Sound Science!
Activity 3: Straw Pan Flute

What you need:
- 9 or more straws (can be paper or plastic straws)
- Scissors
- Clear tape

Follow the steps below to learn how length can affect the pitch of sound waves and make your own straw pan flute musical instrument!

Preparation
- Gather your supplies. Be sure to have adult supervision when using scissors.

What to do
1. Line up the straws side-by-side so that all of the ends are aligned.
2. Using the scissors, cut the straws at an angle on one side. Each straw should be a different length.
3. Using the clear tape, tape the straws together to create a straw pan flute!
4. Now, blow through the straws. Which straws make higher or lower pitches?

What is happening?
Sound is produced by the vibration of air blowing across the open holes of the straws. The way a sound wave is received by your ear is known as its pitch. The wave that creates it is measured in frequency, or the number of sound waves that hit your ear in a certain amount of time. A high-pitched sound is made by a high-frequency wave and a low-pitched sound is made by a low-frequency wave.

The different lengths of each straw vibrate with different frequencies, creating different pitches of sound. Air blowing through the shorter straws moves quickly in one end and out the other. These vibrations move quickly and have a high frequency, which produces a high pitch. Similarly, the same amount of air moving through a longer straw takes longer to come out the other end. These vibrations move more slowly, have a low frequency, and produce a low pitch. As the length of the straw is reduced, the note produced has a higher pitch. This is because the column of air that vibrates gets shorter as you blow through the shorter straws.

Dogs and many other animals can hear pitches that are too high for our ears. Whales sometimes create pitches that are way too low for human ears, but whales can hear them just fine for hundreds of miles across the ocean!

Modified from “Saturday Science: Straw Flute” by The Children’s Museum of Indianapolis