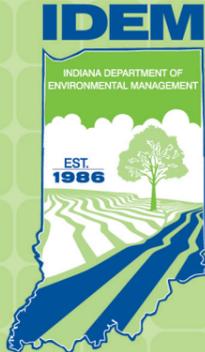


Green Steps Guide Book

An Overview of the Program



www.idem.IN.gov/greensteps
(800) 451-6027

reduced
waste



healthier
schools



healthy
classrooms



recycling



Welcome to your Green Steps Guide Book!

In this book, you will find detailed information about how to help your school become greener and healthier for little or no cost.

This guide book is part of your Green Steps Tool Kit, a box filled with ideas, tips and activities for improving the environment in and around your school. The Green Steps Tool Kit is filled with many valuable resources, including: interactive programs, environmental curriculum, colorful posters, activities, checklists, fact sheets, and much more. We invite you to thoroughly explore your Green Steps Tool Kit so that your school can benefit as much as possible from this amazing tool.

Keeping our schools healthy helps you achieve your primary goal—educating students! The information in this guide book was put together with your busy schedule in mind. Many of the suggestions offered can be accomplished through minor adjustments, but can have a huge pay-off for the school environment, both in and outside. *So, go ahead—become a Green Steps School!*



Respiratory Illnesses

Did you know that asthma respiratory illnesses accounts for more than 14.7 million school days missed by students in the U.S. each year according to the U.S. Environmental Protection Agency? And that asthma is the most common serious chronic disease of childhood? Asthma is a serious respiratory disease which causes the airways to become inflamed. When asthma is triggered, an asthma sufferer may start wheezing, coughing, experience chest tightness or have trouble breathing. Although there is no cure for asthma, the good news is that asthma, allergies and other respiratory symptoms can be controlled. One way school faculty and staff can help asthma sufferers do this, is by managing environmental asthma triggers. You may be surprised how easily these triggers can be eliminated or controlled once identified,

thus reducing the number of asthma attacks, respiratory illnesses attacks.

The most common environmental triggers in classrooms are:

- Pets and animals
- Mold from excess moisture in the building
- Chalk dust
- Dust mites on furniture and carpet
- Cockroaches and other pests

Some other triggers may be:

Exercise, cold air exposure, pollens, air pollution and food allergies.

Ensuring school buildings and classrooms are safe for students and faculty is important to maintaining a healthy and productive

“The school bus diesel exhaust, can aggravate my asthma and allergies.”

school environment. Follow the tips below to reduce environmental triggers:

Pets and Animals:

Any warm-blooded animal, including (but not limited to) gerbils, birds, cats, dogs, mice and guinea pigs, may trigger respiratory symptoms in an adult or child. The best way to eliminate this risk is not to allow feathered or fur-bearing animals in the school building. Allowing animals in schools could possibly mean direct, daily exposure to animal fluids and dander for asthma sufferers. Consider removing pets from classrooms with asthmatic students.

If you cannot impose a “no pet” policy, there are some ways to reduce the environmental impact of pets in classrooms. If an animal, such as a gerbil or mouse, requires disposable bedding, choose bedding made from fresh aspen wood particles. This biodegradable material is super absorbent and controls odor. Reducing moisture and strong odors near the pet area can help reduce respiratory symptoms. Change disposable bedding regularly. If the animal has a cloth bed, wash the bed weekly in hot water (at least 130 F°) to reduce dander, dust and mold. Use a HEPA vacuum on carpeting to capture allergen particles and prevent them from merely passing through and getting redistributed into the air. Lastly, a simple, but important step—bathe the pet regularly. Use an allergen-reducing shampoo and finish with an allergen-reducing spray.

Sometimes, merely reducing exposure to the animal can be an effective way to prevent respiratory symptoms. Always keep the animal in a restricted area, away from ventilation systems, and never let it roam freely about the room. Also, keep the animal away from furniture, carpets and stuffed toys, as pet dander is more likely to stay

on these surfaces. Animal dander spreads easily and can stay in the environment long after the animal is removed and the area is cleaned. Clean the classroom and the building thoroughly and regularly, even when taking other steps to reduce dander. And, of course, children and adults should always wash their hands after handling the animal.

Mold and Moisture Control:

Tiny mold spores travel through the air before landing on surfaces, giving us the opportunity to breathe them in. Once they land, molds can grow on any surface where moisture is present, including wood, paper and carpet. Mold spores digest the material of the surface they land on so that they may grow—and send even more spores into the air!

The most effective way to control indoor mold is to control moisture. Moisture problems can be caused by leaks, condensation and excess humidity. Ideal humidity levels in the classroom will be between 30 and 60 percent, according to the U.S. EPA. This can be tracked by putting a humidistat in the classroom. Notify building maintenance staff of any classrooms experiencing high or low levels of humidity. Simply providing good ventilation can help to ensure a mold-free environment; keep classroom and closet doors open to help prevent moisture buildup by keeping the air circulating. Turn on exhaust fans whenever cooking, washing dishes or cleaning. Moisture condensation can be prevented by adding insulation to cold surfaces, like piping and windows. Regularly check the building (especially bathrooms, mechanical rooms and under classroom sinks) for standing water and musty odors. Contrary to popular belief, schools do not need to do “mold testing” to learn what type of mold was found. Generally, if mold can be seen or smelled,



**Respiratory Illness
FACT #1**
13 million school days are missed each year due to respiratory illness.



**Respiratory Illness
FACT #2**
22 million people, including 6.5 million children, have respiratory illness and an average of one out of every 13 school-aged child has a respiratory illness.

it needs to be removed. Porous items, like ceiling tiles, may need to be replaced once they become moldy. Refrigerator drip pans are also a common source of environmental symptoms. Clean refrigerators thoroughly, and check underneath for dirt and drips. Clean all mold right away.

Carpets and rugs can be a high-risk area for mold growth because they retain moisture easily. If a spill occurs on carpeting or a rug, clean it immediately and dry the area as much as possible. Never put carpet in an area where there is a water source, like a fountain or sink.

To learn more about how to prevent mold and moisture buildup, check out the U.S. EPA's "Mold Remediation in Schools and Commercial Buildings" book on your Educational Resources CD or on the U.S. EPA's Web site, at: www.epa.gov/mold/mold_remediation.html.

Chalk Dust and Dust Mites:

Dust allergens are a major cause for respiratory symptoms. Carpeting, upholstered furniture, pillows and stuffed animals are all havens for dust buildup in a classroom. If pillows and stuffed toys are used wash them often in hot water. Pillows can also be covered with a dust-proof (allergen-impermeable) zipped cover. Upholstered furniture and carpet can be vacuumed using a HEPA vacuum, while hard surfaces merely need to be wiped with a wet cloth. Look for any extra dust created by chalk, chalkboards and erasers.

Pest Control:

Pests can include rodents, cockroaches, bees, termites, flies, spiders, ants, fruit flies and more. When these pests invade your school building, they pose a threat to staff and students. Cockroach and other pests' feces, saliva and body parts can cause respiratory symptoms. Cockroaches can especially be a nuisance because they carry proteins that cause allergic reactions and respiratory symptoms. Clean all pest drop-

pings immediately and begin taking pest management steps. Begin with the following steps: remove places where pests can hide, keep all surfaces free of food and water, and reduce opportunities for pests to enter the building, through areas like unsealed cracks. Sanitary food habits, like throwing away garbage and sealing food in an airtight container can also be help.

To learn more pest control techniques, check out the Integrated Pest Management section of this book.

Each student with asthma should provide the school with an Asthma Action Plan. The Asthma Action Plan is written by a student's physician and provides detailed health information about the asthmatic student, such as environmental triggers, medications, emergency contact information and procedures to follow in the event of an respiratory attack. Keep one copy of the student's Asthma Action Plan in his or her classroom and another in the nurse's office.

The Indiana State Department of Health has created the Sanitary Schoolhouse Rule to deal with health and safety issues in schools. The Indiana Sanitary Schoolhouse Rule can be found on your Educational Resources CD or by visiting the Indiana State Department of Health's Web site at www.IN.gov/isdh/regsvcs/saneng/laws_rules/410_iac6-5_1.html.

