



DUKE ENERGY SCIENCE NIGHT

Straw Flutes

Big idea

Explore how sounds are made by building a noisemaker.

You will need

WHAT WE GAVE YOU:

- straws
- masking tape
- Straw Flute instruction sheet

STUFF YOU PROVIDE:

- adult scissors

Fun Options

Have some empty bottles on hand for kids to try blowing across. Different sizes of bottles will make different sounds!

Set it up

Set out the straws, tape, scissors, and Straw Flute instruction sheet on your table. Make a straw flute ahead of time so that students know what the finished product will look like. (Note that when you follow the directions, you will actually make 2 straw flutes at a time. You have enough straws for 200 flutes, so you will need to have students work in pairs or keep the second flute to give to another student.)

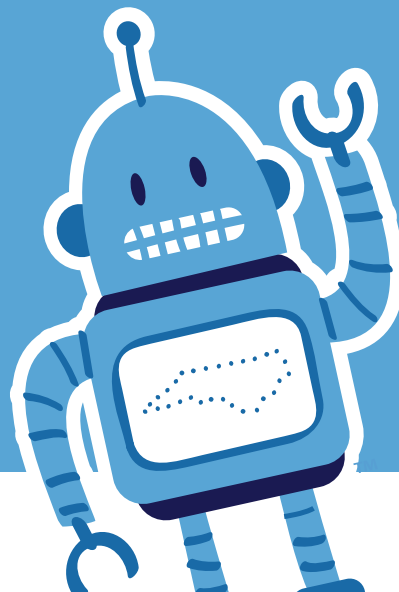
It's showtime!

Ask families if anyone has ever played a musical instrument. Let them know that today they will get the chance to make and play one. Have students (preferably with a partner) select 10 straws and line them up evenly. Wrap masking tape around the straws near each end. Using scissors, cut diagonally through all ten straws. You now have two straw flutes! Demonstrate how to make sounds by blowing across the tops of the straws, not directly into them.

If they love It...

Ask kids if they can play a recognizable song on their straw flute. It may hard for one person to do it, but see what happens if each person plays one of the notes on their straw flute. Kids can work together to play a simple song like "Twinkle, Twinkle, Little Star" if they each have one note to play.

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Straw Flutes

Why is this science?

In order to understand how musical instruments create sound, you need to know a little bit about the physics of sound waves. Sound is the vibration, or back-and-forth movement, of air particles. We hear sound when those vibrations hit our eardrums. All sound is created by vibration, but not all vibrations are made in the same way. You can make vibrations by hitting something (like a drum, or stomping your foot), by plucking something (like a guitar string), or by using your breath to make vibrations in a column of air (like playing the flute or a horn).

In the straw flute, what's vibrating? The air inside each straw. When you blow across the top of your straw flute, you cause the air inside each straw to vibrate as it moves around. That movement of air is what we hear as sound.

Sounds can have different pitches, meaning how high or low it sounds. Blowing over shorter straws makes the pitch higher because there is less air to move so it can quickly vibrate. Blowing over longer straws makes the pitch lower because the greater volume of air vibrates more slowly. Think about big instruments versus small ones: the double bass makes much lower sounds than the violin and the tuba is much deeper than the trumpet. A longer vibration makes a lower sound.

North Carolina connection

The type of flute you just made is called a panpipe or pan flute and it is one of the oldest instruments in the Americas. Panpipes have been found by archaeologists from Canada to South America, with the oldest dating back to 4200 BC. Here in North Carolina, the Cherokee Indians used panpipes, flutes, water drums, whistles, and shakers to play music to accompany traditional songs, dances, and ceremonies. All of the instruments were made of natural materials such as logs, reeds, gourds, animal bones and skin. In the 1700s, Cherokee music began to include new instruments like the fiddle brought by English and Scottish traders. You can still hear these traditional instruments and songs if you visit Cherokee, NC during one of their festivals.



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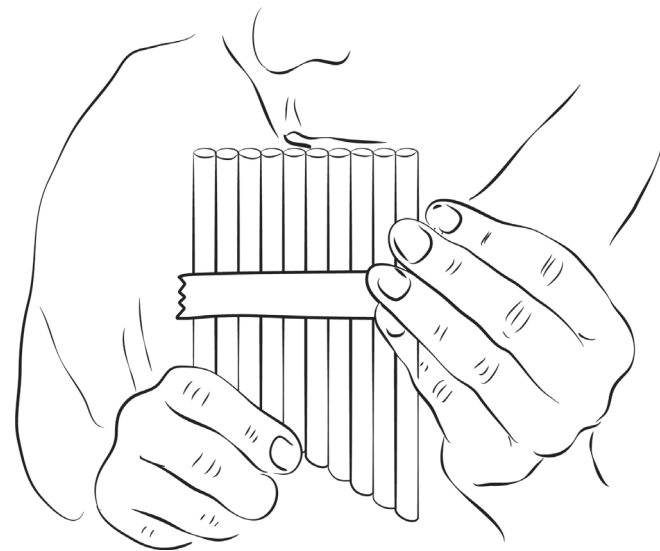
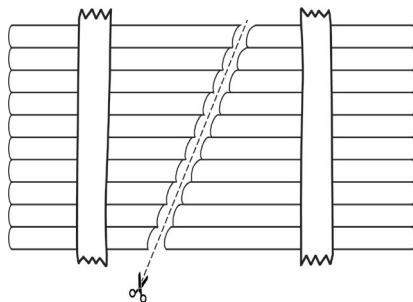
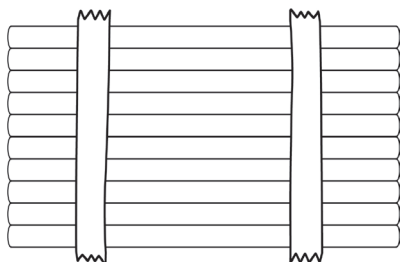
Straw Flutes

Supplies

- 10 straws
- masking tape

What to do

1. Get a partner to work with if you can.
2. Select 10 straws and line them up evenly.
3. Wrap masking tape around the straws near each end.
4. Have an adult use the scissors to cut diagonally through all 10 straws.
5. You will now have 2 straw flutes – one for each partner!



Test Your Flute

- Blow across the tops of the straws, not directly into them.
- Do you hear a difference when you blow across the shorter straws versus the longer straws?
- Can you could play a song such as “Twinkle, Twinkle, Little Star?”

