

## **Student Voice: Asthma in OUR World**

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**Abstract:** This unit is created to give students insight into the environmental effects on student health with a specific focus on the increasing effects of asthma on today's youth. Students will learn, research, analyze and create their own content documenting and presenting their findings to inform, teach, and inspire others to learn and make a difference in environmental improvement.

**Keywords:** *asthma, triggers, environment, environmental, asthma triggers, asthma attack, wheezing, symptoms, chronic, inhaler, irritants, respiration, breathing*

**Grade(s):** 9<sup>th</sup> grade (can be extended up to 12<sup>th</sup> grade and down to 8<sup>th</sup> grade)

### **Unit Content and Teaching Strategies**

#### **Unit Objective(s):**

The objective of this unit is to inform, inspire and motivate students to want to learn more and do more to make a difference in the everyday lives of their peers by collaborating for a cause. Students will learn to express their opinions while having respect for the opinions of others. This will be done through discussion, research and respect. Sharing opinions is not about debating, it is about coming together, sharing different viewpoints, agreeing on some points and agreeing to disagree on others, but to do so intelligently and respectfully. Students will also learn how to formulate ideas and hypotheses and how to present their knowledge in a structured framework of understanding via presentation or written expression (letters to their politicians).

There is a positive correlation between research and teaching. Research enhances the student experience and educates students on how they learn best. The ability to research also gives students the tools to improve and expand their learning as they progress through their educational careers. Teaching research skills gives the teacher the opportunity to address any gaps in students' skills and knowledge. This is done by giving students, as a whole and individually, the know-how in research and the ability to advance their own knowledge and learning. The ability to research empowers student learning. As an educator, it is important for me to assess my students' learning. Assessing student learning involves not only determining how a student learns but also giving them the tools to be an active participant in their learning. There are so many things in this world that are beyond the control of students, learning should not be one of them. Students being able to take an active role in their learning, thus being able to control how they learn helps to develop not just their research skills, but life skills over all, as the

components of research and learning can be applied to all areas of their lives. Additionally, insight gained teaching students how to research will help to inform my teaching practices and style for years to come.

Asthma has become one of the most prevalent healthcare issues affecting minorities in metropolitan communities. While there have been advancements in asthma diagnosis and research, the effects of the inner city living in many communities continue to have adverse effects on individuals, specifically children. While no one really knows what causes asthma, and it can vary from person to person, environmental factors have been shown to be important asthma triggers. In recent years it has been found that the management of asthma has been challenged by the increase of and exposure to indoor allergens such as dust mites, dogs, cats, cockroaches and exposure to mice and mouse droppings. Within the inner city of Philadelphia there are many students that live in conditions that could potentially trigger asthma or cause asthma like symptoms. Additionally, within the public schools in the city of Philadelphia, many schools have problems with pests, water intrusion and poor ventilation systems which can also exacerbate asthma and cause asthma like symptoms. When exposure in home settings is coupled by exposure in school settings, children are at an alarmingly increased rate of developing asthma.

Reason: I have observed, in recent years, the increasing number of students that have health flags on their academic profiles, specifically for asthma. It has become apparent to me that there may be significant issues facing our youth in regard to asthma. According to the National Heart, Lung and Blood Institute, asthma is a chronic (long-term) condition that affects the airways in the lungs, (2020). Asthma can be hereditary but there have been studies that indicate that asthma can also be attributed to environmental conditions, such as pollution (NHLBI, 2020). Students with asthma can face challenges and limitations in what they are able to do physically and when and where they are able to do it sometimes needing to miss school. Missed school days has a significant impact on learning.

With this curriculum unit, I would like to guide students in the research of what the environmental causes of asthma are/could be, with a focus on pollution. In this process students will first learn about asthma, what it is, how it effects the body, who suffers from asthma, the degrees of asthma, and specifically asthma affecting their age group (14-18). Students will research, discuss, analyze, and infer to formulate ideas and hypotheses around teenage asthma. In this process students will determine the possible causes, exclusive of heredity, that could be attributed to the uptake in asthma cases. This unit will culminate in students writing letters to politicians, documenting and presenting their research and findings. The hope is to have an audience and a chance to present a presentation and findings that they will compile, documenting their research and requesting politicians to make a change. (Student voice).

Standards: CC.1.4.9–10.J, CC.1.5.9–10.F , CC.1.5.9–10.D, CC.1.5.9–10.C, CC.1.5.9–10.A, CC.1.4.9–10.W

**Question:** Does pollution play a part in the worsening of asthma and asthma symptoms for our youth?

**Explore:** Can asthma be caused by pollution? Does pollution exacerbate asthma or asthma symptoms? What can students do to make a difference?