The sections of the Sanitary Schoolhouse Rule relevant to Respiratory Illnesses are: 410 IAC 6-5.1-5 Physical Facilities, 410 IAC 6-5.1-10 Refuse Disposal and 410 IAC 6-5.1-11 Special Hazards.

For more information on how to control environmental respiratory illness triggers, check out your Breatheasyville CD.

Integrated Pest Management

Are pesky pests, like rodents, cockroaches and fruit flies a problem in your classroom? They are called "pests" for a reason—because they are a nuisance! Our goal for you is to prevent, or at least minimize pests in a timely manner, while reducing environmental and human health hazards to students, staff and faculty. A widely accepted, common sense approach to achieving this goal is through the use of integrated pest management (IPM). Integrated pest management uses a series of alternative pest management options, such as better sanitation and improved maintenance, as well as the prudent use of pesticides. An integrated approach can reduce pests without using large amounts of pesticides. Overexposure to pesticides can pose a health risk to students. For this reason, the Indiana Department of Environmental Management strongly encourages schools to try IPM before trying other extermination methods. Schools have a responsibility to keep students safe from both pests and pesticides as much as possible.

Pests are more than a bother—they can spread disease, cause respiratory attacks and cause structural damage to buildings. Areas in the building that offer food, water and harborage to pests are called "pest vulnerable areas." To reduce pests in schools, reduce pest encouraging conditions. If pest vulnerable areas are not kept clean and dry, pests will thrive.

Create an IPM team before getting started. This team will consist of decision-makers and monitors. Keep in mind that the IPM team will need some help. It is the entire staff's responsibility to monitor a pest situation and carry out prevention techniques.

The five principles of IPM are:

Exclusion:

The first step to managing pests is to make sure they have limited pathways. Roaches can pass through a wall in a space the size of a dime. Check for tiny spaces under windows and along the walls and secure cracks and crevices with sealant. Some very simple steps to keeping insects and other pests from entering the building are to keep outside doors shut when not in use, install door sweeps along the bottoms of your doors, and have screens on all functioning outside windows.

Sanitation:

The most obvious way to reduce pest vulnerable areas is to clean classrooms and other parts of the building on a regular basis. Keep in mind that crumbs left untouched on surfaces can attract roaches. Eat only in designated areas and make sure to clean up thoroughly when finished. Take trash out daily, if not more often, and store food in air-tight containers. Any spills or standing water puddles need to be dried and faucets shut off completely.

Does your classroom have a fish tank? Roaches love to eat fish food left lingering on the edges of fish tanks. Watch students as they feed fish to be sure they aren't over-feeding or spilling any fish food in areas around the tank.

A cardboard box can create an attractive home for pests. Avoid storing cardboard and consider using plastic containers for storage instead of cardboard boxes. Keep all cardboard away from direct



The foundation of integrated pest management is to only treat for the pests you have and no more. That way, you eliminate the potential poison children may be exposed to.

contact with floors, walls and moist areas to help prevent a pest infestation.

Monitoring:

Think your classroom is pest free? Don't be so sure. Roaches like to hide in dark places like in corners and under heavy items, like refrigerators—even behind chalkboards and bulletin boards. Monitoring the classroom for pests can help prevent a pest infestation, through early detection, or solve an existing problem. The most important part of monitoring is going beyond just keeping mental notes to keeping written records of daily observations.

Because monitoring will reveal how severe a pest problem is, it can be helpful in deciding what needs to be done to solve the problem. It's important to know the pest situation. If an existing problem goes unnoticed, it will probably get worse before it can begin to get better.

Food is a popular learning tool for young students. Food items, like macaroni or peanuts, are often used in art projects or in "dried food bins" to demonstrate texture to students. Store food used for activities in airtight containers or throw it out when it is no longer being used for the day. Never keep dried food bins longer than one school year.

Treatment:

Pesticides can be helpful in managing a pest problem, but can be harmful if not used properly. For this reason, pesticides should be used as a last resort in managing pests. Children are especially vulnerable to pesticides because of their developing central nervous systems and rapid growth.

The term "pesticide" refers to insecticides, herbicides and fungicides. When two or more pesticides are used, synergistic action can make toxicity levels soar. Consider the least hazardous, but most effective treatment method for the particular pest you are dealing with before purchasing any pesticides

and look for a least-toxic label. A least-toxic product will come in a form that will not volatilize the air, such as a bait, paste or gel and they are ideal for schools because although they are toxic to specific pests, they are harmless to humans. Never purchase pesticides or chemicals labeled "Danger."

Evaluation:

Evaluate how well the treatment method you are using is working. Keep records of the school's sanitation schedule and the number of chemical treatments. Then, answer the following questions:

- Was the pest problem a significant one?
- Did my actions and treatment method adequately solve the problem?
- Could I manage the problem better next time? If so, how?
- Do I need more or better treatment information before making any decisions in the future?

Integrated pest management strategies can also be applied to the school grounds. Pests, like rodents and Japanese beetles and other insects can often be found outdoors. Playgrounds, parking lots and athletic fields need to be kept waste-free and have good drainage. Clean outdoor trash containers regularly and secure lids.

To see a Model School IPM Policy, check out the U.S. EPA's, "Chemical Management Resource Guide for School Administrators," on the Chemical Management CD of your Green Steps Tool Kit.

Grants are available to schools interested in starting an IPM program. To learn more about IPM grants, visit the U.S. EPA's Web site, at www.epa.gov/oppbppd1/PESP/grants.htm.



A spatula is a really good inspection and cleaning tool. If a spatula fits in a crack in concrete, baseboards, wallboards or underneath chalkboards, insects can use that space to access the room.



"A clean, quiet, safe and healthy environment is an important component of successful teaching and learning."

Head Lice

Some of the most dreaded pests in elementary and middle schools are head lice. These tiny bugs are easily spread from one child's hair to another's. If a child gets head lice, have their parents schedule them for a physician's visit. Warn parents about the possible hazards of using lice shampoos. The pesticides in these can pose long-term health risks to children.

Do not let the students exchange hats, scarves, brushes or pillows during a lice infestation. For more information about head lice and how to treat it, visit the U.S. EPA's Web site at www.epa.gov/pesticides/ipm/schoolipm/chap-11.pdf.

Take that first step and go GREEN by visiting www.idem.IN.gov/greensteps.



Mercury

When many of us (non-scientists) think of mercury, an image of a slippery, silver substance inside an old thermometer comes to mind. Mercury, represented by the chemical symbol “Hg,” is a metal that becomes liquid at room temperature. It expands and contracts with temperature changes—making it ideal for a number of uses. Because mercury is a naturally occurring element, it cannot be created or destroyed by humans.

Mercury exposure can threaten the health of students, faculty and staff. Continuous mercury exposure can lead to mercury poisoning, a toxic condition which can cause irreversible damage to the kidneys, immune system, brain and lungs of people of all ages. Exposure can impair the way we see, hear and function. Young children are especially vulnerable to mercury exposure because it can cause damage to their developing central nervous systems, making it hard for them to think and learn. Imagine trying to teach students who are being exposed to a toxic substance that is hurting their ability to learn!



Each year, Indiana has approximately 300 reported cases of mercury poisoning due to children being exposed to broken thermometers.

Elemental mercury is the name given to mercury in its liquid form. Certain items, like laboratory measuring devices and thermometers can still be found in schools, because no adequate substitute for them exists. However, Indiana law (IC 13-20-17) prohibits schools from purchasing or using any other mercury-containing items. Despite the law, some schools may still have stockpiles of mercury in the school building. Look for any mercury in the building and lock up what is found before disposing of it through your local solid waste management district to be recycled.

Some items that may contain mercury in your school are:

- Fever thermometers
- Fluorescent lights and mercury-vapor lamps
- Some oil-based paints

- Mercury thermostats
- Pilot light sensors found in stoves, furnaces and water heaters
- Blood pressure gauges
- Chest freezers, washing machines and electrical space heaters
- Scientific apparatus (gauges and barometers)
- Batteries with mercuric oxide and some old alkaline batteries
- Antibacterial products containing thimerosal or merbromin.

A mercury spill is a serious issue and can be costly. The small amount of mercury used in fever thermometers is not likely to cause serious health problems, if it is cleaned up properly and immediately. Students are most likely to be exposed to mercury after a mercury-containing item, like a thermometer, has been broken. Schools should have a mercury spill kit in each room housing a mercury-containing item. Refer to the spill kit instruction for cleanups if the amount of mercury spilled is equal to or less than the amount of mercury found in a fever thermometer.

