

# Steps to Reduce Exposures in the Home

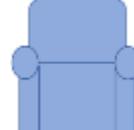
The Great Lakes Center for Reproductive and Children's Environmental Health



# Introduction

Everyday choices such as which cleaning products to buy, which cosmetics to use, what foods to eat, or how to get rid of household pests can impact your health. While potentially harmful environmental exposures can happen just about anywhere, the home is a great place to reduce exposures and create a healthy environment for children and families. The following pages suggest ways to help reduce exposures and guide decision making. However, it is important to do research and use your best judgement to make decisions that work for you and your family. Additional resources, which may be helpful in making these decisions, are provided at the end of this document.

As you walk through this house, follow the icons below to help identify the kinds of exposures and how they can be reduced.

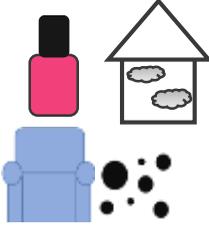
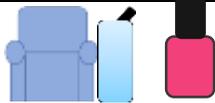
 <b>Air Pollution</b>	 <b>Mold</b>
 <b>Arsenic</b>	 <b>Polybrominated diphenyl ethers (PBDEs)</b>
 <b>Bisphenol A (BPA)</b>	 <b>Pesticides</b>
 <b>Lead</b>	 <b>Phthalates</b>

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# Living Room



	<ul style="list-style-type: none"><li>• High efficiency particulate air (HEPA) filters can help trap harmful indoor particles like pet dander, dust mites, tobacco smoke, PBDEs, phthalates, some mold spores, and pollen through a mesh trap. HEPA filters can be purchased for home use and should be placed where you spend most of your time. If you can, use a vacuum with a HEPA filter.</li></ul>
	<ul style="list-style-type: none"><li>• Avoid burning oils, incense, and scented candles. Try homemade recipes like boiling lemons or cinnamon sticks.</li></ul>
	<ul style="list-style-type: none"><li>• Clean or change filters in air conditioners and air purifiers regularly.</li></ul>
	<ul style="list-style-type: none"><li>• Repair or replace furniture, mattresses, car upholstery, and children's car seats that have a torn cover or exposed foam. If reupholstering your couch, replace the old foam which may contain flame retardants.</li></ul>
	<ul style="list-style-type: none"><li>• Use a damp mop or dust cloth to control household dust. If you can, use a vacuum with a HEPA filter.</li></ul>

# Kitchen

	<ul style="list-style-type: none"><li>• Many types of white rice have 50% less arsenic than brown rice. However, brown rice from certain regions, such as California, India, and Pakistan, are lower in arsenic. Read the label to see where your rice was grown.</li><li>• Soak rice overnight and use more water when cooking (use 6 times the amount of water as rice).</li><li>• If your drinking water comes from a private well, have it tested for arsenic. If you're on public water supply, check with your provider.</li></ul>
	<ul style="list-style-type: none"><li>• Consider getting your water tested for lead.</li><li>• Use only the cold water tap for drinking, cooking, and especially for preparing baby formula.</li><li>• Flush water pipes before drinking or drawing water for cooking by running the water until it reaches the coldest temperature possible. This could take a few minutes if the water sat in the pipes overnight.</li></ul>
	<ul style="list-style-type: none"><li>• If ventilation is insufficient, mold can build up behind the cooking range. Clean it every few weeks along with the walls and floors.</li></ul>
	<ul style="list-style-type: none"><li>• When possible, try to buy organic produce, especially when purchasing the 'Dirty Dozen', twelve fruits and vegetables that have higher amounts of pesticides when comparing organic vs non-organic (<a href="https://www.ewg.org/foodnews/dirty-dozen.php">https://www.ewg.org/foodnews/dirty-dozen.php</a>).</li><li>• Throw away outer leaves of leafy vegetables (like a head of lettuce) and trim skin and fat around poultry, fish, and meats.</li><li>• Wash and scrub fresh fruits and vegetables.</li></ul>
	<ul style="list-style-type: none"><li>• Don't microwave plastic food containers or plastic baby bottles.</li></ul>



# Kitchen



- Reduce use of canned foods; choose fresh or frozen foods instead
- Avoid plastics with recycle codes 3, 6, or 7 (located on the bottom of plastic containers).
- When possible, opt for glass, porcelain or stainless steel containers, particularly for hot food or liquids.
- Minimize handling of receipts.



