family. 	<ul style="list-style-type: none"> <input type="checkbox"/> Change filters quarterly. <input type="checkbox"/> Use filters which are rated MERV 10.
Indoor Pollutants		
CONCERN	TO DO	FAMILY TO DO
Vaporizers/Humidifiers	<ul style="list-style-type: none"> <input type="checkbox"/> Counsel the family about the importance of proper vaporizer/humidifier maintenance and impact of mold growth on health. <input type="checkbox"/> Get more information about humidifier maintenance at http://www.epa.gov/iaq/pubs/humidif.html and provide to family. <input type="checkbox"/> Review items in "Family To Do" column with family. 	<ul style="list-style-type: none"> <input type="checkbox"/> Change the water daily with clean cold water. <input type="checkbox"/> Use distilled or demineralized water. <input type="checkbox"/> Clean humidifier every 3 days. Follow manufacturer's instructions. <input type="checkbox"/> Change filter regularly. Follow manufacturer's instructions. Change more often if dirty. <input type="checkbox"/> Keep surrounding area dry. <input type="checkbox"/> Drain and clean humidifier before storing. <input type="checkbox"/> Only run humidifier a few hours a day to avoid mold growth.
Mold/Musty odor	<ul style="list-style-type: none"> <input type="checkbox"/> Educate family about the importance of keeping things dry and the impact of mold on family health. <input type="checkbox"/> Get more information at http://www.epa.gov/mold/moldguide.html and provide to family. <input type="checkbox"/> Review items in "Family To Do" column with family. 	<ul style="list-style-type: none"> <input type="checkbox"/> Any mold or musty odor must be investigated for a source of water. Examine plumbing, roofing, or other possible leaks. <input type="checkbox"/> If homeowner, then make necessary repairs. <input type="checkbox"/> If renter, then talk with your landlord about needed repairs. Consider calling the local board of health for possible code violations.

Indoor Pollutants (continued)		
CONCERN	TO DO	FAMILY TO DO
Pets	<input type="checkbox"/> If anyone is allergic to pets, educate as follows: <ul style="list-style-type: none"> ○ Pets should not be allowed in bedrooms. ○ If possible, pets should be given away. ○ If pets cannot be given away, wash and groom pet to reduce allergens. <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> If symptomatic, get allergen testing to determine if you are allergic to pets.
Infestations (mice, rats, cockroaches)	<input type="checkbox"/> Educate family about pest management and behavior change. <input type="checkbox"/> Get more information and order print materials at www.epa.gov/pesticides/catalogue and provide to family. <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> Eliminate water and food sources. Seal garbage and all foodstuffs. Look for water leaks. <input type="checkbox"/> Call local board of health for inspection <input type="checkbox"/> AVOID "bombs" of pesticides. <input type="checkbox"/> Hire, or talk to your landlord about hiring, an exterminator for "Integrated Pest Management" which does NOT include spraying pesticides.
Lead paint hazards	<input type="checkbox"/> See "Age of Home" above. <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> See "Age of Home" above.
Radon	<input type="checkbox"/> Educate family about impact of radon on health. <input type="checkbox"/> Get more information about radon and radon testing at www.epa.gov/radon/ and provide to family. <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> Consider purchasing a radon home test kit. <input type="checkbox"/> Consult with your state and local departments of health about radon.
Asbestos	<input type="checkbox"/> Educate family about impact of asbestos on health. <input type="checkbox"/> Get more information about asbestos testing at www.epa.gov/asbestos/ and provide to family. <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> Do not disturb any surfaces which might contain asbestos. <input type="checkbox"/> Consult with your state and local departments of health about asbestos.
Smoke alarm/CO alarm	<input type="checkbox"/> If no smoke alarms, educate about risks and local laws regarding the presence of smoke alarms. <input type="checkbox"/> Counsel family to : <ul style="list-style-type: none"> ○ Install smoke alarms in home on every level and in every sleeping area. ○ Test them once a month. ○ Replace the batteries at least twice a year. ○ Replace alarms every 10 years. <input type="checkbox"/> If combustion appliances but no CO alarms, educate about risks and local laws regarding the presence of CO alarms. <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> If no smoke alarms, then: <ul style="list-style-type: none"> ○ Purchase smoke alarms. Ensure that there is an operational smoke alarm on every floor of the home and in every sleeping area. ○ Call local board of health for local smoke alarm requirements. Some states have laws regarding presence of smoke alarms. <input type="checkbox"/> If combustion appliances but no CO alarms, then: <ul style="list-style-type: none"> ○ Make sure to purchase CO alarms which log peak levels. Ensure that there is an operational CO alarm on every floor of the home. ○ Call local board of health for local CO alarm requirements. Some states now have laws regarding presence of CO alarms.
Tobacco Smoke Exposure	<input type="checkbox"/> Educate about risks of environmental tobacco smoke (ETS) to children. <input type="checkbox"/> Get more information about ETS at http://www.epa.gov/smokefree/index.html and provide to family. <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> Choose not to smoke in your home and car and do not allow family and visitors to do so. Infants and toddlers are especially vulnerable to the health risks from secondhand smoke. <input type="checkbox"/> Do not allow childcare providers or others who work in your home to smoke. <input type="checkbox"/> Until you can quit, choose to smoke outside. Moving to another room or opening a window is not enough to protect your children. <input type="checkbox"/> Get help to stop smoking. Refer to EPA Smokefree Home pledge website www.epa.gov/smokefree and contact local smoking cessation services.