If the amount of mercury spilled is greater than the amount of mercury found in a fever thermometer, isolate the area and call the 24-hour IDEM Emergency Response Spill Line at (888) 233-7745. All mercury spills greater than two tablespoons must be reported to the National Response Center at (800) 424-8802.

Some Indiana schools have paid hefty cleanup tabs, in one case \$60,000 to clean up a mercury spill. All mercury spills need to be cleaned properly and immediately. Cleanup methods will vary depending on whether the mercury was spilled on a hard surface or a cloth one, but a few important preliminary steps need to be taken right away.

Before conducting a mercury cleanup, follow the steps below:

- 1 Evacuate the incident room after checking all persons for mercury on their clothing or the bottom of shoes. Any mercury-contaminated items must be taken off and left in the room to be disposed of. Anyone in contact with mercury must remain in the room to avoid contaminating other areas of the building.
- 2 Keep the incident room temperature below 70 degrees to minimize mercury evaporation. Close all vents.
- 3 Open any exterior doors and windows to keep air flowing in the incident room, while closing all interior doors to prevent the spread of contamination.
- 4 Contain the spill using rags or other disposable items to prevent spreading. Make sure the mercury doesn't move to drains, cracks or crevices.
- 5 To easily find mercury, turn off the lights and shine a high-intensity light, such as a flashlight in the contaminated area. Mercury beads will reflect the light, making them easier to see.
- 6 If you can't find the mercury after you have thoroughly checked the contamination area, vent the incident room by keeping exterior windows and doors open for 24 hours.

If an amount of mercury, equal to or less than the amount of mercury found in a fever thermometer, has been spilled, it is time to conduct a cleanup. Follow the cleanup steps below, based on whether the mercury is on a hard or cloth surface. Remember—

always wear rubber gloves and, if possible, safety goggles when performing a mercury cleanup.

If mercury was spilled on a hard surface:

- Push the mercury beads together with a card, stiff paper or squeegee to form larger droplets. Be careful—mercury beads roll quickly! Push the mercury beads into a plastic dustpan. Electrical or duct tape can also be used to pick-up mercury beads.
- Collect all mercury, debris from the broken item, and used cleanup supplies into a wide-mouthed plastic container with a screw-on lid or a tightly sealed plastic bag.
- Consider sprinkling the area with sulfur powder (available at lawn and garden stores). If the powder stays yellow, stop clean up efforts. If the powder turns brown, mercury is present and cleanup efforts must continue.

If mercury was spilled on carpet or cloth material:

- If the item is not removable, like carpet or furniture, use an eye-dropper or turkey baster to collect mercury beads. The only 100 percent effective method of clean up in this situation is to cut the contaminated area out of the carpet or furniture and dispose of it as mercury-contaminated waste.
- Place the mercury, debris from the broken item, and used cleanup supplies in a wide-mouthed plastic container with a screw-on lid or a tightly sealed plastic bag.
- If mercury gets on clothing or other removable material and cannot be completely cleaned, that material needs to be removed and disposed of properly. When mercury can no longer be seen on



Because mercury absorbs loose particles as it rolls along, it was once used by “hatters” to clean felt hats. These hatters eventually succumbed to mercury poisoning and suffered from dementia, hence the phrase, “mad as a hatter” and forming the basis for the “Mad Hatter” character of “Alice in Wonderland.”



If anyone comes in contact with mercury, call the Indiana Poison Center at (800) 382-9097.

clothing, air the clothing outdoors for at least 24 hours.

All equipment and supplies used in a mercury cleanup must be disposed of as mercury-contaminated waste.

Where mercury is concerned, what NOT to do during a cleanup is just as important as what should be done. When cleaning a mercury spill NEVER use a vacuum or shop vacuum, broom or paintbrush. NEVER put mercury in the trash, down the drain or burn it. And NEVER break open items containing mercury.

After the cleanup, the mercury and mercury contaminated materials must be disposed of through your local solid waste management district or a mercury recycler. To find your local solid waste management district, visit the Recycle Indiana Web site at www.recycle.IN.gov.

Many schools use fluorescent lighting in classrooms. Using fluorescent light bulbs is better for the environment because they use less electricity than incandescent bulbs. However, fluorescent light bulbs contain a small amount of mercury. If a fluorescent light bulb is broken, you will not be able to see the mercury, even though it is present. If this happens, put on rubber gloves and scoop up all the pieces of the broken light bulb. Put the pieces inside a sturdy container and set the container outside. Next, air out the building for 12 hours to 24 hours.

Covers should be used with fluorescent light bulbs at all times, to reduce the risk of mercury exposure.

Another way to help minimize mercury pollution is to identify items in the school building which contain mercury and label them with “Contains Mercury – Recycle” stickers. Once the product is no longer of use, recycle it at your local solid waste management district.

To learn more about mercury, check out the U.S. EPA’s, “Chemical Management Resource Guide for School Administrators,” on the Chemical Management CD in your Green Steps Tool Kit

**Contact IDEM
at 800-988-7901 or at
p2@idem.IN.gov for free
mercury stickers.**

Indoor Air Quality and Outdoor Air Pollution

Indoor Air Quality

Twenty percent of Americans—nearly 56 million people—spend their days inside our elementary and secondary schools, according to the U.S. EPA. This means the school building itself can have a significant impact on the health and development of students. Children are more vulnerable to environmental exposures than adults because their bodily systems are still developing. They eat, drink and breathe more than adults, in proportion to their body size. Even their behavior can expose them more to chemicals and organisms.

Schools are full of air-polluting sources. All building materials, furnishings and air fresheners continuously release pollutants and other sources, like furnaces, cleaning products and pesticides, will release pollutants occasionally. The air may remain polluted long after these products are finished being used, so choose your classroom products wisely. The Indiana Sanitary Schoolhouse Rule created by the Indiana State Department of Health addresses the issue of ventilation in 410 IAC 6-5.1-5 Physical Facilities and strong chemical odors in 410 IAC 6-5.1-11 Special Hazards. You can find the Indiana Sanitary Schoolhouse Rule on the Educational Resources CD in your Green Steps Tool Kit or by visiting the Indiana State Department of Health’s Web site at www.IN.gov/isdh/regsvcs/saneng/laws_rules/410_iac6-5_1.html.

The first step to improving indoor air quality (IAQ) in the school building is to create an IAQ Action Plan. Follow the steps below to create an IAQ Action Plan for your school.

1. Assign the job of IAQ manager:

Choosing the right IAQ manager is crucial to the success of your IAQ Action Plan. This person will be responsible for coordinating all IAQ activities in the building. Choose someone who is extremely familiar with the building’s structure and function. Once an IAQ manager is assigned, familiarize him/her with the U.S. EPA’s air quality guide, “Building Air Quality: A Guide for Building Owners and Facility Managers.” This is available on the U.S. EPA’s Web site at www.epa.gov/iaq/largebldgs/pdf_files/iaq.pdf. Give the IAQ manager sufficient amount of authority to make decisions and perform improvements. He or she will be responsible for developing an IAQ profile and solving all existing problems.

The Occupational Safety and Health Administration (OSHA) requires that schools inform and train staff who use hazardous chemicals, even infrequently, about the health effects of the chemicals they use in their duties, how to read, understand and follow label instructions and material safety data sheets, and what to do in case of an emergency. This task will fall to the IAQ manager. Both informal, in-house information sharing and formal training courses may be beneficial.

Some other ideas are distributing IAQ fact sheets, hosting informal discussions and seminars, or even offering self-training materials. Many ways of training your staff are available.

2. Develop an IAQ profile:

The IAQ profile will familiarize the IAQ manager with the current air quality conditions



Children breathe 50 percent more air per pound of body weight than adults. By limiting the exposure to diesel exhaust we can help prevent exposure to fine particles that are associated with more frequent childhood illnesses.

of the school. This step consists of two parts: reviewing records and conducting a heating, ventilating, and air conditioning (HVAC) walkthrough. Start by identifying and reviewing records. This will include blueprints and operating instructions. Some other documents to review are current schedules and procedures for facility operations and maintenance, information on pressure relationships and any historical complaint logs relating to air quality. Next, perform a thorough inspection of HVAC practices and look for possible sources of pollution in the school. Air quality problems can come from a number of sources. Some indicators of air quality problems to look for are odors, discoloration of building materials, uneven temperatures and smoke damage.

