DMNS@HOME
Igniting Inspiration

Activity Guide: Straw Recorder

Purpose: Discover how sound changes with the length of an air column.

Museum Connection: We are curious creative and playful!

Main Idea:

K-1: As the straw gets shorter, the sound gets higher.

2-3: As the column of air gets shorter, the pitch gets higher.

4-6: Longer columns of air vibrate more slowly, causing a low pitch. Shorter columns of air vibrate more quickly, causing a higher pitch.

Background Information for Educator:

The pitch of woodwind instruments depends on the volume of air that is vibrating. As the volume of air decreases, the pitch gets higher. Most instruments have holes that the player covers to change the volume of vibrating air: open holes release air, resulting in a decreased volume and higher pitch, while closed holes keep the volume of air in the instrument and the pitch is lower.

Sources: https://scienceleadership.org/blog/the_recorder_woodwind_instrument

Materials:

Item	Quantity
Plastic straws	Any number
Scissors	One pair

Talking Points:

- Before you start, predict how the sound will change as you shorten the straw.
- What is the relationship between straw length and pitch?
- What are examples of musical instruments that use height or length of an air column to make sounds?

Step-by-Step Instructions (10 min):

1. Flatten one end of the straw by pinching it together. (see image 1, below)

2. Use scissors to snip both corners off the flattened end. Start the cut about ½ from the end of the straw and end just the cut just shy of the center of the straw at the end. (see image 2, below)
3. After both cuts are made, the new end of the straw will be a blunt triangle. (see image 3, below)
4. Press on the triangle end with lips and teeth and blow through the straw.
5. Cut small pieces off the end of the straw as you blow. Make observations of how the pitch changes as the straw becomes shorter.

Options:

1. Cut the end of another straw. This time, add small holes along the length of the straw. Cover different holes with your fingers. Does the pitch change? Can you play a tune?
2. Use a piece of paper to create an "amplifier" at the far end of the straw. (see image 4, below) How does the sound change?

Image 1

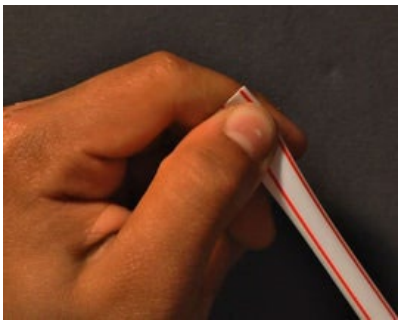

Image 2

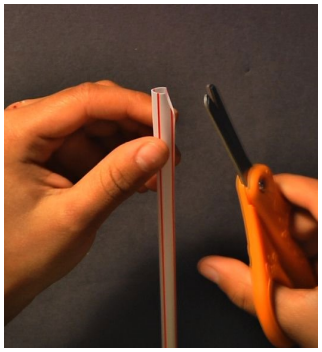

Image 3

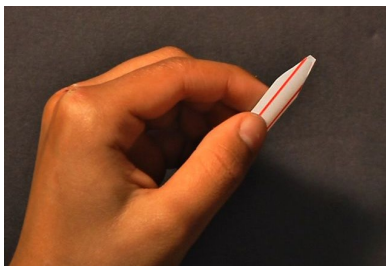

Image 4