Home Environment		
CONCERN	TO DO	FAMILY TO DO
Other Irritants (scents, potpourri)	<input type="checkbox"/> If air fresheners present, educate as follows: <ul style="list-style-type: none"> ○ Many air fresheners have volatile organic compounds (VOC) which trigger asthma. Avoid these products whenever possible. <input type="checkbox"/> Get more information about VOCs at http://www.epa.gov/iaq/voc.html and provide to family. <input type="checkbox"/> Review items in “Family To Do” column with family.	<input type="checkbox"/> Remove air fresheners from home.
Cleaning	<input type="checkbox"/> Educate about benefits of wet mopping. <input type="checkbox"/> Review items in “Family To Do” column with family.	<input type="checkbox"/> Avoid dry mopping or sweeping which makes dust airborne and may trigger an asthma exacerbation. Use wet mopping instead
Drinking Water Source – Public water supply	<input type="checkbox"/> Get more information about water testing at www.epa.gov/safewater/labs <input type="checkbox"/> Check to make sure septic system is not close to well. <input type="checkbox"/> Review items in “Family To Do” column with family	<input type="checkbox"/> Test water for lead. Contact local or state department of health for water testing information. <input type="checkbox"/> Find out if the public water supplier has notified consumers of any violations of health-based standards in the last year.

Home Environment (continued)

CONCERN	TO DO	FAMILY TO DO
<p>Drinking Water Source – Household well water</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Ask these additional questions: <ul style="list-style-type: none"> ○ Is the wellhead protected and well constructed according to state or other requirements/specification? ○ Is water tested annually for bacteria and, if pregnant woman or infants in household, nitrates, and okay? ○ Is water tested annually, contaminants detected and alternate source used (appropriate filter or bottled water)? ○ Is water tested annually, contaminants detected, but alternate source not used? ○ Has the water been tested within the last year? ○ Are there noticeable changes in water taste, odor, color or clarity? (In this case, especially if pregnant woman or infant is in the household, recommend testing more than once a year). ○ Has there been a chemical or fuel spill leak near water supply? (If yes, recommend testing for chemical contaminants, such as volatile organic compounds). <input type="checkbox"/> Get more information about water testing at www.epa.gov/safewater/labs <input type="checkbox"/> Review items in “Family To Do” column with family. 	<ul style="list-style-type: none"> <input type="checkbox"/> Test water for lead. Contact local or state department of health for water testing information.
<p>Mold</p>	<ul style="list-style-type: none"> <input type="checkbox"/> See “Mold and Musty Odor” recommendations above. <input type="checkbox"/> Make sure fans in bathroom and kitchen vent to the outside, not just in to walls. The goal is to take moisture out of home. <input type="checkbox"/> Review items in “Family To Do” column with family. 	<ul style="list-style-type: none"> <input type="checkbox"/> See “Mold and Musty Odor” recommendations above.
<p>Damage</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Educate about mold risks as they relate to damage. <input type="checkbox"/> If family owns home, then counsel to change behaviors. <input type="checkbox"/> If family rents home, then counsel them to talk with their landlord. <input type="checkbox"/> Review items in “Family To Do” column with family. 	<ul style="list-style-type: none"> <input type="checkbox"/> If homeowner, then make necessary repairs. <input type="checkbox"/> If renter, then talk with your landlord about needed repairs. Consider calling the local board of health for possible code violations.