3. Fix existing problems:

Some indoor air problems will be simple to recognize and fix, while others may be more difficult and require outside assistance by IAQ professionals. It will be helpful to know ahead of time who to call if there is a problem. This way, a problem needing outside assistance can be solved more quickly.

Simple ways to begin improving IAQ are:

- Eliminate individual sources of pollution or reduce their emissions.
- Keep kitchen and restroom exhaust fans turned on when necessary.
- Practice good sanitation; keep vents clean and free of clutter.

Outdoor Air Pollution

For students, play or learning time outdoors can be a welcome change of scenery from the classroom. Unfortunately, the air outdoors can be polluted by the activities of society. Air pollution can reduce lung function, cause respiratory symptoms and increase respiratory infections. The U.S. EPA regulates six criteria air pollutants, as mandated by the Clean Air Act, but the most widespread health effects are caused by ground-level ozone and fine particulate

matter (PM). The U.S. EPA recommends limiting outdoor activities at times when ozone levels are highest, such as during the daytime, and planning them for mornings and evenings when ozone levels are lower. Ozone is created through a sunlight chemical reaction, so it is at its highest when the sun is out and shining.

Children are at the highest level of risk from ozone exposure. One of the major sources of particle pollution and ozone is vehicle emissions. Schools can help improve air quality outdoors by reducing pollution.

Some ways for schools to reduce air pollution are:

- Retrofit school buses to reduce the levels of fine particle matter they produce.
- Check that all school bus tires are fully inflated. Under inflated tires reduce gas mileage.
- Encourage parents to participate in a carpool.
- Perform grounds maintenance activities, like cutting the grass, in the evenings or early morning.
- Tightly seal the lids of cleaning solvents and pesticides to keep evaporation to a minimum.
- Implement an anti-idling policy for school buses and cars in the pick-up/drop-off line.

The quality of air outdoors is measured by the Air Quality Index (AQI). The AQI was created to report air quality levels and help explain the health significance of air quality issues. The U.S. EPA has created Air Quality Action Days for when the AQI reaches harmful levels. Limit the outdoor activities of young students on these days to reduce exposure. Check the AQI for your school's area by visiting the AIRNow Web site at <http://airnow.gov/index.cfm?action=aqibroch.index>.



“Adults expect to work in safe buildings, so why should we expect any less for our children.”



Take that first step and go GREEN by visiting www.idem.IN.gov/greensteps.



The least efficient schools use three times more energy than the best energy performers, according to the U.S. EPA.

Energy Efficiency

America's elementary and middle schools will spend an astounding \$6 billion on energy costs this year—greater than the amount they will spend on textbooks and computers combined, according to the U.S. EPA. Energy efficiency is a good way for schools to lower those costs and save money. Schools can lower their energy usage by up to 30 percent by making a few minor renovations, like installing new boilers and updating lighting systems. There are even things that can be done to start saving energy today, before a single fluorescent light bulb is screwed in.

American schools are faced with the difficult challenge of managing growing student populations while attempting to keep costs down. Urban sprawl and aging city school buildings create demands on already tight budgets. The good news is that investing in energy efficiency can be as costly or as inexpensive as a school chooses. There are

many options! By lowering energy output, school's lower emissions—helping the environment.

Below are some steps schools can take to start saving energy now.

Shut off the lights every time you leave a room, almost:

if incandescent lights are used in the school building, turning the lights off every time you leave a room will reduce energy consumption, not only preserving would-be energy use, but also by keeping the room cooler. Does the school use fluorescent lights? These lights need a different approach. Turn off fluorescent lights only if you are going to be out of the room for longer than 15 minutes. This will save the school money because fluorescent lights are more expensive and the length of their lifespan is affected by the number of times they are shut off and on.

Practice good lighting maintenance:

dust on fixtures and lamps, even walls, can reduce the effects of lighting by up to 50 percent. Clean fixtures and light bulbs every six months to 24 months (only clean light bulbs when they are shut off and cooled

down). Because dirt on walls will reduce the light's ability to reflect off of them, it is a good idea to repaint rooms every few years.

Shut the door:

closing the door helps maintain a room's temperature, preserving energy. Seal windows during colder months so air drafts do not get in or out around the edges.

Lower your thermostat:

schools can save 10 to 15 percent on heating and cooling annually by simply adjusting the thermostat for times when the building is empty. In the winter, turn the thermostat back 10 to 15 degrees overnight. In the summer, do the reverse by allowing the building to warm up overnight. Contrary to popular belief, furnace/air conditioning systems do not require more energy to get the temperature back to normal in the morning.

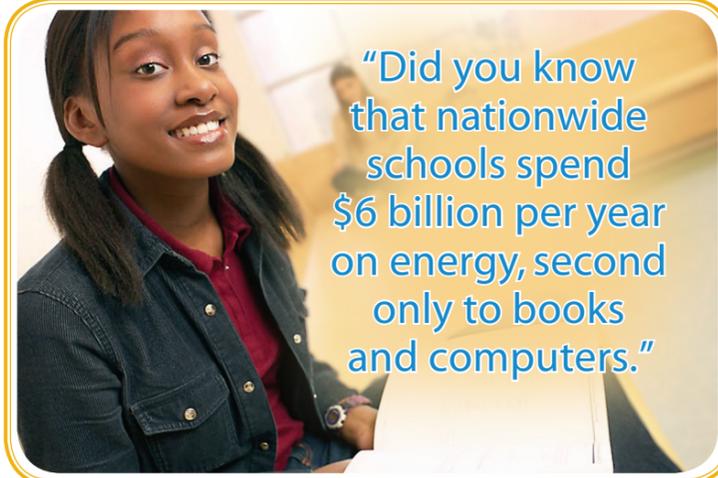
The U.S. EPA and the U.S. Department of Energy created a voluntary labeling initiative called Energy Star in 1992. Energy Star focuses on identifying energy-efficient products for use in schools, businesses and homes in order to reduce emissions. So far, over 3,200 buildings, including hundreds of schools, have been recognized for their energy efficient practices. In fact, two hundred of the top performing buildings in 2006 were school buildings. Energy Star buildings save a whopping \$600 million annually. The U.S. Department of Energy has a long list of recommended school products that meet high energy efficiency standards set by the federal government. These products include: boilers, computers, exit signs, refrigerators and vending machines, among many others.

Using new technology can be a great way to save energy. Control systems exist that can do everything from automatically turning back the thermostat to sensing when someone is in a room and turning lights on or off accordingly. In fact, a variety of lighting occupancy sensor controls are available for use, both indoors and outdoors.

Find out how energy efficient your school is compared to other similar schools in your area by creating an Energy Portfolio on the Energy Star Web site at www.energystar.gov/index.cfm?c=k12_schools.bus_schoolsk12.



Only about 10 to 15 percent of the electricity that incandescent lights consume produces light—the rest is converted into heat, according to the U.S. Department of Energy.



"Did you know that nationwide schools spend \$6 billion per year on energy, second only to books and computers."

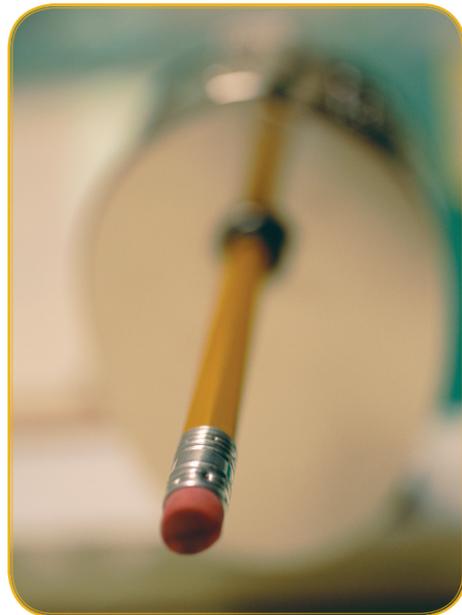
Green Steps

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Renovation and Remodeling

A remodeling or renovation project can be very exciting for schools, but needs to be done properly so that students and staff are not exposed to hazardous materials in the process. In this section, schools will learn about possible hazards posed by renovation projects and how to safely manage them.

