

Learners Take Action to Reduce the Risk of Asthma

Lesson 2: What causes asthma? Identifying Asthma Triggers

Teacher Instructions, Introduction, and Student Worksheets



Objectives for Lesson 2:

After completing the lesson the students will be able to:

- Explain what an asthma trigger is and how it affects breathing.
- Identify where a person can be exposed to asthma triggers.
- List at least 5 asthma triggers.

Teacher Preparation: Materials

1. Empty spray bottle
2. Water
3. Vinegar
4. Copy of the video *Breathing Freely: Controlling Asthma Triggers* available for downloading and/or watching online from the website <http://www.epa.gov/asthma/videos/bathingfreely.wmv> or on YouTube www.youtube.com/watch?v=tjV3dm4Y8FE
5. Copies of the Student Worksheets for each student.
6. Copies of the *Asthma Trigger Factors Checklist* for Take Home Activity

Introduction to Asthma Triggers

Read to Students: In the first lesson we learned that asthma is a disease that affects the lungs and causes the airways to narrow and get less air than usual. This causes shortness of breath, wheezing, and coughing. We learned that a mild shortness of breath from asthma can be treated, but untreated asthma can be very serious. It can even be life threatening if a person stops breathing and doesn't get to a doctor right away. We know that there is no cure for asthma, but it can be treated. People who take action to control their asthma can lead a normal life. In this lesson we are going to learn how to identify the asthma triggers that cause asthma attacks.

Warm-Up Activity

Conduct this activity with the class: *Below is a warm up activity to engage students in thinking about how people can be exposed to things in the environment that can affect a person's ability to breathe and "trigger" an asthma attack.*

Experience: How are people exposed to asthma triggers?

Activity: Fill an empty spray bottle with a mixture of half water and half vinegar. Spray this mixture into the air. Ask the students to raise their hand as soon as they smell the vinegar in the air.

Explain: This activity is designed to help us better understand how easily and quickly people are exposed to asthma triggers, how they travel through the air, and how asthma triggers can be anywhere in the environment, both indoors and outdoors.

Ask: What did you learn about being exposed to asthma triggers from this demonstration? **Probe:** It travels quickly through the air; affects a person without being seen; affects a person without knowing they are exposed. Explain that being exposed to asthma triggers can cause some people to have difficulty breathing and may lead to an asthma attack. Note that some triggers can't be seen or smelled.

Class Activity

Watch the Video: *Breathing Freely: Controlling Asthma Triggers*

<http://www.epa.gov/asthma/videos/bathingfreely.wmv> or on YouTube www.youtube.com/watch?v=tjV3dm4Y8FE This video will provide a comprehensive overview of everything the students learned in Lesson 1 and will prepare them for activities in Lessons 2 and 3.

Ask: How does asthma affect health? After watching the video, please name 3 things you learned about how asthma affects health. **Ask:** What triggers asthma attacks? Please name three things you learned from the video that trigger asthma attacks. (*The following worksheets will be available in a separate booklet that teachers can use to make copies for students to use in class.*)

Student Worksheets: Lesson 2

Teacher: Read aloud the vocabulary words at the beginning of each section of Maria's Story to help the students pronounce the words. Ask the students if they know what the vocabulary words mean. Discuss the meaning of each word.

Student Activity 1: Maria's Story - What are asthma triggers?

Vocabulary: Healthy Homes, United States Environmental Protection Agency, regulates, trigger

Maria works on a **Healthy Homes** project to make sure that people have housing that is safe and doesn't cause health problems. **Healthy Homes** is a project of the **United States Environmental Protection Agency (EPA)**. The EPA is a government agency that **regulates** laws to keep our environment safe. Maria was very worried and fearful about the asthma triggers in Thomas's environment that were causing his asthma attacks. She talked to her doctor to learn about things that can **trigger** or cause an asthma attack or make asthma worse. She learned that eating or breathing something that doesn't harm most people can trigger or cause an asthma attack in others.