Sleeping Area		
CONCERN	TO DO	FAMILY TO DO
Mattress covers	<input type="checkbox"/> If anyone is allergic to dust mites, educate as follows: <ul style="list-style-type: none"> ○ Use allergen impermeable mattress covers with zippers on beds and pillows. <input type="checkbox"/> Review items in “Family To Do” column with family.	<input type="checkbox"/> If symptomatic, get allergen testing to determine if you are allergic to dust mites.
Carpet	<input type="checkbox"/> Review items in “Family To Do” column with family.	<input type="checkbox"/> Clean wall to wall carpet with vacuum weekly. <input type="checkbox"/> Shake area rugs outside weekly. <input type="checkbox"/> If carpet is more than 8 years old, consider replacing it with smooth wipeable flooring to reduce dust exposure. (8 year number came from Megan Sandel. Need to determine if that is number used by others too.)
Dust catchers	<input type="checkbox"/> Review items in “Family To Do” column with family.	<input type="checkbox"/> Reduce dust with less clutter. <input type="checkbox"/> Seal clutter in bags or boxes.
Windows	<input type="checkbox"/> If anyone is allergic to dust mites, review items in “Family To Do” column with family.	<input type="checkbox"/> If symptomatic, get allergen testing to determine if you are allergic to dust. <input type="checkbox"/> Use window treatments that are wipeable. <input type="checkbox"/> Avoid curtains and drapes to reduce excessive dust exposure.
Home Safety		
General Safety		
CONCERN	TO DO	FAMILY TO DO
Renovation/remodeling	<input type="checkbox"/> See “Age of Home” above. <input type="checkbox"/> Review items in “Family To Do” column with family.	<input type="checkbox"/> See “Age of Home” above. <input type="checkbox"/> If the home was built pre-1978 and there is a child less than six years old: <ul style="list-style-type: none"> ○ get a lead paint inspection or risk assessment. ○ repair any lead hazards based on state and local regulations and requirements. Consult with state CLPPP. <input type="checkbox"/> If the home was built pre-1978 and there is no child less than six years old: <ul style="list-style-type: none"> ○ consult with the CLPPP at your state and local departments of health about lead-safe renovation. ○ Change behaviors, such as modifying dust generating techniques and containing the work area.
Stairs, walls, railings, porches, lighting	<input type="checkbox"/> If family owns home, then counsel to change behaviors, such as making minor repairs to fix loose railings. <input type="checkbox"/> If family rents home, then counsel them to talk with their landlord. <input type="checkbox"/> Review items in “Family To Do” column with family.	<input type="checkbox"/> If homeowner, then make necessary repairs. <input type="checkbox"/> If renter, then talk with your landlord about needed repairs. Consider calling the local board of health for possible code violations.
Poison control	<input type="checkbox"/> Provide national poison control number 1-800-222-1222 to family. <input type="checkbox"/> Review items in “Family To Do” column with family.	<input type="checkbox"/> Post the national poison control number 1-800-222-1222 near telephone.

General Safety (continued)		
CONCERN	TO DO	FAMILY TO DO
Family fire escape plan	<input type="checkbox"/> Counsel to change behaviors, such as develop a family safety plan. <input type="checkbox"/> Get more fire safety information at http://www.usa.safekids.org/content_documents/fire_checklist.pdf <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> Develop a family safety plan. <input type="checkbox"/> Need to know two ways out of the house. <input type="checkbox"/> Need to have a place to meet after you are outside the house. <input type="checkbox"/> Teach children the family safety plan for escaping your home in a fire and practice it
Electrical appliance	<input type="checkbox"/> Counsel to change behavior. <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> Do not use electrical appliances near water.
Matches and lighters	<input type="checkbox"/> Counsel to change behavior. <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> Do not store matches and lighters where children can reach them.
Exterior environment	<input type="checkbox"/> If abundant trash and debris, counsel family about waste management. <input type="checkbox"/> If waste containment is the problem, counsel family to talk with landlord. <input type="checkbox"/> See "Infestations" above. <input type="checkbox"/> If the home was built pre-1978, contact the childhood lead poisoning prevention program (CLPPP) at your state and local departments of health for information about chipping, peeling paint. See "Age of Home" above. <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> See "Infestations" above. <input type="checkbox"/> See "Age of Home" above.
Young Children		
CONCERN	TO DO	FAMILY TO DO
Hot liquids/cleaning supplies/medicines	<input type="checkbox"/> Counsel to change behaviors. <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> Do not have hot liquids, cleaning supplies, or medicines within a child's reach.
Lead testing for children less than 6 years old	<input type="checkbox"/> If the home was built pre-1978, counsel the family to have the child's blood tested for lead. <input type="checkbox"/> See "Age of Home" above. <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> Contact the childhood lead poisoning prevention program (CLPPP) at your state and local departments of health about lead testing resources. <input type="checkbox"/> See "Age of Home" above.
Child watched by an adult while in tub	<input type="checkbox"/> Counsel to change behavior. <input type="checkbox"/> Educate family about importance of not leaving children unattended in the tub. <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> Do not leave children unattended in the tub.
Hot water temperature	<input type="checkbox"/> Educate family about dangers of scalding. <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> Set hot water temperature to <120 F
Toddler gates	<input type="checkbox"/> Counsel family to install non-accordion toddler gates at the top and bottom of stairways. <input type="checkbox"/> Review items in "Family To Do" column with family.	<input type="checkbox"/> Contact local injury prevention program to determine whether there are toddler gate resources available. <input type="checkbox"/> Install non-accordion toddler gates at the top and bottom of stairways.