- Students will explore these questions through research, writing, debate, analysis and presentations

### **Classroom Activities**

#### **Introductory Lesson: Opinion Activity**

CCCS: (Common Core Curriculum Standard): CC.1.4.9–10.J, CC.1.5.9–10.F , CC.1.5.9–10.D, CC.1.5.9–10.C, CC.1.5.9–10.A, CC.1.4.9–10.W
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Language Arts

**Goal:** Provide a safe environment for students to share opinions about controversial topics and to understand the opinions of others.

**Objectives:** Students will...

- Define their own stance on a controversial topic
- Actively listen to a variety of perspectives
- Understand different perspectives

**Time required:** 45 minutes

#### **Procedure:**

- Give each student the Opinion Activity sheet and have them circle the option that best represents their opinion
- Do NOT write names on the students' sheets
- Go outside (or in the classroom) create a Likert scale on the ground, ranging from strongly agree to strongly disagree
- Choose one statement from the Opinion Activity student sheet and have a student read it out loud
- Students should form a line behind the sign that represents their opinion
- Ask one student from each line to explain why they are standing on that spot.

- As if any of the students would like to move based on the various rationales given
- **IMPORTANT!** This is not a debate. Do not allow students to complete this in a point-counter point style. Each line gets the opportunity to share their opinion.
- **IMPORTANT!** Be a neutral facilitator. It is very important that students understand that there is not one right answer. Be very aware of your responses as each student shares their opinion; it is critical to have the same response to each opinion.
- Debrief the opinions shared by repeating what was stated
- Choose another statement from the student sheet and ask the student to read the statement aloud
- Have the students switch papers several times.
- They must now proceed to the sign that represents the opinion reflected on that sheet of paper
- One student from each sign should explain the rationale for the opinion. Only allow students to share the opinion represented on the sheet of paper they are holding – this is not the time for them to share their own opinions.
- Have students hold string from front to back and fold over excess
- Place string on the ground, have students move away from the line in order to see the graph
- Ask students to raise their hands if they heard opinions based on facts
- Ask students to raise their hands if they heard opinions based on emotions
- Ask students to raise their hands if they chose to move after hearing the various opinions.
- Return to the class (or to your seats) and discuss with students how and why people change or do not change their opinions. Ask them if they have ever been swayed to change their opinion on a controversial topic.

### **Homework:**

- Students should write a paragraph explaining when they had their own opinion changed based on the opinion of another. Students should have/will learn(ed) that their opinions can change based on 'data' provided by others whom they trust.

### **Assessment:**

- Participation in activity

Opinion Activity – Student Sheet

	<b>STRONGLY AGREE</b>	<b>AGREE</b>	<b>UNDECIDED</b>	<b>DISAGREE</b>	<b>STRONGLY DISAGREE</b>
1. Toxic wastes should be disposed of in the state they originated.	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
2. Smokers should be allowed to smoke in any public place.	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
3. People with asthma should not exercise, play sports, or participate in gym class	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
4. Animals should not be used in medical research.	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
5. Recycling should be mandatory.	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
6. People with asthma should not have pets/get rid of their pets.	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
7. Bike riders should be required to wear a helmet.	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
8. Asthma is not a big deal and is easily controlled.	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
9. Cigarette smokers should be allowed to smoke in public places.	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>
10. Asthma can be caused by the environment.	<b>SA</b>	<b>A</b>	<b>U</b>	<b>D</b>	<b>SD</b>

Lesson 1: What is Asthma? How asthma affects health.

Objectives:

- Explain what asthma is
- Recognize how asthma affects health
- Identify asthma triggers

Preparation:

1. Straws for warm-up activity
2. Copies for students of the brochure: Help Your Child Gain Control Over Asthma
3. Copies of the student worksheets for each student

### **Introduction to Asthma**

**Read to students:** The United States Centers for Disease Control and Prevention, reports that over 16 million adults and almost 7 million children in the United States suffer from asthma. Asthma is the most common childhood illness. One out of every 13 school age children have asthma. Asthma is more likely to affect adults and children who live in poverty and people with less than a high school education than people with higher incomes and better education. These lessons have been written to help people with asthma, or who have family members with asthma, learn about what asthma is and what you can do to protect yourself and family members from asthma attacks.

### **What is asthma?**

What is asthma? Read to Students: The symptoms of asthma are easy to learn. There are many ways to protect people from asthma to help them lead a full and active life. In the following three lessons we are going to learn that there are many ways that you can control asthma.