- Avoid or limit apple juice, brown rice syrup, and rice milk. If your child can't drink cow's milk, choose oat, soy, or almond milk as an alternative.
- Replace rice with other grains like quinoa, oats, corn, amaranth, millet, flax, and buckwheat.



- Maintain low indoor humidity, ideally between 30 to 50 percent. Use a moisture or humidity gauge, available at most hardware stores, to check humidity in your home. To decrease humidity, open the windows if it isn't humid outside, turn on the air conditioning, or adjust the setting on a humidifier.

# Bathroom



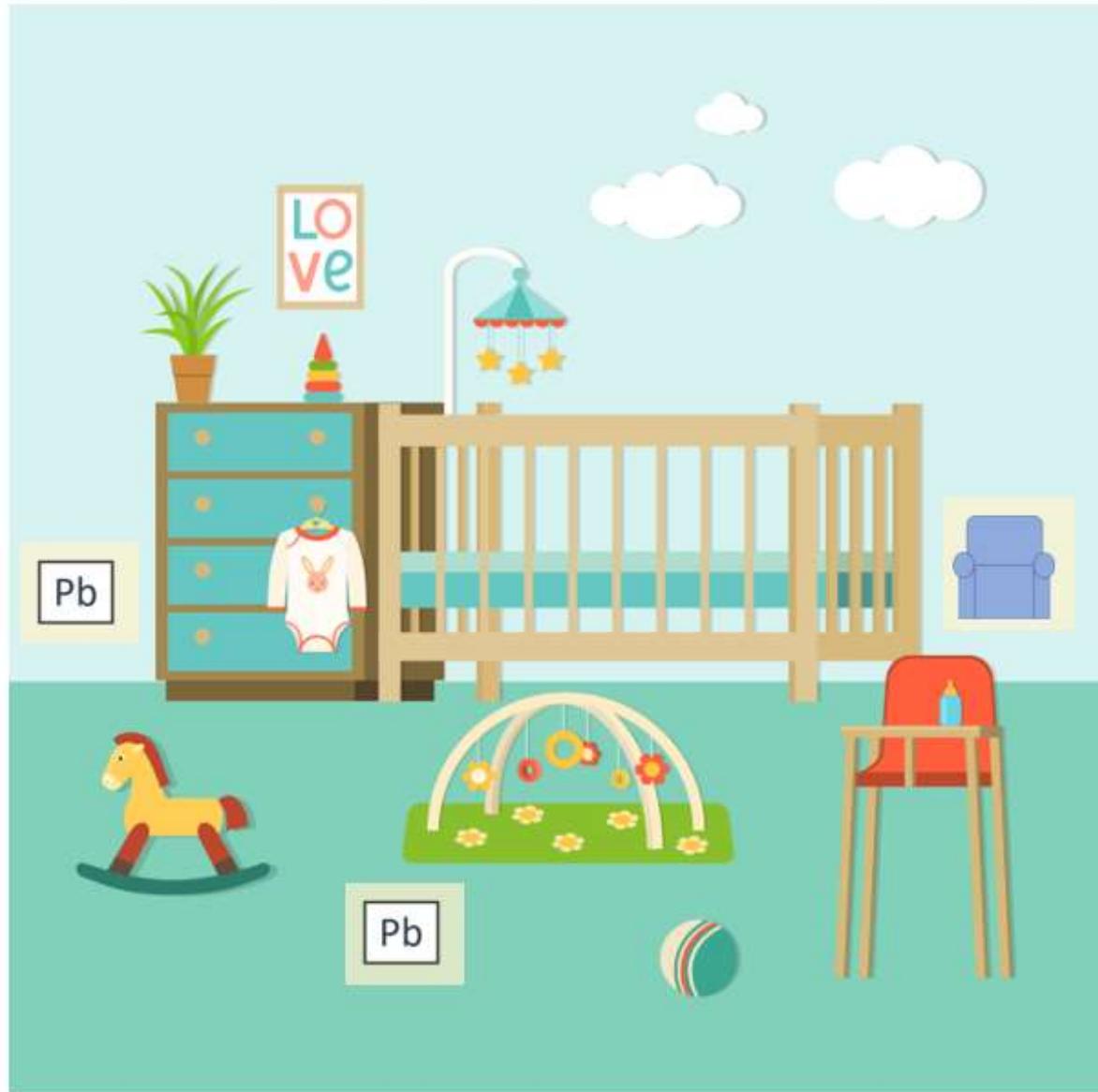
- Fix leaky plumbing or other sources of water.
- Open windows or use exhaust fans that are vented to the outdoors in bathrooms when showering.
- Absorbent materials with mold, such as ceiling tiles and carpet, may need to be replaced.
- Vent clothes dryers outdoors.