Young Children		
CONCERN	TO DO	FAMILY TO DO
Crib mattress	<ul style="list-style-type: none"> <input type="checkbox"/> Counsel family that crib mattress should fit snugly next to the crib so that there is no gap. <input type="checkbox"/> If two adult fingers can be placed between the mattress and the crib, then counsel the family to immediately replace the mattress. <input type="checkbox"/> Review items in "Family To Do" column with family. 	<ul style="list-style-type: none"> <input type="checkbox"/> Put your baby to sleep in a crib with a firm, flat mattress and no soft bedding underneath. <input type="checkbox"/> Ensure that your crib mattress fits snugly next to the crib so that there is no gap.
Window guards	<ul style="list-style-type: none"> <input type="checkbox"/> Counsel family about window safety. <input type="checkbox"/> Contact local injury prevention program to determine whether there are window guard resources available. <input type="checkbox"/> Review items in "Family To Do" column with family. 	<ul style="list-style-type: none"> <input type="checkbox"/> Contact local injury prevention program to determine whether there are window guard resources available. <input type="checkbox"/> Install window guards.
Window blind cords	<ul style="list-style-type: none"> <input type="checkbox"/> Counsel family to keep window blind cords out of children's reach and to purchase childproofing items for cord safety. <input type="checkbox"/> Review items in "Family To Do" column with family. 	<ul style="list-style-type: none"> <input type="checkbox"/> Keep window blind cords out of children's reach <input type="checkbox"/> Purchase childproofing items for cord safety.

THE LEAD-SAFE CERTIFIED GUIDE TO RENOVATE RIGHT



CAUTION CAUTION CAUTION CAUTION CAUTION CAUTION



1-800-424-LEAD (5323)

epa.gov/getleadsafe

EPA-740-K-10-001

Revised September 2011



This document may be purchased through the U.S. Government Printing Office online at bookstore.gpo.gov or by phone (toll-free): 1-866-512-1800.



Important lead hazard information for families, child care providers and schools.



IT'S THE LAW!

Federal law requires contractors that disturb painted surfaces in homes, child care facilities and schools built before 1978 to be certified and follow specific work practices to prevent lead contamination. Always ask to see your contractor's certification.

Federal law requires that individuals receive certain information before renovating more than six square feet of painted surfaces in a room for interior projects or more than twenty square feet of painted surfaces for exterior projects or window replacement or demolition in housing, child care facilities and schools built before 1978.

- Homeowners and tenants: renovators must give you this pamphlet before starting work.
- Child care facilities, including preschools and kindergarten classrooms, and the families of children under six years of age that attend those facilities: renovators must provide a copy of this pamphlet to child care facilities and general renovation information to families whose children attend those facilities.

WHO SHOULD READ THIS PAMPHLET?

This pamphlet is for you if you:

- Reside in a home built before 1978.
- Own or operate a child care facility, including preschools and kindergarten classrooms, built before 1978, or
- Have a child under six years of age who attends a child care facility built before 1978.

You will learn:

- Basic facts about lead and your health.
- How to choose a contractor, if you are a property owner.
- What tenants, and parents/guardians of a child in a child care facility or school should consider.
- How to prepare for the renovation or repair job.
- What to look for during the job and after the job is done.
- Where to get more information about lead.

This pamphlet is not for:

- **Abatement projects.** Abatement is a set of activities aimed specifically at eliminating lead or lead hazards. EPA has regulations for certification and training of abatement professionals. If your goal is to eliminate lead or lead hazards, contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information.
- **“Do-it-yourself”** projects. If you plan to do renovation work yourself, this document is a good start, but you will need more information to complete the work safely. Call the National Lead Information Center at **1-800-424-LEAD (5323)** and ask for more information on how to work safely in a home with lead-based paint.
- **Contractor education.** Contractors who want information about working safely with lead should contact the National Lead Information Center at **1-800-424-LEAD (5323)** for information about courses and resources on lead-safe work practices.



RENOVATING, REPAIRING, OR PAINTING?



- Is your home, your building, or the child care facility or school your children attend being renovated, repaired, or painted?
- Was your home, your building, or the child care facility or school where your children under six years of age attend built before 1978?

If the answer to these questions is YES, there are a few important things you need to know about lead-based paint.

This pamphlet provides basic facts about lead and information about lead safety when work is being done in your home, your building or the child care facility or school your children attend.

The Facts About Lead

- Lead can affect children's brains and developing nervous systems, causing reduced IQ, learning disabilities, and behavioral problems. Lead is also harmful to adults.
 - Lead in dust is the most common way people are exposed to lead. People can also get lead in their bodies from lead in soil or paint chips. Lead dust is often invisible.
 - Lead-based paint was used in more than 38 million homes until it was banned for residential use in 1978.
 - Projects that disturb painted surfaces can create dust and endanger you and your family. Don't let this happen to you. Follow the practices described in this pamphlet to protect you and your family.
-

LEAD AND YOUR HEALTH

Lead is especially dangerous to children under six years of age.