1. Learn the symptoms of asthma.
2. Find out about asthma triggers that cause asthma attacks.
3. Find out how to reduce exposure to asthma triggers.
4. Visit a doctor and get the right medicine to control asthma for your family members that have asthma.
5. Learn how to use rescue medicine in case of a sudden asthma attack.

## **Warm-Up Activity**

**Conduct this activity with the class:** *Below is a warm up activity to engage students in thinking about asthma, what it feels like to have asthma, and how it affects a person's ability to breathe.*

**Experience:** What does it feel like to have asthma?

**Activity:** Breathe through a bent straw.

This activity is designed to help students better understand the difficulties that people with asthma have in breathing. Teachers distribute a plastic straw to each student in the class. Ask the students to breathe through the straw. Then ask them to bend the straw in the middle, keep the straw bent and try to breathe through the straw while it is bent.

**Ask:** What happens when you try to breathe through the bent straw? Was it harder to breathe out than it was to breathe in? Explain that difficulty breathing is a symptom of asthma. How does it make you feel?

**Ask:** Do any of you have asthma or do any of you know someone who has asthma? Take a moment to think about your experience with asthma; what it's like, how it has affected their life or the life of the person they know. (Reflection – students are not sharing out as this may be too personal for them.)

## **Class Activity**

Provide each student with a copy of the brochure *Help Your Child Gain Control Over Asthma*

Teacher: Read pages 1-2 to introduce the brochure to the class

Students: Read pages 3-10 of the brochure. (The rest of the brochure will be used in lesson 2 and 3. Brochure can be read as a whole class exercise 'Round-Robin or independently).

**Ask:** How does asthma affect health? Name 3 things that you learned about asthma from reading the brochure. (Explain that the information in the brochure is the same for both adults as well as children who have asthma.) What are some of the warning signs that let you know that your child or a family member has asthma?

## Student Worksheets: Lesson 1

**Directions to students:** Read “Maria’s Story” all the way through. In the following worksheets you will be asked to answer questions about the story. You can look back through the story to find the answers.

### Student Activity 1: Maria’s Story – What is Asthma?

**Vocabulary:** (*introduce words and discuss meaning relative to the topic*): **breathing, wheezing, asthma, symptoms, airways, narrow, asthma attack, exhale, lungs inhale, chronic, recurring.**

Maria got a telephone call from the nurse at her son’s school. Thomas was having trouble **breathing** and a **wheezing** sound was coming from his chest. The nurse asked if he has asthma. She noted that asthma can cause **symptoms** of coughing, wheezing, and shortness of breath. Asthma causes the **airways** in the chest to swell and get **narrow** or small making it difficult to breathe. She thought Thomas was having an **asthma attack** because he was having difficulty **exhaling** air from his lungs and he coughed when he inhaled air into his **lungs**. Maria told the nurse that both she and her son have asthma, a **chronic** illness that is **recurring** and happens again and again over a long period of time. She told the nurse that she gets scared because Thomas has asthma attacks often. He gets them at home and at school. He likes to run around outside with his friends, but his parents want him to stay inside because of his asthma attacks. It makes him unhappy.

**What leads to asthma attacks?**

**Vocabulary:** **environment, respiration, asthma triggers, Asthma Action Plan, medicine**

Maria called the doctor. The doctor thought Thomas was having an asthma attack because of conditions in the **environment** where he lives, goes to school, or plays that affect his **respiration**, or ability to breathe. He gave Thomas **medicine** to help him breathe and asked his parents to find out what things in Thomas’s environment are causing him to have an asthma attack. The things in the environment that cause asthma attacks are called **asthma triggers**. The doctor helped Maria learn about asthma triggers and they filled out an **Asthma Action Plan** to keep track of Thomas’s asthma triggers, the medicines he needs, and what to do when he has an asthma attack.



**Student Activity 2: 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 recalling what was discussed and how the words were used.

**asthma:**

**wheezing:**

**asthma attack:**

**chronic:**

**asthma triggers:**

**symptoms:**

**Student Activity 3: Matching Definitions**

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

**respiration**

**Asthma Action Plan**

**airways**

**environment**

**medicine**

**narrow**

\_\_\_\_\_ in the chest allow a person to breathe

\_\_\_\_\_ helps a person keep track of their asthma

\_\_\_\_\_ conditions around us – the air, water, soil, and living things where we live, work, go to school, or play.

\_\_\_\_\_ the act of breathing -taking air into the lungs and letting air out of the lungs.

\_\_\_\_\_ happens to the airways when a person has an asthma attack

\_\_\_\_\_ makes a person feel better and helps them get well when they are sick.