Vocabulary: Exposed to, allergic reaction, allergies, indoor air pollution, dust mites, chemicals, toxic or hazardous, mold, cockroaches, second hand smoke.

Maria learned that there are many things in the environment that people are **exposed to** that can trigger an asthma attack. These things cause an **allergic reaction**, which is the body's way to fight getting sick from something in the environment. She learned that both she and Thomas have **allergies** to **indoor air pollution** from things in the home. Some of these things are **dust mites** (tiny bugs too small to be seen that are found on floors, carpets, and bedding), pet fur, and household cleaning **chemicals** that are **toxic or hazardous** and can hurt you or make you sick. She also learned that green or black **mold** that grows on things that are wet or damp can cause an asthma attack. Other things that can cause an asthma attack are **cockroaches** (bugs that hide near food and in dark damp places), mice or rats, cold air, or running and playing hard. **Second hand smoke** from being near a person who is smoking can affect a person's health and also trigger an asthma attack.

Vocabulary: outdoor air pollution, factories, exhaust, particle pollution, ozone, common cold, prevention

Outdoor air pollution from smoke stacks on **factories** where things are made and **exhaust** coming out of the tailpipes of cars and trucks can cause an asthma attack. Outdoor air also has **particle pollution** made up of *very tiny* pieces of dust in dirty air that you take into your lungs. **Ozone** is another asthma trigger that can be in the air on warm days. It comes from factories and car exhaust and stays in the air when the air is not moving.

One of the most common asthma triggers for children is getting sick from the **common cold** with a runny nose, sneezing, and coughing. The most important thing Maria learned is that **prevention** can stop bad things happening, like asthma attacks. She talked to her doctor to help her find out what triggers make Thomas's asthma worse and how she can keep him away from things that make him wheeze or cough.

Student Activity 2: Reading about Asthma Triggers Directions:

Read the **Fact Sheet** below to learn about asthma triggers.

Identifying Asthma Triggers

Smoke:

Smoke from a cigarette, pipe, or cigar. Wood smoke from a stove, fireplace, or camp fire. Second-hand smoke breathed out by a smoker.

Dust Mites:

Bugs too small to be seen that are found in every home. Dust mites live in mattresses, pillows, curtains, and covers on beds. They live in carpets, fabric covered furniture, clothes, and fuzzy stuffed toys.

Pets: (Cats, dogs, hamsters, birds)

Skin flakes, urine, and saliva from a pet's tongue.

Molds:

Molds grow on wet or damp materials in kitchens, bathrooms, and basements. Mold sends out tiny spores like seeds that are spread by the wind outdoors and by air indoors.

Pests:

Droppings or body parts of bugs, cockroaches, or rodents such as mice or rats that are found near food and garbage.

Exercise:

Running around, exercising, and laughing hard.

Weather:

Hot, cold, or rainy weather.

Chemicals:

Chemicals used for cleaning, paint smells, and those used in auto and machine repair.

Ozone and Air Pollution:

Smoke and exhaust from cars, trucks, motorcycles, and factories.

Student Activity 3: Vocabulary Practice - Defining Words

Directions: Write the definitions (meanings) in your own words, from memory, by looking at the reading about asthma in Maria's Story, or by using a dictionary.

healthy homes:

asthma trigger:

allergic reaction:

toxic or hazardous:

particle pollution:

United States Environmental Protection Agency:

Student Activity 4: Reading Comprehension

Ask: Let's talk about any of the words on the fact sheet that are unfamiliar that you don't know about? Let's discuss them together (or divide the students into small groups to discuss.)

1. What are cleaning chemicals? Can you name a few?
2. What is urine from a pet and what is saliva?
3. What is ozone? Have you ever noticed days when the air looks or smells bad?
4. How are people exposed to mold? What are spores?
5. Have you ever been bothered by second hand smoke? What did you do about it?

Directions: Circle the best answer to each of the following questions after reading about asthma triggers.