Indiana has specific laws concerning lead and asbestos during renovations in regulated and child-occupied facilities. It is important to carefully follow the law to avoid enforcement action, civil penalties and costly fines to the school.



Making a few general preparations, along with other, more specific steps, will help to reduce the risk of asbestos and lead exposure during periods of construction. Schedule renovations to be performed during periods when the building is unoccupied, like during summer break. Once renovation begins, use items like plastic sheeting and portable fans to prevent spreading con-

taminants throughout the school building. Another good way to help prevent spreading dust and fibers in the building is to have workers wipe down equipment before leaving the construction area. Try placing walk-off mats just outside the construction area to help prevent workers from carrying dust away on their shoes. Even with preventative steps like these, school buildings will need to be cleaned more frequently during renovation.

Before beginning any demolition or renovation:

- Have the building, or portion of the building undergoing renovation or demolition, thoroughly inspected by an Indiana licensed asbestos building inspector prior to any work that might damage, dislodge or disturb asbestos-containing materials.
- If asbestos is present, schools must have a licensed asbestos removal professional remove all regulated asbestos-containing material before any demolition can begin. Asbestos removal in a facility that will be demolished or renovated requires ten working days advanced written notification using IDEM's Notice of Intent form, available on the Web at www.IN.gov/icpr/webfile/formdiv/44593.pdf.
- If no asbestos is present at a facility, written notification using the Notice of Intent form of the demolition is required ten days prior to demolition so that an inspection by the asbestos regulatory agencies may occur to determine compliance.

A list of licensed asbestos contractors can be found by visiting the IDEM Web site at www.idem.IN.gov/compliance/air.

Asbestos

Asbestos is the name given to a number of naturally occurring, fibrous silicate minerals. Schools sometimes use it for thermal insulation, sound insulation and fireproofing. Undisturbed, asbestos-containing materials generally do not pose a health risk. However, when asbestos-containing materials are disturbed, damaged or even deteriorate over time, they may release asbestos fibers into the air, which can be breathed by children and teachers. Asbestos exposure can cause serious illnesses, like lung cancer, asbestosis (scarring of the lung), and mesothelioma (cancer of the abdominal lining). However, symptoms may not occur for up to 30 years after the first asbestos exposure. As with cigarette smoke, the more asbestos a person breathes, the greater the chance he or she will develop an asbestos-related disease.

Asbestos-containing materials cannot be identified simply by looking at them. To determine whether or not an item contains asbestos, it must be sampled and analyzed by a licensed asbestos professional. All suspected asbestos-containing materials should be handled with caution. Never dust, sweep or vacuum, disturbed asbestos-containing materials—this could release asbestos fibers into the air. Only a licensed asbestos professional should either wet mop the asbestos or use a special HEPA vacuum to clean it.

Public school districts and non-profit private schools are subject to the Asbestos Hazard Emergency Response Act (AHERA), which requires educational agencies to inspect for asbestos-containing building materials and create asbestos management plans (AMPs) based on their findings. Having an AMP will provide information about where asbestos is located in the school building and a framework for dealing with it.

The responsibility of creating and carrying out the AMP falls on the local educational agency (LEA) and a designated

person (DP). Assigning a DP is required by AHERA. The DP is crucial to the success of AMP, so choose someone who is intimate with the layout of the school building. Next, have the school building inspected by an Indiana licensed asbestos inspector, as well the DP. After the inspection, decide on response methods. Response methods include: spraying asbestos with sealant; repairing damaged boiler covers; developing a special maintenance plan; and, removing all of the asbestos.

To learn more about asbestos compliance, visit the IDEM Web site, at www.IN.gov/idem/compliance/air/asbestos.html. Schools can also find an asbestos fact sheet by visiting the IDEM Web site at www.idem.IN.gov/who/media/factsheets/asbestos.html.

For details on how to create an AMP, visit the U.S. EPA's Web site, at www.epa.gov/asbestos/pubs/abcsfinal.pdf. Schools can find detailed federal asbestos requirements by checking out the, "Federal Requirements for Asbestos Management in Schools," brochure from the U.S. EPA at <http://www.epa.gov/asbestos/pubs/aherarequirements.pdf>.

Questions about asbestos? Call the U.S. EPA's Asbestos Line at (800) 471-7127.

Lead

Lead is a toxic substance which can cause lead poisoning, a serious condition affecting the body's basic functions. Even low levels of lead exposure can permanently damage a child's nervous system and kidneys and can cause learning disabilities and decreased intelligence. Inside school buildings, lead will likely only be found in paint. Keep in mind that lead-based paint that is in good condition is usually not a hazard, but if lead-based paint is peeling, chipping, chalking or cracking, it is considered hazardous and needs immediate attention. Lead-based paint can also become hazardous if it is turned into



A typical asbestos fiber is 1,200 times smaller than a strand of human hair, according to the U.S. EPA.



Approximately 310,000 U.S. children aged 1-5 years have blood lead levels greater than the CDC recommended level of 10 micrograms or lead per deciliter of blood. Lead poisoning can cause learning disabilities, behavioral problems, and, at very high levels, seizures, coma and even death.

lead dust, during a renovation, for example. Because lead poisoning is a serious condition, the state of Indiana has laws regulating the maintenance and removal of lead paint. Indiana law (IC 13-17-14-12) prohibits open flame burning, dry sanding, scraping, or heating of all painted surfaces in child-occupied facilities built before 1978 and all lead-based painted surfaces in child-occupied facilities.

Be aware of lead-based paint items that get a lot of wear-and-tear and items kids can chew on, including: window sills, doors and door frames, stairs, railings and fences. These areas can be repainted with lead-free paint, which will help reduce exposure. Maintained lead-free paint should last anywhere from four to ten years. To verify if a painted surface contains lead, conduct a lead-based paint inspection.

Questions about lead? Call the IDEM lead hotline (888) 574-8150.

Flooring and Roofing

Some other areas of concern during a renovation or remodeling project are flooring and roofing. Both areas can affect the indoor air quality of a school building. Flooring materials may contain volatile organic compounds (VOCs). One easy way to check the emission levels of new carpet is to contact the Carpet

and Rug Institute through their Web site, at www.carpet-rug.com. Once you have purchased your flooring, if possible, unwrap and unroll it in a well ventilated location before installation, preferably not in the school. To best prevent hazards, choose low-emitting adhesives and follow the manufacturer's recommendations for ventilating the area. Vacuum the old carpet before pulling it up. Once the carpet is pulled up, vacuum the surfaces underneath to avoid releasing dirt, dust and biological contaminants into the air and onto the new carpet. Lastly, vacuum the new flooring to remove any dust and dirt build-up from installation.

Roofing projects often involve the use of tar and other pollutant-producing chemicals. Prevent odors and fumes from entering the ventilation system by scheduling work times for periods when no one is in the school building. If this is not possible, close all outside doors and windows until the roofing work is finished. Consider temporarily closing outdoor air-intake vents, as well.

Once the renovation is complete, a small amount of additional clean up should be performed. Wipe surfaces and vacuum thoroughly; check filters to see if they need replacing and clean building system components—especially those in the ventilation system.



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Transportation



Bus drivers and school faculty are responsible for ensuring students get to and from school safely everyday. While riding the school bus is the safest way for children to get to school, there are steps schools can take to make it even safer for their health, like reducing the amount particle pollution produced by diesel exhaust fumes.

Diesel engines are a valuable resource for Indiana schools because of their durability and power. However, when school buses idle excessively, they produce unnecessary exhaust. Exhaust fumes can get into the bus and even into the school building.

Thousands of Indiana children are exposed daily to the particle pollution found in diesel exhaust. Fine particulate matter is very small and is invisible to the naked eye. Regulated fine particle matter can be as small as 2.5 microns—28 times smaller than the width of a single human hair. Particles this small often get by the body's natural defenses and settle in the bottoms of our lungs where they may cause health problems such as bronchitis and other respiratory illnesses. Long-term exposure to particle pollution

can result in lung cancer and an increased risk of heart disease.

