

Science Lesson

As part of our Science topic on Sound, you are going to investigate the different ways we can change the pitch using straws. The length and position of the straw can change the sound that they make and you can even make a musical instrument!

When finished, have a go at the questions at the end. If you need to, there are lots of YouTube videos that show you how to make the straw oboes. This might be helpful if you are struggling to create them.

Straw Oboes

A noisy, amusing demonstration of the physics of music. It can take a bit of practice to get exactly right, but it's well worth the effort.

Ingredients

- straws (need to be straight – cut off the bendy bits if there are any)
- scissors

Instructions

1. Flatten one end of the straw ~2cm from the end to the tip.
2. Make two cuts in the now flattened end of the straw, to form a triangular tip.
3. Insert the triangular tip of the straw into your mouth and blow hard. You should hear a loud 'buzzing' sound.
4. While blowing on the straw oboe, get a volunteer to cut the straw shorter, ~1cm at a time. With each cut you will hear the pitch of the oboe sound go up.

How does it work?

The flattened triangular tip acts like the reed found in most wind instruments. Blowing on the reed causes the straw to vibrate. A standing wave pattern is created along the length of the straw, which we hear as sound. As you shorten the straw you shorten the wavelength of the standing wave pattern and therefore increase the pitch of the note.

Tips for Success

It can take some practice to get the right sound – if it doesn't work straight away then slowly move the straw in and out of your mouth whilst still blowing until you hear the sound. Definitely a good demonstration to practice before performing it in front of an audience!

Questions

- 1) What was the most difficult part of the experiment? How did you overcome this?
- 2) What would you change about the experiment to improve it?
- 3) Did the instructions work properly? How would you improve them to make them easier to follow?
- 4) What do think might happen if you sellotaped the straws together? Could you make another instrument? Try it and see!

Now you've finished, have a see if you can find other items in the house that make musical notes. Can you try them with your straw oboe?