



Creation Station Activity: Can You Hear Me?

Type of Teacher Tool: Small Group, or Individual

Targeted Grade Level(s): 6-8

Targeted Curriculum Areas: Human Body

Learning Objectives:

The learner will:

1. create two different types of headphones to help protect the ears from noise.
2. collect data by testing the created headphones and draw conclusions from their data.

Featured National Standards:

1. NS.5-8.5 Science and Technology In grades 5-8, all students should develop: • Comprehension related to abilities of technological design • Understanding about science and technology
2. CCSS.ELA-LITERACY.W.5.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
3. 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
4. 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Additional State and National Standards related to the content of our videos listed below for this lesson are also provided on the Educate.Today page where you find the video.

Resources/Materials Needed:

1. Anatomy 1: Explore! The Human Body: Eyes and Ears 1
2. Anatomy 2: Explore! The Human Body: Eyes and Ears 2
3. Assortment of classroom and craft materials to build the sound absorbing headphones: cardboard boxes, plastic bags, plastic food storage dishes, cotton balls, crumpled scrap paper, foam, scissors, tape, and paper clips.
4. A phone to play an alarm or a timer with an alarm

Teacher Instructions:

1. Discuss as a class how many students have been told at some time to turn down the music they're listening to. Discuss if protecting our hearing is important and discuss ways to

possibly protect our hearing. Discuss other noises besides listening to music that may cause hearing issues.

2. Small groups/individuals should research how earphones work and materials that earphones are made of and absorb sound.
3. Small groups should create two different types of earphones.
4. Small groups will need to find a quiet location. One student should turn on the sound source and another student should back away from the sound, stopping at 1 meter increments to listen for the sound. They should continue backing away from the sound until they can no longer hear the sound. Record this distance and repeat for anyone else in the group. Repeat for additional students. One student could record the data on the board for all students to see and copy. Then repeat the same steps using one of the types of headphones. Repeat with the other type. Be sure to collect data from the distance that they can no longer hear the sound.
5. Write brief conclusions about what they learned from using their created headphones.

Extension Activity Options:

1. Purchase two different types of headphones and test which works best.
2. Research how hearing aids work.

Assessment/Evaluation Options:

1. Check that students have created two different types of earphones.
2. Check that the students have collected data that clearly shows how their creations worked.
3. The students should clearly write about the conclusions they made from their data.