Does your school allow buses to line up front-to-back (bus queuing) in the bus area? Do those buses have their engines on for extended periods of time while waiting for students? School bus idling is a major reason for the large amounts of particle pollution in our environment.

Below are some tips for reducing unnecessary idling.

- Park buses diagonally to prevent back-to-front transfer of emissions. This will help prevent diesel fumes from entering the bus cabin.
- Move all vehicle pick-up/drop-off areas to a location away from the building's air-intake vents.
- Implement an anti-idling policy. It is a common misconception that bus engines need to warm-up for long periods of time in the winter. Today's buses need only three to five minutes to warm up if the temperature is at least 32 F°.
- Schedule buses to arrive closer to pick-up time or create a comfortable area inside the school for bus drivers to wait.
- Retrofit older school buses. The most effective action schools can take to reduce emissions today is to retrofit older buses. Retrofitting is equipping older buses with new technology that has the ability to reduce the particle pollution buses produce.



Diesel fumes contain 40 toxic chemicals, including 15 carcinogens, according to the U.S. EPA.

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There are two kinds of retrofitting devices available—diesel oxidation catalysts (DOCs) and diesel particulate filter (DPFs). A DOC is a device which uses a chemical process to breakdown pollutants in vehicle exhaust into less harmful components. A DPF is a ceramic device that collects particulate matter in the vehicle exhaust stream. The particles break down (or oxidize) into less harmful components after being heated by the vehicle exhaust.

To learn more ways to reduce emissions, check out the Transportation and Waste Minimization booklet or the Transportation and Waste Minimization CD, both in your Green Steps Tool Kit.



“Ask your school to start a recycling program. Recycling paper, plastic, aluminum and other materials cuts energy use. This reduces air pollution and saves money.”

Waste Minimization

Waste minimization refers to steps schools can take to reduce the amount of waste that goes into landfills. “Reduce, reuse and recycle” is a popular approach to minimizing waste.

- **Reduce:** the amount and toxicity of waste.
- **Reuse:** containers and other items when possible; repair broken items.
- **Recycle:** as much as possible; this includes purchasing items made with recycled materials.

Reducing waste is also called source reduction, which simply means consuming and throwing away less. Source reduction is the first step to minimizing waste because it prevents waste from being created in the first place, saving money by avoiding the handling costs of recycling or landfilling materials. One simple way for schools to minimize waste is to purchase products in bulk, to reduce waste from packaging.

Reducing the toxicity of waste is an important part of source reduction. Schools can do this by purchasing less hazardous pesticides and green cleaning products, sharing extra product and using the smallest amount of a chemical possible.

Unfortunately, items which can be reused, donated or fixed often become garbage. Reuse is an effective and inexpensive strategy for minimizing waste. In Indiana, many solid waste management districts have “reuse shops” specifically for teachers. These shops depend on donated school supplies from local businesses, schools and individuals. At most reuse shops, the items are free-of-charge. Contact your local solid waste management district to find out where to find a reuse shop in your area.

To find your local solid waste management district, visit the Recycle Indiana Web site, at www.recycle.IN.gov. Teachers can also find ways to reuse items within their own classrooms. Used containers, cardboard and various items can be reused for new storage, art projects or science experiments. Get creative!

Much of what is disposed of into garbage cans each day can be recycled with just a small amount of effort. Municipal solid waste (MSW), better known as trash or garbage, often contains materials which can be recycled. Recycling helps the environment by diverting glass, plastic, paper and metals away from landfills. These materials can be sorted, collected, processed and manufactured into new products.

Another form of recycling is composting. Composting is the controlled biological decomposition of organic matter, such as food and yard wastes, into humus, a soil-like material. Composting saves schools money by creating a free material to be used in gardening or landscaping, while reducing waste. Composting is easy to do and works great in schools because it can give students an opportunity to get involved. Worm composting, also known as vermicomposting,



Composting is a natural process that occurs with or without our help. Many people have compost piles in their own backyards. Where that is not possible, vermicomposting provides a good alternative and it is fun for the students.

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“Recycle or reuse everything you can. It takes more energy to make new products out of raw materials than to recycle them.”



In one week, the average person throws away more than 40 pounds of garbage. The garbage generated in one year would fill four lanes of trucks, bumper-to-bumper, stretching 388 miles.

is popular among young students. Worm composting is just as it sounds—composting by using worm bins to recycle food scraps and other organic materials.

For more information on how to start a worm composting program in your classroom, visit the IDEM Web site at www.idem.IN.gov/who/media/factsheets/vermicomposting.html. To learn more about composting, visit the U.S. EPA’s Web site at www.epa.gov/epaoswer/non-hw/composting/index.htm.

Having a waste minimization plan can save schools money and help protect the environment. In fact, waste minimization has many benefits, such as building better community relations, reducing regulatory burdens and compliance costs, and creating a safer working and learning environment for students and faculty.

To learn more ways your school can minimize waste, check out the Transportation and Waste Minimization CD or the Transportation and Waste Minimization booklet, both in your Green Steps Tool Kit.



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Chemical Management

Chemicals have many uses and can be found in several areas of the school building. To safely manage these chemicals, school administrators need to design a chemical management plan, assign a chemical hygiene officer to oversee the plan and assemble a chemical management team. Effective chemical management means keeping students, staff and faculty from unnecessary exposure to chemicals. Not only do chemical exposures threaten human health, but for schools, exposures can mean thousands of dollars spent and a potential interruption of the school year.

The core principles of an effective chemical management plan are:

- Evaluating chemicals that enter the school for need, quantity and appropriateness.
- Ensuring that chemicals are used for their intended purpose.
- Properly labeling, storing and securing chemicals.
- Safely disposing of excess waste and chemicals.

Unfortunately, it is not uncommon for chemicals that are unlabeled, outdated and sometimes hazardous to accumulate in science labs and other areas. Before creating a chemical management plan, conduct a one-time, thorough cleanout of outdated, accumulated chemicals.

The most common areas for chemicals to be found in schools are:

Laboratory:

Chemistry labs present a fantastic learning opportunity for students, as long as teachers carefully maintain chemical closets, monitor students using chemicals and dispose of chemical waste properly. Chemicals

commonly found in chemistry classrooms include: acids, bases, solvents, metals, and others. Sometimes a chemical’s hazard potential can outweigh its educational potential. Remove harmful chemicals from the lab. A list of these chemicals can be found in the, “School Chemistry Laboratory Safety Guide,” produced by the U.S. Consumer Products Safety Commission at www.cpsc.gov/CPSC/PUBS/NIOSH2007107.pdf.

Classroom:

Classroom closets and cabinets can store a variety of chemicals from cleaning products to art supplies to air fresheners. Remove personal items like candles, hairspray and air fresheners, as well as excess cleaning chemicals from classroom storage areas. Store all chemicals in a central, locked area, away from the reach of students.

Maintenance closet:

Maintenance closets can contain a variety of chemicals like cleaning solvents, floor stripping products, paints and drain cleaners. Cleaning chemicals may be toxic or flammable and can cause health problems like skin, eye and throat irritation and headaches. The U.S. EPA and IDEM strongly encourage schools to consider purchasing “green” cleaning products. Green cleaning products are less toxic, biodegradable and have reduced packaging, which is good for the environment. A list of green cleaning products is available on the U.S. EPA’s Web site at www.epa.gov/opptintr/epp/pubs/products/cleaner.htm. Some cleaning chemicals can be harmful when used together. The most common example of this is ammonia and bleach; when mixed, they create poisonous chloramine gas. Check chemicals for compatibility before storing or using.



Chemicals and sprays can produce fumes that we might breathe in if not handled properly. By following the MSDS, you will eliminate many chemical hazards and prevent future chemical mismanagement.

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Groundskeeper/pesticide storage area:

Outside storage facilities can house a variety of chemicals, from oil to pesticides to gasoline. Store hazardous liquids, like fuel and oil, where weather conditions will not damage or alter them. All grounds chemicals, including pesticides, should be stored in a locked, outdoor facility. Label waste oils and liquids clearly for proper disposal.

Art classroom:

Art class is a fun way for students to explore their creative side, but it can expose students to chemicals and other products of concern, like paint, ink, stains and glazes. Always read product labels to ensure age-appropriate art supplies are being used. Students younger than sixth graders should only use non-toxic products. Store art supplies in original containers, away from sources of heat, in a separate area where students do not have access.

