**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. Make additional ‘oboes’ using straws of different lengths.

**What do you notice?**

How does the length of the straw affect the sounds made? Do straws of the same length make the same sound?

**What else could you do to the straws to change the sounds?**

**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!

**Serving Suggestions**

This is a good demonstration to attract a crowd due to the amount of noise involved.Play a tune using different straw oboes to entertain family members on video calls.

 **Did You Know?**

As long ago as the fifth century BC Pythagoras and his followers were experimenting with standing waves and calculating the values of their harmonics. Another way to set up a standing wave is to blow across the top of a glass bottle. In this case the note gets deeper as you lower the levels of the liquid content. (This would be like tuning the bottle instrument).