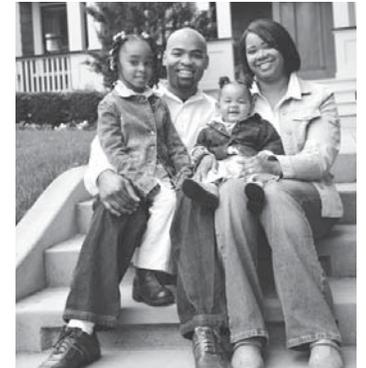
Lead can affect children's brains and developing nervous systems, causing:

- Reduced IQ and learning disabilities.
- Behavior problems.

Even children who appear healthy can have dangerous levels of lead in their bodies.

Lead is also harmful to adults. In adults, low levels of lead can pose many dangers, including:

- High blood pressure and hypertension.
- Pregnant women exposed to lead can transfer lead to their fetuses. Lead gets into the body when it is swallowed or inhaled.
- People, especially children, can swallow lead dust as they eat, play, and do other normal hand-to-mouth activities.
- People may also breathe in lead dust or fumes if they disturb lead-based paint. People who sand, scrape, burn, brush, blast or otherwise disturb lead-based paint risk unsafe exposure to lead.



What should I do if I am concerned about my family's exposure to lead?

- A blood test is the only way to find out if you or a family member already has lead poisoning. Call your doctor or local health department to arrange for a blood test.
- Call your local health department for advice on reducing and eliminating exposures to lead inside and outside your home, child care facility or school.
- Always use lead-safe work practices when renovation or repair will disturb painted surfaces.

For more information about the health effects of exposure to lead, visit the EPA lead website at epa.gov/lead/pubs/leadinfo or call 1-800-424-LEAD (5323).

There are other things you can do to protect your family every day.

- Regularly clean floors, window sills, and other surfaces.
- Wash children's hands, bottles, pacifiers, and toys often.
- Make sure children eat a healthy, nutritious diet consistent with the USDA's dietary guidelines, that helps protect children from the effects of lead.
- Wipe off shoes before entering the house.

WHERE DOES THE LEAD COME FROM?

Dust is the main problem.

The most common way to get lead in the body is from dust. Lead dust comes from deteriorating lead-based paint and lead-contaminated soil that gets tracked into your home. This dust may accumulate to unsafe levels. Then, normal hand-to-mouth activities, like playing and eating (especially in young children), move that dust from surfaces like floors and window sills into the body.

Home renovation creates dust.

Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips.

Proper work practices protect you from the dust.

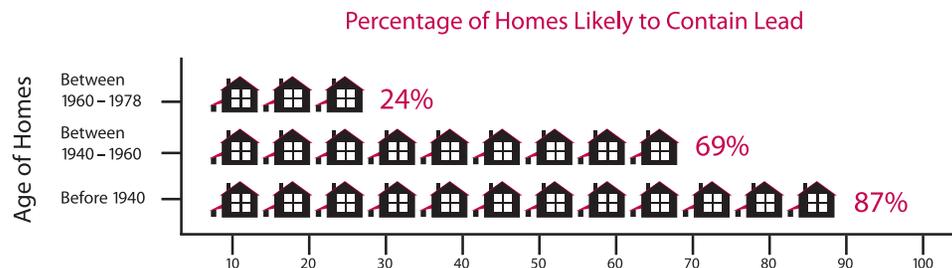
The key to protecting yourself and your family during a renovation, repair or painting job is to use lead-safe work practices such as containing dust inside the work area, using dust-minimizing work methods, and conducting a careful cleanup, as described in this pamphlet.

Other sources of lead.

Remember, lead can also come from outside soil, your water, or household items (such as lead-glazed pottery and lead crystal). Contact the National Lead Information Center at 1-800-424-LEAD (5323) for more information on these sources.



CHECKING YOUR HOME FOR LEAD-BASED PAINT



Older homes, child care facilities, and schools are more likely to contain lead-based paint.

Homes may be single-family homes or apartments. They may be private, government-assisted, or public housing. Schools are preschools and kindergarten classrooms. They may be urban, suburban, or rural.

You have the following options:

You may decide to assume your home, child care facility, or school contains lead.

Especially in older homes and buildings, you may simply want to assume lead-based paint is present and follow the lead-safe work practices described in this brochure during the renovation, repair, or painting job.

You can hire a certified professional to check for lead-based paint.

These professionals are certified risk assessors or inspectors, and can determine if your home has lead or lead hazards.

- A certified inspector or risk assessor can conduct an inspection telling you whether your home, or a portion of your home, has lead-based paint and where it is located. This will tell you the areas in your home where lead-safe work practices are needed.
- A certified risk assessor can conduct a risk assessment telling you if your home currently has any lead hazards from lead in paint, dust, or soil. The risk assessor can also tell you what actions to take to address any hazards.
- For help finding a certified risk assessor or inspector, call the National Lead Information Center at 1-800-424-LEAD (5323).