#### **Student Activity 4: Reading about Asthma**

Directions: Read the fact sheet below to learn five important things you should know about asthma. This information will help you to answer questions in Activity 5. Reading Comprehension. You can look back through the fact sheet to find the answers.

##### **Five Important Things You Should Know About Asthma**

1. You can control your asthma
  - You don't need to miss school, sports, or other activities.
2. Asthma is a disease that makes the airways in your lungs inflamed and swollen
  - During an asthma flare-up (attack), your airways are swollen and sensitive.
  - You can control the swelling with medicine, and by staying away from things that bother your airways.
3. Things that bother your airways are called "triggers"
  - "Triggers" cause asthma flare-ups.
  - Smoke, pollen, dust, cold air, toxic chemicals, pets and pests, and exercise can be triggers.
  - Every person with asthma has different triggers.
  - Learn how to avoid your triggers and prevent flare-ups.
  - Medicine taken as directed by your doctor can help prevent your asthma from flaring up.
4. Work with your doctor to manage your asthma
  - Know what to do every day to avoid flare-ups.
  - Know what to do right away if you have a flare-up.
5. If someone you care for or live with has asthma, don't smoke
  - Smoke is a common trigger and can cause asthma to flare up.
  - If you or someone you care for smokes, get help to quit smoking.
  - You can get free help at 1-800-784-8669.

**Student Activity 5: Reading Comprehension**

**Ask:** Are there any words you just read that were unfamiliar? Let's talk about them together.

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

1. What is asthma?
  - a. A noise a person makes while breathing
  - b. The way a person breathes when they are scared
  - c. An illness that causes the airways to swell and get tight
  - d. Something a person gets from running too much
  
2. What can trigger an asthma attack?
  - a. Being allergic to your cat
  - b. Being near someone who is smoking.
  - c. Being inside a room that is dusty.
  - d. All of the above.
  
3. How is asthma treated?
  - a. By eating peanuts.
  - b. By following the advice in an Asthma Action Plan that your doctor gives you.
  - c. By staying inside when the weather is bad.
  - d. By not running too much.
  
4. What can you do about asthma?
  - a. Drink herbal tea.
  - b. Buy cough syrup from a store.
  - c. See a doctor to get the medicine you need.
  - d. Take a warm bath.
  
5. Which one of the statements about asthma below is FALSE (not true)?
  - a. You can take control of your asthma.
  - b. Asthma makes the airways inflamed and swollen.
  - c. Smoking will not be a problem if you have asthma.
  - d. Things that cause asthma are called "triggers." e. A doctor can help you manage your asthma.

List 3 symptoms that appear when a person has asthma: 1) \_\_\_\_\_

2) \_\_\_\_\_ 3) \_\_\_\_\_

**Student Activity 6: Writing About Asthma**

**Directions:** Choose one of the questions below and respond to it. Your response should be comprehensive of what was discussed/learned in the lessons and prior activities. You can include your personal experiences as well. Your response should be 2-3 comprehensive paragraphs.

**Question 1:** If you had asthma, how would it affect your life?

**Question 2:** If your child had asthma, how would it affect your child and family?

**Question 3:** Do you think asthma is caused by genetics, the environment or a combination of both?

**Student Take-Home Activity: What is it like to have asthma?**

Directions: Find a friend or family member who has asthma. Ask them the questions on the worksheet below and write down their answers. If the person does not want to answer a question, just skip to the next question. ***Bring your worksheet with you to the next class and prepare to report what you learned to the class.***

Worksheet Questions:

1. What does it feel like when you have an asthma attack?

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2. Are there things that make your asthma worse?

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3. Are there things that help with your asthma? Things you can do to have asthma attacks less often?

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4. Do you take medicine for your asthma? Yes or No

5. How does having asthma affect your life?

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6. Do you feel as though your asthma is caused or triggered by environmental factors?

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**Report back to class: What is it like to have asthma, causes & triggers?**

**Directions:** students will share out and discuss in groups (think-pair-share) what they have learned and if their thoughts on asthma and it's causes has changed.

### **Lesson 3: Asthma in MY World – Making a Difference**

This lesson will provide students with the opportunity to research and understand how asthma affects children in Philadelphia. Students will read provided article(s), and from those articles determine their point of voice. (Point of voice is by definition focus for expression of ideas and thoughts). Students will also discuss viewpoints, support facts, and review data.