- Reduce the number of personal care products that you use, for example, makeup, moisturizer, hair products, and nail polish. Track the number of products you use each day and ask yourself if they are all necessary. For products that you do use, check labels declaring the products free from parabens, phthalates, and artificial fragrances. To learn more about safe products, visit the [Environmental Working Group's Consumer Guide](#).



# Nursery



Pb

- If your home was built before 1978, regularly check for chipping, peeling, or deteriorating paint and address issues without excessive sanding.
- Wash kids' hands frequently and reduce hand-to-mouth behavior that may result in the swallowing of lead-contaminated paint, soil, and other materials.



- Choose baby products and furniture that contain cotton, polyester, down, or wool. These are less likely to contain flame retardant chemicals often used in foam.

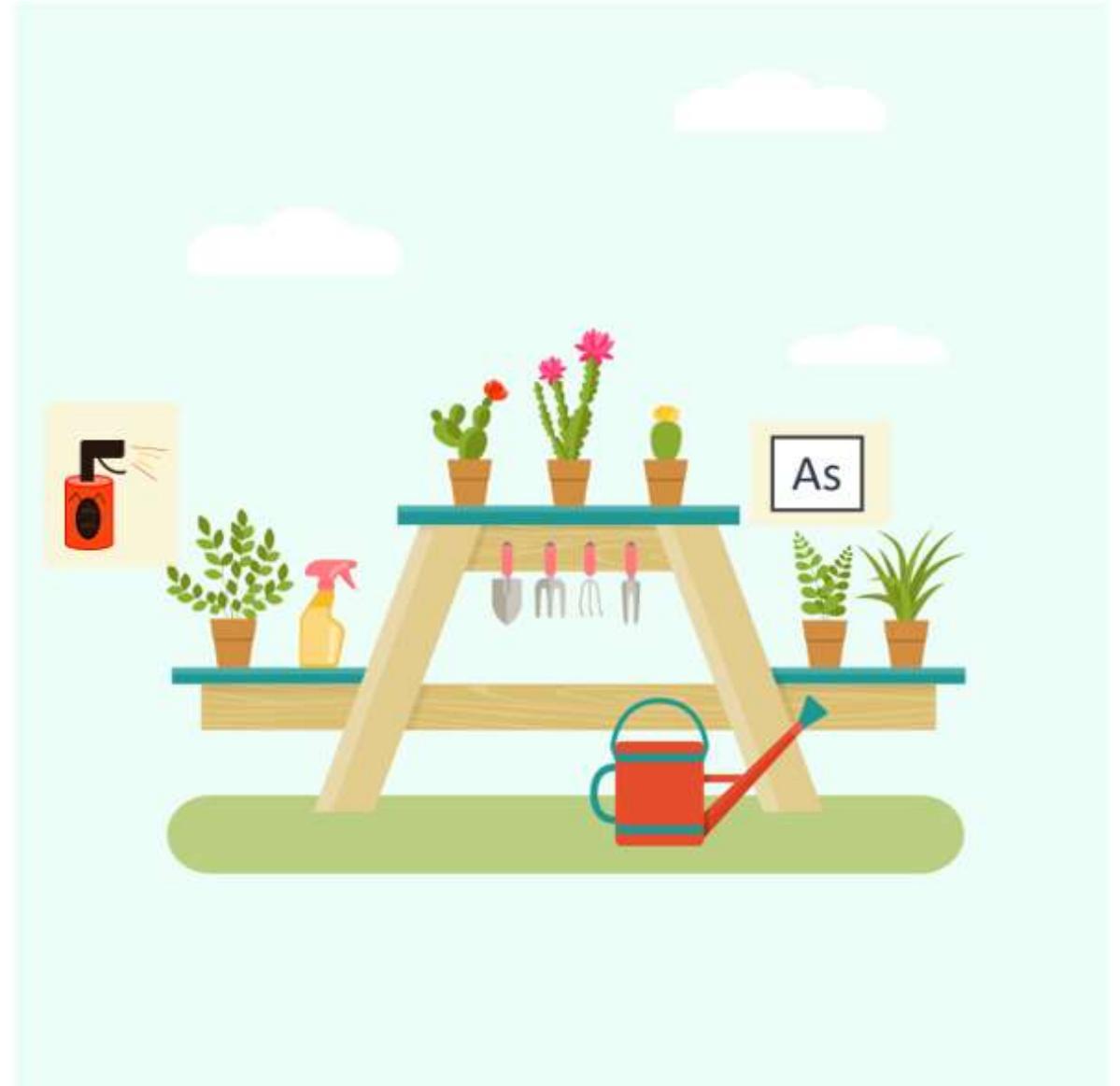
# Yard

As

- Wood structures, like play structures, picnic tables, and decks, built before 2003 were commonly pressure-treated with copper chromate arsenate (CCA)- an arsenic-based pesticide. Make sure children wash hands after touching older wood and the dirt surrounding it. Apply a sealant to wood structures at least once a year.
- If you grow your own vegetables, test your soil for arsenic and other metals, such as lead. Do not grow vegetables in garden beds made of pressure-treated lumber containing copper chromate arsenate. Instead, use bricks, stone, or other wood products such as cedar or redwood.



- When using pesticides outdoors, wear gloves and remove shoes and clothing before going indoors. If your job requires working with pesticides, change your shoes and clothes before getting into the car that takes you home from work. Shower as soon as possible after getting home.
- To eliminate pests, follow Integrated Pest Management practices. Identify pests; monitor for pests; pest-proof areas and exclude sources of food and water for pests; and if needed, use low-risk pesticides. Non-chemical methods should be the first line of defense. Always read pesticide labels and follow the directions before using.