Below are a few important universal guidelines to managing chemicals:

- Post and follow material safety data sheets (MSDSs).
- Store chemicals in a locked area, away from students.
- Secure container lids and check for leaks and drips.
- Use the least hazardous products available.
- Keep an updated inventory of stored chemicals.
- Label and date chemicals clearly.
- Dispose of chemicals properly.

An MSDS should be on file for every chemical in the building, as required by the Occupational Safety and Health Administration (OSHA). An MSDS is a comprehensive fact sheet written by chemical manufacturers that describes a chemical's physical properties, health and physical hazards, exposure limits and precautions, as well as information on proper handling, storage, and disposal.

When disposing of chemicals, always contact professional, licensed hazardous waste

haulers/transporters that will ensure appropriate disposal and never pour chemicals down the drain.

Many common items in schools contain volatile organic compounds (VOCs). These compounds vaporize at normal room temperatures. Some items that contain VOCs are: upholstery, clothing, photocopy machine toner, spray cans, paint and other sources. Chronic and acute exposure to VOCs can cause a range of symptoms from nausea, headaches and eye irritation, to liver and kidney problems, even cancer.

Chronic exposure, called chronic toxicity, to a chemical means the exposure has occurred many times over several years. Chronic toxicity symptoms may not appear immediately after exposure, but can result in serious health problems later in life. Acute exposure, called acute toxicity, is when a chemical exposure occurs only once. Minor symptoms, like a headache or nausea, may occur immediately following an acute exposure.

This is important to know because both chronic and acute toxicity, in extreme cases, can lead to something called bioaccumulation. Bioaccumulation occurs when the amount of exposure to a chemical is greater than our bodies are able to release and the excess chemical compound becomes stored in our fat cells. When our bodies use the energy in these fatty tissues, the chemical compounds are released, causing acute poisoning. A good example of bioaccumulation is when mercury poisoning results from eating too much contaminated fish.

If you have a poison emergency, call the Indiana Poison Control Center, at (800) 382-9097.

Virtual Classroom:

Check out the Educational Resources CD in your Green Steps Tool Kit for a virtual classroom tour—revealing potential areas for improvement in your classroom.



No chemical is 100% "safe." You must decide how to reduce risks for each of your cleaning jobs. Which products to tackle first? Reduce the hazard by switching to milder product; or reduce your exposure by wearing personal protection; or both.

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"I want my school to take the first step to being green."

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Risk Communication

Schools are accustomed to communicating with parents and, occasionally, the media. In the event of a serious, large-scale situation, would your school know what to do? What about a situation involving environmental issues? This section is designed to help schools better communicate information regarding environmental issues and create or improve school emergency action plans.

If your school does not have an emergency action plan, create one. The emergency action plan will serve three purposes:

- Identify a risk or potential risks;
- Provide information about when to do a risk assessment and who to call; and,
- It will help schools quickly communicate risk information to parents, staff and community members.

First, consider what situations will need to be covered by the plan. Ask yourself, "Is there a health risk?" Any potential incident or trend that could harm the environment or endanger human health requires a "yes." All environmental issues, including non-emergencies, should be included in the emergency action plan. As part of the plan, have important documents like MSDSs and the asbestos management plans on file.

Schools faced with environmental emergencies should be prepared to act quickly. Have emergency phone numbers ready and easily accessible. A list of helpful emergency phone numbers can be found on the Educational Resources CD in your Green Steps Tool Kit.

A serious environmental incident, such as asbestos exposure, will require a risk assessment. A risk assessment should be conducted by an expert or professional agency that deals with a particular hazard or situation.

After the situation has been assessed, organize the facts in a understandable way

so that they can be communicated to staff, students, parents and possibly media. Communicating the situation clearly is crucial to preventing fear-driven, potentially damaging public responses to the situation. Always use clear, non-technical language to discuss risks indicating the nature, form, severity and magnitude of the risk. Schools can find a risk primer on U.S. Department of Health and Human Services' Agency for Toxic Substances and Disease Registry Web site at www.atsdr.cdc.gov/risk/riskprimer.

Tips for communicating complex information:

- Provide information with honesty, humility and compassion.
- Clearly state what is known and not known.
- Keep the story simple and focus on the big picture.
- Use consistent language throughout a crisis situation.
- Avoid acronyms and jargon.
- Carefully consider what types of visuals the media might want. Use visuals to support and clarify key points.
- Tell your audience how much of something will hurt them.

In potentially worrisome situations, rumors can get started and circulate quickly. Have a rumor control system in place as part of your risk management plan. Move quickly to defuse any rumors while keeping your level of reaction on par with the severity of the situation. Remember, a successful risk communication plan will help ease public concern and give guidance on how to respond to a situation.

Keep a copy of your school's emergency action plan on file with the local police and fire units.



If a school emergency should occur, it is necessary to communicate clearly and effectively and to use familiar frames of reference.

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Glossary for Green Steps Guide Book

ACTIVE INGREDIENT: Part of a product that performs the service the product was created for; in any pesticide product, the component that kills, or otherwise controls or targets pests. Pesticides are regulated primarily on the basis of active ingredients.

ASBESTOS HAZARD EMERGENCY RESPONSE ACT (AHERA): A provision of the Toxic Substances Control Act was passed by Congress in 1986. AHERA requires local educational agencies to inspect their schools for asbestos-containing building materials and prepare management plans that make recommendations for the reduction of asbestos hazards.

ALLERGEN: A substance which causes an allergic response in sensitive individuals. Allergens can be either natural (e.g., pollen, dust) or synthetic (e.g., perfume, cleaning agents).

ANIMAL DANDER: Tiny scales of animal skin, a common indoor air pollutant.

ANTIBACTERIAL: Destroying or inhibiting the growth of bacteria.

ASBESTOS: A number of naturally occurring, fibrous silicate minerals mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. These microscopic bundles of fibers may become airborne when asbestos-containing materials are damaged or disturbed. When these fibers get into the air, they may be inhaled into the lungs, where they can cause significant health problems.

RESPIRATORY ILLNESS: A chronic inflammatory disease of the lung airways that causes repeated episodes of wheezing, breathlessness, chest tightness, and coughing.

RESPIRATORY ILLNESS ACTION PLAN: An informational health sheet written by a physician detailing the respiratory illness triggers, medications, peak flow meter readings and emergency contact information of an respiratory illness sufferer, as well as procedures to follow in the event of an respiratory illness attack.

BIODEGRADABLE: Capable of decomposing under natural conditions.

BIOLOGICAL CONTAMINANTS: Agents derived from or that are living organisms (e.g., viruses, bacteria, fungi, and mammal and bird antigens) that can be inhaled and can cause many types of health effects including allergic reactions, respiratory disorders, hypersensitivity diseases, and infectious diseases. Also referred to as “microbiologicals” or “microbi-als.”

BUILDING MATERIALS: Any material which is used for a construction purpose.

CARCINOGEN: Any substance that can cause or aggravate cancer.

CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC): A federal agency in the Department of Health and Human Services; investigates, diagnoses and tries to control or prevent diseases.

CHEMICAL: A substance with a distinct molecular composition that is produced by or used in a chemical process.

COMPOSTING: The controlled biological decomposition of organic material in the presence of air to form a humus-like material. Controlled methods of composting include

mechanical mixing and aerating, ventilating the materials by dropping them through a vertical series of aerated chambers, or placing the compost in piles out in the open air and mixing it or turning it periodically.

CONTAMINATION: Introduction into water, air, and soil of microorganisms, chemicals, toxic substances, wastes, or wastewater in a concentration that makes the medium unfit for its next intended use. Also applies to surfaces of objects, buildings, and various household and agricultural use products.

DIESEL OXIDATION CATALYST (DOC): A device which uses a chemical process to break-down pollutants in vehicle exhaust into less harmful components.

DIESEL PARTICULATE FILTER (DPF): A ceramic device that collects particulate matter in the vehicle exhaust stream.

DUST MITES: Tiny insects which are invisible to the naked eye and can cause allergic reactions or respiratory reactions.