You may also have a certified renovator test the surfaces or components being disturbed for lead by using a lead test kit or by taking paint chip samples and sending them to an EPA-recognized testing laboratory. Test kits must be EPA-recognized and are available at hardware stores. They include detailed instructions for their use.

FOR PROPERTY OWNERS

You have the ultimate responsibility for the safety of your family, tenants, or children in your care.

This means properly preparing for the renovation and keeping persons out of the work area (see p. 8). It also means ensuring the contractor uses lead-safe work practices.

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes, child care facilities, and schools built before 1978 be certified and follow specific work practices to prevent lead contamination.

Make sure your contractor is certified, and can explain clearly the details of the job and how the contractor will minimize lead hazards during the work.

- You can verify that a contractor is certified by checking EPA's website at epa.gov/getleadsafe or by calling the National Lead Information Center at 1-800-424-LEAD (5323). You can also ask to see a copy of the contractor's firm certification.
- Ask if the contractor is trained to perform lead-safe work practices and to see a copy of their training certificate.
- Ask them what lead-safe methods they will use to set up and perform the job in your home, child care facility or school.
- Ask for references from at least three recent jobs involving homes built before 1978, and speak to each personally.

Always make sure the contract is clear about how the work will be set up, performed, and cleaned.

- Share the results of any previous lead tests with the contractor.
- You should specify in the contract that they follow the work practices described on pages 9 and 10 of this brochure.
- The contract should specify which parts of your home are part of the work area and specify which lead-safe work practices will be used in those areas. Remember, your contractor should confine dust and debris to the work area and should minimize spreading that dust to other areas of the home.
- The contract should also specify that the contractor will clean the work area, verify that it was cleaned adequately, and re-clean it if necessary.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Direct the contractor to comply with regulatory and contract requirements.
- Call your local health or building department, or
- Call EPA's hotline 1-800-424-LEAD (5323).

If your property receives housing assistance from HUD (or a state or local agency that uses HUD funds), you must follow the requirements of HUD's Lead-Safe Housing Rule and the ones described in this pamphlet.

FOR TENANTS AND FAMILIES OF CHILDREN UNDER SIX YEARS OF AGE IN CHILD CARE FACILITIES AND SCHOOLS

You play an important role ensuring the ultimate safety of your family.

This means properly preparing for the renovation and staying out of the work area (see p. 8).

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes built before 1978 and in child care facilities and schools built before 1978, that a child under six years of age visits regularly, to be certified and follow specific work practices to prevent lead contamination.

The law requires anyone hired to renovate, repair, or do painting preparation work on a property built before 1978 to follow the steps described on pages 9 and 10 unless the area where the work will be done contains no lead-based paint.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Contact your landlord.
- Call your local health or building department, or
- Call EPA's hotline 1-800-424-LEAD (5323).

If you are concerned about lead hazards left behind after the job is over, you can check the work yourself (see page 10).



PREPARING FOR A RENOVATION

The work areas should not be accessible to occupants while the work occurs.

The rooms or areas where work is being done may need to be blocked off or sealed with plastic sheeting to contain any dust that is generated. Therefore, the contained area may not be available to you until the work in that room or area is complete, cleaned thoroughly, and the containment has been removed. Because you may not have access to some areas during the renovation, you should plan accordingly.

You may need:

- Alternative bedroom, bathroom, and kitchen arrangements if work is occurring in those areas of your home.
- A safe place for pets because they too can be poisoned by lead and can track lead dust into other areas of the home.
- A separate pathway for the contractor from the work area to the outside in order to bring materials in and out of the home. Ideally, it should not be through the same entrance that your family uses.
- A place to store your furniture. All furniture and belongings may have to be moved from the work area while the work is being done. Items that can't be moved, such as cabinets, should be wrapped in plastic.
- To turn off forced-air heating and air conditioning systems while the work is being done. This prevents dust from spreading through vents from the work area to the rest of your home. Consider how this may affect your living arrangements.

You may even want to move out of your home temporarily while all or part of the work is being done.

Child care facilities and schools may want to consider alternative accommodations for children and access to necessary facilities.



DURING THE WORK

Federal law requires contractors that are hired to perform renovation, repair and painting projects in homes, child care facilities, and schools built before 1978 that disturb painted surfaces to be certified and follow specific work practices to prevent lead contamination.

The work practices the contractor must follow include these three simple procedures, described below:

1. Contain the work area. The area must be contained so that dust and debris do not escape from that area. Warning signs must be put up and plastic or other impermeable material and tape must be used as appropriate to:

- Cover the floors and any furniture that cannot be moved.
- Seal off doors and heating and cooling system vents.
- For exterior renovations, cover the ground and, in some instances, erect vertical containment or equivalent extra precautions in containing the work area.