# References

1. US Environmental Protection Agency. Residential air cleaners (3rd edition): A summary of available information. 2018; Available from: [https://www.epa.gov/sites/production/files/2018-07/documents/residential air cleaners - a technical summary 3rd edition.pdf](https://www.epa.gov/sites/production/files/2018-07/documents/residential_air_cleaners_-_a_technical_summary_3rd_edition.pdf)
2. Columbia Center for Children's Environmental Health. Center health education materials-clean indoor air. n.d. [cited 2017; Available from: [http://ccceh.org/wp-content/uploads/2013/08/HHHC Clean-Indoor-Air\\_English1.pdf](http://ccceh.org/wp-content/uploads/2013/08/HHHC_Clean-Indoor-Air_English1.pdf).
3. US Environmental Protection Agency. Indoor particulate matter. 2016; Available from: <https://www.epa.gov/indoor-air-quality-iaq/indoor-air-pollution-introduction-health-professionals>.
4. US Environmental Protection Agency. (2017). Should you have the air ducts in your home cleaned? Retrieved from <https://www.epa.gov/indoor-air-quality-iaq/should-you-have-air-ducts-your-home-cleaned>
5. Center for Environmental Research and Children's Health. CERCH educational materials- flame retardants. 2017; Available from: [http://cerch.berkeley.edu/sites/default/files/pbde\\_factsheet-2\\_28\\_17\\_ii.pdf](http://cerch.berkeley.edu/sites/default/files/pbde_factsheet-2_28_17_ii.pdf).
6. Dartmouth Toxic Metals Superfund Research Program. Arsenic in rice and rice products. 2017; Available from: <http://www.dartmouth.edu/~arsenicandyou/food/rice.html>.
7. US Environmental Protection Agency. Protect Your Water's Home. 2019; Available from: <https://www.epa.gov/privatewells/protect-your-homes-water#welltestanchor>.
8. US Environmental Protection Agency. Lead Hotline - The National Lead Information Center. 2017; Available from: <https://www.epa.gov/lead/forms/lead-hotline-national-lead-information-center>
9. US Environmental Protection Agency. Basic information about lead in drinking water. 2017; Available from: <https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water>.