#### **Materials:**

- Articles for reading/review
- Graphic organizers for organizing thoughts and ideas [from the article(s)]
- Chromebook/computer for research
- Formulate framework or plan for outreach/dissemination of information to politicians and the public (PPT, flyers, essays, speeches)

#### **Time:**

- 3-5 class periods (dependent on Teacher choice of project outcome (PPT, flyers, essays, speeches))

#### **Day 1:**

**Classroom Set-Up/Day 1:** Student desks should be arranged in a formation that promotes group discussion, i.e., circle, semi-circle.

#### **Lesson Structure:**

- **Do Now (10 minutes):** Students will be asked to respond to the following prompt, “How does asthma affect your community?” Say: ‘Consider everything we have discussed, family members, friends or even yourself (who may have asthma) in your response.’ Group discussion will ensue and teacher will record main points that students share in their writing.
- **Guided Practice (35 mins):** Students will be given an article to read individually. They are to highlight main points in the article with a highlighter. Additionally, they are to list 2-3 points that may affect them personally or someone they know, could also be things they did not know or realize about asthma.

ARTICLE: [Housing and Asthma Disparities](#) (in Philadelphia)

*Teacher initiated/guided --/Student-led discussion.*

## **Day(s) 2**

### **MINI – LESSON:** Structure of the Philadelphia City Government / Knowing MY Politician and Making a Difference

This lesson will help students understand the make-up of their city government. Students will learn the branches, number of members for each branch, the responsibility of each branch and who THEIR politician is (Representative).

Teacher: Share the resource below with students.

Time: 1 to 2 class periods

Due to the culminating activity of this lesson, it is important for students to understand the structure and framework of their local city government. Students should also have a general understanding of the three levels of the national government. Students will need to possess a working knowledge of both for the culminating activity of this overall lesson. With this knowledge students will be able to determine to which politician, and at which level, they will address their concerns.

### [How Philly Works: A Guide to City Government](#)

#### Overview of Information:

- 1) The Three Levels of Government (page 4)
- 2) Part II: The Mayor and Administration (page 5)
- 3) Part III: City Council (pages 10-15)
- 4) Part IV: Other Elected Officials (page 21)
- 5) Election Calendar (page 24)

#### Activity Prep:

- Students should be assigned to work in groups
- Each group should be given one of the areas listed above (option to do it this way: this will however, be the most expedient method of the dissemination of information)
- Within each group students are to read and discuss the information presented
- Groups should have a minimum of 4 students to allow for a Reader, Recorder, Reflector, Reporter.
- Each group will share out the summary of their topic



- Discussion on each
- Once all areas have been shared/discussed students will then discuss and determine to whom their culminating activity (letter/PPT/video) should be addressed

### **Day(s) 3 – 3/4**

- **Do now (10 minutes):** Students will be asked to respond to the following prompt, “How do you think environmental asthma triggers can be improved or managed?” (share-out and discuss)
- **Do now (succeeding days):** Class will open with a group sharing and re-cap of information researched, research process, PPT formulation. This allows students to share information and support each other in this process
- **Research/Read/Review Teams (2- 3 class periods):** PROJECT: “Making a Difference in OUR World”. Students will be grouped into teams of 4-5 students. Based on the main points derived from the previous day’s discussions, student teams will be given topics to focus on for research.
  - Students will research specific topic
  - Gather and organize data
  - Develop PPT

#### *\*Consider the following\**

- What changes can be made by politicians to improve conditions?
- Funding of programs to improve living conditions for low-income residents such as the [\*Built to Last\*](#) program.
- Converting public vehicles such as buses from diesel to either natural gas or electric.
- How can school conditions be improved? (air quality, mold prevention & remediation, pest control, cleaning, etc.).

### **Day 4/5**

- **Classwork:** Student presentation share of PPTs
- **Homework:** Each student will draft a letter to ‘Politicians’ detailing:
  1. Their experience in this learning process
  2. Their concerns about the environmental causes/effects/triggers of asthma
  3. Calling for a change and improvement ‘Call to Action’
  4. Suggestions for change/improvement

***Additional informational readings that can be assigned to students:***

["Dealing With Asthma Triggers"](https://teenshealth.org/en/teens/asthma-triggers.html) (TeensHealth.org/en/teens/asthma-triggers.html)

["Ozone, Air Quality, and Asthma"](https://teenshealth.org/en/teens/ozone-asthma.html) (TeensHealth.org/en/teens/ozone-asthma.html)

["Asthma-Safe Homes"](https://teenshealth.org/en/teens/asthma-homes.html) (TeensHealth.org/en/teens/asthma-homes.html)

["Can the Weather Affect a Person's Asthma?"](https://kidshealth.org/en/teens/weather-asthma.html?ref=search) (https://kidshealth.org/en/teens/weather-asthma.html?ref=search)

## Resources

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