

**NIH SEPA Environmental Health Investigators**  
**PhotoVoice Curriculum: Lesson 4**  
**Grade Level: Middle School**  
**Duration: 1 hour**

## **Environmental Health (with Guest Expert)**

### **Standards**

#### **NGSS:**

- MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- MS-ESS3 Human Impacts: Human activities have significantly altered the biosphere, but changes to Earth's environments can have different impacts (positive and negative) for different living things.
- MS-ETS1-1 Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

#### **NGSS Connections to CCSS:**

- CCSS.ELA-LITERACY.RST.6-8.3: Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

### **Objectives**

1. Students will be able to differentiate between healthy and unhealthy environments.
2. Students will identify pollution sources.

### **Materials**

- Projector/smartboard
- "Climate Change Basics" video: <https://www.tillandkeep.org/kids-environmental-crisis/>
- Guest expert- an environmental expert who can explain what the environment is, how it impacts health, as well as healthy and unhealthy environmental conditions, etc. (if possible)

### **Activities**

**Bell Ringer:** Play the Climate Change Basics video. Ask students to summarize the video and generate a solution to this issue presented. Example: What can we do to help our environment? Why does this concern us? *This can be related to the SHOWeD method, as it addresses developing solutions and drawing conclusions on how issues apply to our lives.* (5 minutes)



**Lecture:** Begin the session with introducing a special environmental expert guest. Go over the expectations of how to treat and respect a guest. Allow the guest to use this time to explain the environment, healthy and unhealthy environmental conditions (different types of pollution), and how to maintain a healthy environment. (20 minutes)

**Activity:** The environmental expert will show students scientific tools of their choice that they use to measure indicators of the health of the environment. Students should be given time to explore these instruments and practice using them. *Do not forget to continually monitor how students are behaving and to make sure they appropriately are using the instruments.* (20 minutes)

**Discussion:** Ask students to suggest places in their community where the class could go on a field trip to take photos of their environment. If needed, have a list of 2-3 predetermined locations to discuss. *Suggestions: school grounds, gas station or store, park, local business, or another area that may impact the health of the environment, etc.* (15 minutes)

### Resources

The New England Journal of Medicine discusses unhealthy environments, specifically about air pollution in the article *Air Pollution and Children — An Unhealthy Mix*: <https://pdfs.semanticscholar.org/b728/93a1a2a238955c8e192da0b412716ef27922.pdf>

The Southern Medical Journal explores noise pollution and humans' health in the article *Noise Pollution: A modern Plague*: [https://docs.wind-watch.org/Goines-Hagler-2007-Noise pollution a modern plague.pdf](https://docs.wind-watch.org/Goines-Hagler-2007-Noise%20pollution%20a%20modern%20plague.pdf)

The Next City website discusses tools that measure air pollution: <https://nextcity.org/daily/entry/tools-measure-air-pollution-airbeam-aircaster-epa>