# References

10. Environmental Work Group. Shopper's Guide to Pesticides in Produce. 2020; Available from: <https://www.ewg.org/foodnews/dirty-dozen.php>
11. US Environmental Protection Agency. Pesticides and food: healthy, sensible food practices. 2017; Available from: <https://www.epa.gov/safepestcontrol/pesticides-and-food-healthy-sensible-food-practices>.
12. Columbia Center for Children's Environmental Health. Center health education materials- BPA is harmful to our children's health. n.d.; Available from: [http://ccceh.org/wp-content/uploads/2011/10/bpa\\_eng.pdf](http://ccceh.org/wp-content/uploads/2011/10/bpa_eng.pdf).
13. US Environmental Protection Agency. Protect your family from exposures to lead. 2017; Available from: <https://www.epa.gov/lead/protect-your-family-exposures-lead>.
14. US Environmental Protection Agency. Care for your air: a guide to indoor air quality. 2016; Available from: <https://www.epa.gov/indoor-air-quality-iaq/care-your-air-guide-indoor-air-quality>.
15. US Environmental Protection Agency. Mold cleanup in your home. 2017; Available from: <https://www.epa.gov/mold/mold-cleanup-your-home>.
16. US Environmental Protection Agency. Biological pollutants' impact on indoor air quality. 2016; Available from: <https://www.epa.gov/indoor-air-quality-iaq/biological-pollutants-impact-indoor-air-quality>.
17. Center for Environmental Research and Children's Health. (2017). CERCH educational materials- are your cosmetic products safe? Retrieved from [http://cerch.berkeley.edu/sites/default/files/hermosa\\_cosmetics\\_flyer\\_eng\\_2\\_28\\_17\\_ii.pdf](http://cerch.berkeley.edu/sites/default/files/hermosa_cosmetics_flyer_eng_2_28_17_ii.pdf).
18. US Environmental Protection Agency. Real estate disclosure. 2017; Available from: <https://www.epa.gov/lead/real-estate-disclosure>.
19. Dartmouth Toxic Metals Superfund Research Program. Arsenic in pressure-treated wood. 2017; Available from: <http://www.dartmouth.edu/~arsenicandyou/sources/wood.html>.
20. Dartmouth Toxic Metals Superfund Research Program. Arsenic in fruits, juices, and vegetables. 2017; Available from: <http://www.dartmouth.edu/~arsenicandyou/food/fruitsandvegetables.html>

# References

21. US Environmental Protection Agency. Pesticide worker safety. 2016; Available from: <https://www.epa.gov/pesticide-worker-safety/project-leaf>.
22. IPM Institute of North America. What is Integrated Pest Management? 2020; Available from: <https://ipminstitute.org/what-is-integrated-pest-management/>
23. Columbia Center for Children's Environmental Health. Center health education materials- protecting your children from pesticides- what you can do. 2007; Available from: <http://ccceh.org/wp-content/uploads/2011/10/HHHCspring07eng.pdf>.

The Great Lakes Center for Reproductive and Children's Environmental Health is part of a national network of experts in children's and reproductive environmental health who provide medical consultation for health professionals, parents, caregivers, and patients on health risks due to natural or human-made environmental hazards. Call our hotline at (866) 967-7337 or email us at [childrensenviron@uic.edu](mailto:childrensenviron@uic.edu) for questions about environmental exposures.

Website: <https://great-lakes.uic.edu/childrens-environmental-health/> Blog: <https://greenkidsdoc.wordpress.com/>