1. What is an allergic reaction?

- a. Something that happens when people are outdoors.
- b. Happens to a person who has the flu.
- c. The body's way to fight getting sick from something in the environment.
- d. Something that a person can't avoid.

2. What are asthma triggers?

- a. Things that make it difficult to breathe.
- b. Things that cause asthma attacks.
- c. Things that make a person wheeze or cough.
- d. All of the above.

3. Which of the following is not an asthma trigger?

- a. Household cleaning chemicals
- b. Cockroaches
- c. Clean air
- d. Dust mites

4. Which of the following is a good pet for a child with asthma?

- a. Short haired dog
- b. Parakeet bird
- c. Mouse in a cage
- d. Goldfish

Directions: Circle *True* or *False* to the statements below.

1. A person may have only one asthma trigger or several things that trigger asthma.

True False

2. You can't do anything to protect yourself or your child from asthma triggers.

True False

3. A person with asthma can't live a normal life.

True False

4. Talking to a doctor is important if a person thinks they may have asthma.

True False

Student Activity 5: Matching Definitions

Directions: Use the following words to complete the definitions below.

Dust mites
Ozone

Mold
Exhaust

Cockroaches
Prevention

_____ can stop bad things from happening.
_____ tiny bugs too small to be seen.
_____ from smoke stacks and tailpipes of cars and trucks.
_____ hide near food and in damp dark places.
_____ green or black stuff that grows on things that are wet or damp.
_____ from exhaust in the air on warm days when the air isn't moving.

Student Activity 6: Writing about Asthma

Directions: Write a short answer to each of the questions below. You can write from your personal experience or something you learned about asthma triggers in class today.

Question 1: What triggers an asthma attack?

Question 2: What is outdoor air pollution? Where does it come from?

Student Take Home Activity: Check your home for asthma triggers.

Directions: Take home the following checklist and go through your home to answer **Yes** or **No** to each question. **Please bring your checklist to the next class. We will discuss what trigger factors you found and talk about what you can do about them.**



Asthma Trigger Factors Checklist

This checklist will help you look for asthma trigger factors in your home environment that cause asthma or can lead to an asthma attack. It will help you think about changes you can make to reduce the factors that cause asthma. Making changes will improve your health and the health of family members.

	Yes	No
General Household Issues		
Does anyone in your home smoke?		
Do you have pets in your home?		
Do you use wood to heat your home?		
Does your home ever smell damp?		
Do you use scented candles or perfume sprays to remove smells in your home?		
Do you have walls or ceilings with water stains or mold?		
Do you have wall-to-wall carpeting?		
Do you have area rugs?		
Do you have fabric covered furniture older than 5 years?		
Does your clothes dryer vent air inside your home?		
Kitchen		
Do you have leaking water under your kitchen sink?		
Do you have mold under your kitchen sink?		
Have you seen mice or mice droppings?		
Have you seen cockroaches or cockroach droppings or body parts?		
Does your kitchen have a working exhaust fan?		
Do you have carpeting in your kitchen?		

Bathroom		
Do you have water leaking under your bathroom sink?		
Do you have mold in your bathroom under the sink or near the toilet, bathtub or shower?		
Do you have carpeting in your bathroom?		
Does your bathroom have a working exhaust fan?		
Bedroom		
Do your bedrooms have wall-to-wall carpeting?		
If you have children, do they sleep with stuffed toys?		
Do you wash the stuffed toys weekly to reduce dust mites?		
Do you wash your sheets, blankets, and pillows weekly to reduce dust mites?		
Do you or other family members sleep with pets?		
Is there mold on the walls?		
Basement		
Does your basement get wet when it rains?		
Does it dry out in 2-3 days?		
Does your basement smell of mold?		
Do you see mold on the walls, ceiling, or floor?		
Does your basement have a dirt floor?		
Do you have a dirt crawl space beneath your home?		
Do you use your basement for living space?		

Report Back to Class: The report back to class about what triggers the students found in their homes will be the **Warm-up Activity** in **Lesson 3: What can you do about asthma? Taking action.**