EMISSION: Pollutants discharged into the atmosphere from smokestacks, other vents, and surface areas of commercial or industrial facilities; from residential chimneys; and from motor vehicle, locomotive, or aircraft exhausts.

ENERGY EFFICIENCY: Obtaining identical services or energy output such as heating, cooling and lighting for less energy input.

ENERGY STAR: A voluntary labeling program of the U.S. Environmental Protection Agency and the Department of Energy, designed to identify and promote energy-efficient products to reduce emissions.

ENVIRONMENTAL TRIGGERS: Anything that acts as a catalyst for respiratory symptoms. Some examples are animal dander, dust mites, cold air, pests, and mold.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (U.S. EPA): An independent federal agency, created in 1970, which sets and enforces rules and standards that protect the environment and control emissions in the United States.

EVAPORATION: The conversion of water from liquid to vapor, thus going from land and water masses into the atmosphere.

FEVER THERMOMETER: An instrument used for measuring body temperature, sometimes in the form of a sealed glass tube that contains a column of liquid, such as mercury, that expands and contracts, or rises and falls, with temperature changes.

FINE PARTICLE MATTER: Also known as particle pollution (PM) is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. Particulate matter as small as 2.5 microns - 28 times smaller than the width of a human hair - is regulated in Indiana.

FLUORESCENT LAMP: A gas-discharge lamp that uses electricity to excite mercury vapor in gas, creating plasma which produces ultraviolet light. This light then causes a phosphor to fluoresce, producing visible light.

Glossary of Terms *(continued)*

GREENHOUSE GAS: A gas, such as carbon dioxide or methane, which contributes to atmospheric carbon loading.

HAZARDOUS WASTE: By-products of society that can pose a potential or substantial hazard to human health or the environment when improperly managed. Possesses at least one of four characteristics (ignitability, corrosivity, reactivity, or toxicity), or appears on special U.S. EPA lists.

HEAD LICE: The head louse is one of three sucking-lice species found on humans. The eggs, or nits, of head lice are glued tightly to hairs. The louse's saliva generally cause an allergic reaction that produces itching.

HEPA: High-efficiency particulate air filter. A HEPA vacuum captures allergens which would otherwise be redistributed into the air.

HERBICIDE: A pesticide used to kill or control undesirable plants (generally considered weeds).

HVAC: Heating, ventilation and air conditioning.

IDLING: The operation of an engine in the operating mode where the engine is not engaged in gear, where the engine operates at a speed at the revolutions per minute specified by the engine manufacturer, or when the accelerator is fully released and there is no load on the engine. Commonly known as "leaving your engine running."

INCANDESCENT LAMP: An electric lamp in which a filament is heated by an electric current until it emits visible light.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (IDEM): State department created in 1986 to offer quality environmental oversight and technical assistance in and around the state of Indiana.

INDOOR AIR QUALITY (IAQ): The quality of breathable air inside a habitable structure or conveyance.

INFESTATION: A harassing or troublesome invasion, often from pests.

INTEGRATED PEST MANAGEMENT (IPM): A mixture of mechanical, chemical and other, non-pesticide, methods to control pests.

LEAD (PB): A heavy metal that is hazardous to health if breathed or swallowed. Its use in gasoline, paints, and plumbing compounds has been sharply restricted or eliminated by federal laws and regulations.

LIGHTING OCCUPANCY SENSOR CONTROLS: Occupancy sensors detect activity in a specific area, conserving energy by turning lights on and off depending on if the room is occupied or not.

MATERIAL SAFETY DATA SHEET (MSDS): A compilation of information required under the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard on the identity of hazardous chemicals, health, and physical hazards, exposure limits, and precautions. Section 311 of SARA requires facilities to submit MSDSs under certain circumstances.

MERBROMIN: An iridescent green, water-soluble powder, $C_2O_8Br_2HgNa_2O_6$, that forms a red solution when dissolved in water; used as an antiseptic and as a germicide.

MERCURIC OXIDE: A slightly crystalline, water-soluble, poisonous compound, HgO , occurring as a coarse, orange-red powder (red mercuric oxide) or as a fine, orange-yellow powder (yellow mercuric oxide); used chiefly as a pigment in paints and as an antiseptic in pharmaceuticals.

MERCURY (Hg): Heavy metal that can accumulate in the environment and is highly toxic if breathed or swallowed.

MERCURY POISONING: A toxic condition caused by ingesting or inhaling mercury; affects the brain, heart, lungs, kidneys, nervous system, and immune system and can in serious cases, lead to death.

MICROORGANISM: Any organism too small to be seen by the naked eye, such as bacteria, protozoa, and some fungi and algae.

MOLD: A growth of minute fungi commonly as a furry coating, caused by moisture. Mold can form on any surface where moisture is present including: food, wood, paper and carpet.

MUNICIPAL SOLID WASTE (MSW): Common garbage or trash generated by industries, businesses, institutions, and homes.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA): the division of the U.S. Department of Labor that sets and enforces occupational health and safety rules.

OFF-GASSING: The emission of gaseous pollutants.

ORGANISM: Any form of animal or plant life.

PEST: An insect, rodent, nematode, fungus, weed or other form of terrestrial or aquatic plant or animal life that is injurious to health or the environment.

PESTICIDE: Substances or mixture thereof intended for preventing, destroying, repelling, or mitigating any pest. Also, any substance or mixture intended for use as a plant regulator, defoliant, or desiccant.

PESTICIDE ENVIRONMENTAL STEWARDSHIP PROGRAM (PESP): A voluntary program that forms partnerships with pesticide users to reduce the potential health and environmental risks associated with pesticide use and implement pollution prevention strategies.

POROUS: Admitting the passage of gas or liquid through pores.

RECYCLE: Minimizing waste generation by recovering and reprocessing usable products that might otherwise become waste (i.e., aluminum cans, paper, and bottles, etc.) into new products.

REGULATED ASBESTOS CONTAINING MATERIAL (RACM): Friable asbestos material or nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading or has crumbled, or been pulverized or reduced to powder in the course of demolition or renovation operations.

RENOVATION/REMODELING: To restore to good condition or repair; associated with the construction of buildings.

Glossary of Terms *(continued)*

RETROFIT: Equipment, such as a Diesel Oxidation Catalyst (DOC) or Diesel Particulate Filter (DPF), installed on a vehicle just prior to or after it has been serviced. Retrofits can significantly reduce harmful air emissions, improve the working environment of those operating diesel powered equipment, and reduce smoke and odor from diesel engines.

RISK MANAGEMENT: The process of evaluating and selecting alternative regulatory and non-regulatory responses to risk. The selection process requires the consideration of legal, economic, and behavioral factors.

SOURCE REDUCTION: Includes any practice that reduces the quantity and/or toxicity of pollutants entering a waste stream prior to recycling, treatment, or disposal.

SPORE: A small, usually single-celled reproductive body that is highly resistant to desiccation and heat and is capable of growing into a new organism, produced especially by certain bacteria, fungi, algae, and non-flowering plants.

SYNERGISTIC: Working together as subsidiaries of a corporation, cooperating for an enhanced effect.

THIMEROSAL: A cream-colored, crystalline, water-soluble powder, $C_9H_9HgNaO_2S$, used chiefly as an antiseptic or preservative.

TOXICITY: The degree to which a substance or mixture of substances can harm humans or animals. Acute toxicity involves harmful effects in an organism through a single or short-term exposure. Chronic toxicity is the ability of a substance or mixture of substances to cause harmful effects over an extended period, usually upon repeated or continuous exposure sometimes lasting for the entire life of the exposed organism. Subchronic toxicity is the ability of the substance to cause effects for more than one year, but less than the lifetime of the exposed organism.

VERMICOMPOSTING: Also known as worm composting. Using worm bins to recycle food scraps and other organic materials into vermi-compost, a soil conditioner.

VOLATILE ORGANIC COMPOUND (VOC): Any organic compound that participates in atmospheric photochemical reactions except those designated by U.S. EPA as having negligible photochemical reactivity.

VOLATILIZE: Pass off as vapor.

WASTE MINIMIZATION: Measures or techniques to reduce the amount of waste going into the waste stream; also applies to recycling.

WEATHER STRIP: A narrow strip of metal, wood, or rubber placed between a door or window and its frame to exclude rain, wind, weather effects, etc.