



# Taking Better Care of Your World Begins at Home

## Introduction

When we talk about the environment, we usually think about the health of the planet. While it is important that we think about the earth, it is also important to consider the issues and challenges that can exist in our indoor environments.

In this lesson, students will explore the micro-environment that exists in their own homes. Through the lesson and activities, students will learn about the factors that affect indoor air quality.

## National Science Standards

This lesson and its extensions address the following national science standards:

- Science as Inquiry (Content Standard A)
- Science in Personal and Social Perspective

## Grade levels 5-6

**Lesson Duration:** One 30- to 45-minute period for the core discussion and activities. Extensions can include additional in-class work, independent assignments, or science fair projects.

**Goal:** Students will learn about the factors that affect the quality of the air in their homes and other indoor locations, and the possible effect on their health.



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To complete this lesson, you should have:

- Student Pages, available as a separate PDF
- Optional: Print and cut cards for sorting activity (see “Card Sorting Activity”)

## Lesson Description and Outline

### Introduction

Ask students: Do you think that air is more polluted outside or inside?

Explain: According to the Environmental Protection Agency, levels of air pollution in the home can be two to five times higher than outdoor levels. Sometimes, this can be as high as 100 times higher. (Source: Environmental Protection Agency, 2002)

Ask students to brainstorm the possible sources of these pollutants. They include:

- Dust and dirt.
- Mold.
- Smoking.
- Cleaners, pesticides and other household chemicals.
- Chemicals from particle board furniture, carpets and other home furnishings.

Ask: What might this “indoor pollution” mean to you and your family? Answers might include:

- The family is breathing in these pollutants.
- They can settle on what you eat, touch, work with, etc.
- Unpleasant smells.
- Allergies.
- Asthma.
- Headaches and other symptoms.

Transition: Explain that pollution can occur indoors as well as outdoors.

### Resource examination

Distribute the student packets on indoor air quality and ask them to read the first page.

The packet contains information on:

- Sources of indoor pollution.
- Different types of indoor pollutants.
- Tips to improve the air quality of their homes.
- A worksheet that students can use to “audit” their homes and capture ideas to improve it.

Ask: How does this air quality issue affect the people who live in that environment?

### Discovery discussion

Ask students how they could help improve the air quality in their own homes. (Option: assign them to work in small groups).

Ask them to use the “Indoor Air Quality Worksheet” to capture their ideas.



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## Option: After students present their ideas, have them rank order them

Have students rank their ideas by:

- Ease to implement.
- Ability to get other people to go along.
- Expense.
- Other categories that they determine.

...and discuss how receptive their parents might be.

## Wrap-up

Ask students: How has this experience changed the way they think about their homes?

Ask them about some of the things that they may want to do differently because of this activity.

## Other information to share

Here are some more facts that you might want to share with students during this discussion:

- Health effects from indoor air pollutants may be experienced years after exposure. (Source: Environmental Protection Agency, 2002)
- High temperatures and elevated humidity levels can increase concentrations of some pollutants. (Source: Environmental Protection Agency, 2002)
- Asthma, which can be triggered by indoor air pollution, annually accounts for an estimated 14.5 million lost work days for adults and 14 million lost school days for children.

## Extensions

You can stretch this lesson with the following activities, or present them as ideas for students to consider independently.

- Ask students to use the worksheet in the packet to perform a more complete air quality audit at home.
- Card-sorting activity. (see “Card Sorting Activity”)
- Do Internet research to find household products for specific tasks, such as washing floors, killing weeds, etc., that do not use harmful chemicals. These can include products for purchase, or that can be made at home.
- If a student knows he/she has sensitivities or allergic reactions, ask him/her to track symptoms according to environment (for example, time spent in different locations—home, school, other homes, store/mall, outdoors).
- Ask students to determine their own carbon footprint. (see “Carbon Calculator Teacher Pages”)



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# Card Sorting Activity

## Preparation

Print the cards **on the following page** on card stock and cut them on the lines.  
Make one set for every four to eight students.

## Activity instructions

Divide the class into subgroups of four to eight. Give each subgroup a set of the cards.  
Tell each group to pair them by item and the item's potential affect on indoor air quality.

## Answer key

Item	Affect
Smoking	Fills the air with particulates and chemicals and produces ash that can become airborne.
Furnace filters	When changed regularly, help remove dust and other particles from air in the house.
Particle board furniture	Release formaldehyde, a known carcinogen.
Rugs and carpets	Trap or generate dust, pet dander and release them into the air.
Dampness	Allows molds to grow.
Aerosol sprays	Disperse chemical droplets directly into the air.
Cleaners and other household chemicals	Produce fumes when used, and can leave residues.



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