These work practices will help prevent dust or debris from getting outside the work area.

2. Avoid renovation methods that generate large amounts of lead-contaminated dust. Some methods generate so much lead-contaminated dust that their use is prohibited.

They are:

- Open flame burning or torching.
- Sanding, grinding, planing, needle gunning, or blasting with power tools and equipment not equipped with a shroud and HEPA vacuum attachment.
- Using a heat gun at temperatures greater than 1100°F.



There is no way to eliminate dust, but some renovation methods make less dust than others. Contractors may choose to use various methods to minimize dust generation, including using water to mist areas before sanding or scraping; scoring paint before separating components; and prying and pulling apart components instead of breaking them.

3. Clean up thoroughly. The work area should be cleaned up daily to keep it as clean as possible. When all the work is done, the area must be cleaned up using special cleaning methods before taking down any plastic that isolates the work area from the rest of the home. The special cleaning methods should include:

- Using a HEPA vacuum to clean up dust and debris on all surfaces, followed by
- Wet wiping and wet mopping with plenty of rinse water.

When the final cleaning is done, look around. There should be no dust, paint chips, or debris in the work area. If you see any dust, paint chips, or debris, the area must be re-cleaned.

FOR PROPERTY OWNERS: AFTER THE WORK IS DONE

When all the work is finished, you will want to know if your home, child care facility, or school where children under six attend has been cleaned up properly.

EPA Requires Cleaning Verification.

In addition to using allowable work practices and working in a lead-safe manner, EPA's RRP rule requires contractors to follow a specific cleaning protocol. The protocol requires the contractor to use disposable cleaning cloths to wipe the floor and other surfaces of the work area and compare these cloths to an EPA-provided cleaning verification card to determine if the work area was adequately cleaned. EPA research has shown that following the use of lead-safe work practices with the cleaning verification protocol will effectively reduce lead-dust hazards.

Lead-Dust Testing.

EPA believes that if you use a certified and trained renovation contractor who follows the LRRP rule by using lead-safe work practices and the cleaning protocol after the job is finished, lead-dust hazards will be effectively reduced. If, however, you are interested in having lead-dust testing done at the completion of your job, outlined below is some helpful information.

What is a lead-dust test?

- Lead-dust tests are wipe samples sent to a laboratory for analysis. You will get a report specifying the levels of lead found after your specific job.

How and when should I ask my contractor about lead-dust testing?

- Contractors are not required by EPA to conduct lead-dust testing. However, if you want testing, EPA recommends testing be conducted by a lead professional. To locate a lead professional who will perform an evaluation near you, visit EPA's website at epa.gov/lead/pubs/locate or contact the National Lead Information Center at **1-800-424-LEAD (5323)**.
- If you decide that you want lead-dust testing, it is a good idea to specify in your contract, before the start of the job, that a lead-dust test is to be done for your job and who will do the testing, as well as whether re-cleaning will be required based on the results of the test.
- You may do the testing yourself. If you choose to do the testing, some EPA-recognized lead laboratories will send you a kit that allows you to collect samples and send them back to the laboratory for analysis. Contact the National Lead Information Center for lists of EPA-recognized testing laboratories.



FOR ADDITIONAL INFORMATION

You may need additional information on how to protect yourself and your children while a job is going on in your home, your building, or child care facility.

The National Lead Information Center at **1-800-424-LEAD (5323)** or epa.gov/lead/nlic can tell you how to contact your state, local, and/or tribal programs or get general information about lead poisoning prevention.

- State and tribal lead poisoning prevention or environmental protection programs can provide information about lead regulations and potential sources of financial aid for reducing lead hazards. If your state or local government has requirements more stringent than those described in this pamphlet, you must follow those requirements.
- Local building code officials can tell you the regulations that apply to the renovation work that you are planning.
- State, county, and local health departments can provide information about local programs, including assistance for lead-poisoned children and advice on ways to get your home checked for lead.



The National Lead Information Center can also provide a variety of resource materials, including the following guides to lead-safe work practices. Many of these materials are also available at epa.gov/lead/pubs/brochure

- Steps to Lead Safe Renovation, Repair and Painting.
- Protect Your Family from Lead in Your Home
- Lead in Your Home: A Parent's Reference Guide



For the hearing impaired, call the Federal Information Relay Service at 1-800-877-8339 to access any of the phone numbers in this brochure.

EPA CONTACTS

EPA Regional Offices

EPA addresses residential lead hazards through several different regulations. EPA requires training and certification for conducting abatement and renovations, education about hazards associated with renovations, disclosure about known lead paint and lead hazards in housing, and sets lead-paint hazard standards.

Your Regional EPA Office can provide further information regarding lead safety and lead protection programs at epa.gov/lead.

Region 1

(Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont)
Regional Lead Contact
U.S. EPA Region 1
Suite 1100
One Congress Street
Boston, MA 02114-2023
(888) 372-7341

Region 2

(New Jersey, New York, Puerto Rico, Virgin Islands)
Regional Lead Contact
U.S. EPA Region 2
2890 Woodbridge Avenue
Building 205, Mail Stop 225
Edison, NJ 08837-3679
(732) 321-6671

Region 3

(Delaware, Maryland, Pennsylvania, Virginia, Washington, DC, West Virginia)
Regional Lead Contact
U.S. EPA Region 3
1650 Arch Street
Philadelphia, PA
19103-2029
(215) 814-5000

Region 4

(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)
Regional Lead Contact
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303-8960
(404) 562-9900

Region 5

(Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)
Regional Lead Contact
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3507
(312) 886-6003

Region 6

(Arkansas, Louisiana, New Mexico, Oklahoma, Texas)
Regional Lead Contact
U.S. EPA Region 6
1445 Ross Avenue,
12th Floor
Dallas, TX 75202-2733
(214) 665-7577

Region 7

(Iowa, Kansas, Missouri, Nebraska)
Regional Lead Contact
U.S. EPA Region 7
901 N. 5th Street
Kansas City, KS 66101
(913) 551-7003

Region 8

(Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)
Regional Lead Contact
U.S. EPA Region 8
1595 Wynkoop Street
Denver, CO 80202
(303) 312-6312

Region 9

(Arizona, California, Hawaii, Nevada)
Regional Lead Contact
U.S. Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 947-8021

Region 10

(Alaska, Idaho, Oregon, Washington)
Regional Lead Contact
U.S. EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101-1128
(206) 553-1200

OTHER FEDERAL AGENCIES

CPSC

The Consumer Product Safety Commission (CPSC) protects the public from the unreasonable risk of injury or death from 15,000 types of consumer products under the agency's jurisdiction. CPSC warns the public and private sectors to reduce exposure to lead and increase consumer awareness. Contact CPSC for further information regarding regulations and consumer product safety.

CPSC

4330 East West Highway
Bethesda, MD 20814
Hotline 1-(800) 638-2772
cpsc.gov

CDC Childhood Lead Poisoning Prevention Branch

The Centers for Disease Control and Prevention (CDC) assists state and local childhood lead poisoning prevention programs to provide a scientific basis for policy decisions, and to ensure that health issues are addressed in decisions about housing and the environment. Contact CDC Childhood Lead Poisoning Prevention Program for additional materials and links on the topic of lead.

CDC Childhood Lead Poisoning Prevention Branch

4770 Buford Highway, MS F-40
Atlanta, GA 30341
(770) 488-3300
cdc.gov/nceh/lead

HUD Office of Healthy Homes and Lead Hazard Control

The Department of Housing and Urban Development (HUD) provides funds to state and local governments to develop cost-effective ways to reduce lead-based paint hazards in America's privately-owned low-income housing. In addition, the office enforces the rule on disclosure of known lead paint and lead hazards in housing, and HUD's lead safety regulations in HUD-assisted housing, provides public outreach and technical assistance, and conducts technical studies to help protect children and their families from health and safety hazards in the home. Contact the HUD Office of Healthy Homes and Lead Hazard Control for information on lead regulations, outreach efforts, and lead hazard control research and outreach grant programs.

U.S. Department of Housing and Urban Development

Office of Healthy Homes and Lead Hazard Control
451 Seventh Street, SW, Room 8236
Washington, DC 20410-3000
HUD's Lead Regulations Hotline
(202) 402-7698
hud.gov/offices/lead/



SAMPLE PRE-RENOVATION FORM

This sample form may be used by renovation firms to document compliance with the Federal pre-renovation education and renovation, repair, and painting regulations.

Occupant Confirmation

Pamphlet Receipt

- I have received a copy of the lead hazard information pamphlet informing me of the potential risk of the lead hazard exposure from renovation activity to be performed in my dwelling unit. I received this pamphlet before the work began.

Printed Name of Owner-occupant

Signature of Owner-occupant

Signature Date

Renovator's Self Certification Option (for tenant-occupied dwellings only)

Instructions to Renovator: If the lead hazard information pamphlet was delivered but a tenant signature was not obtainable, you may check the appropriate box below.

- Declined** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below at the date and time indicated and that the occupant declined to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit with the occupant.
- Unavailable for signature** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below and that the occupant was unavailable to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit by sliding it under the door or by (fill in how pamphlet was left).

Printed Name of Person Certifying Delivery

Attempted Delivery Date

Signature of Person Certifying Lead Pamphlet Delivery

Unit Address

Note Regarding Mailing Option — As an alternative to delivery in person, you may mail the lead hazard information pamphlet to the owner and/or tenant. Pamphlet must be mailed at least seven days before renovation. Mailing must be documented by a certificate of mailing from the post office.

