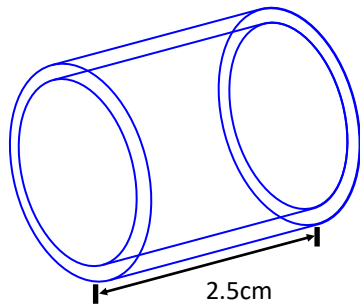
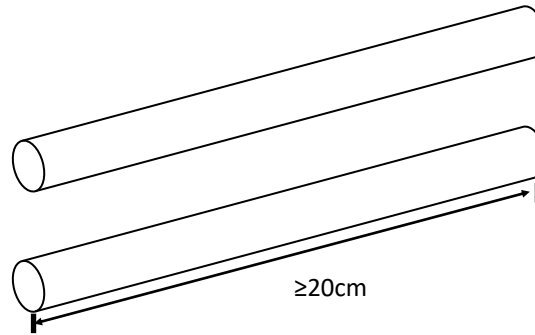


Parts

To build a straw clarinet, you will need the following components:



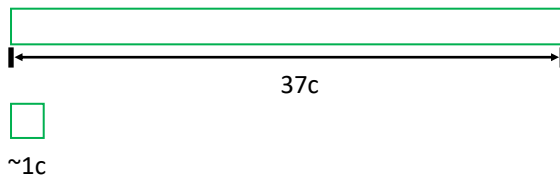
2.5cm of hose
At least 1mm wider than the straws



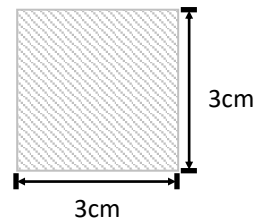
2 wide straws at least 20cm long.



1 short, narrow straw around 5cm long



2 lengths of tape
One 37cm, the other around 1cm



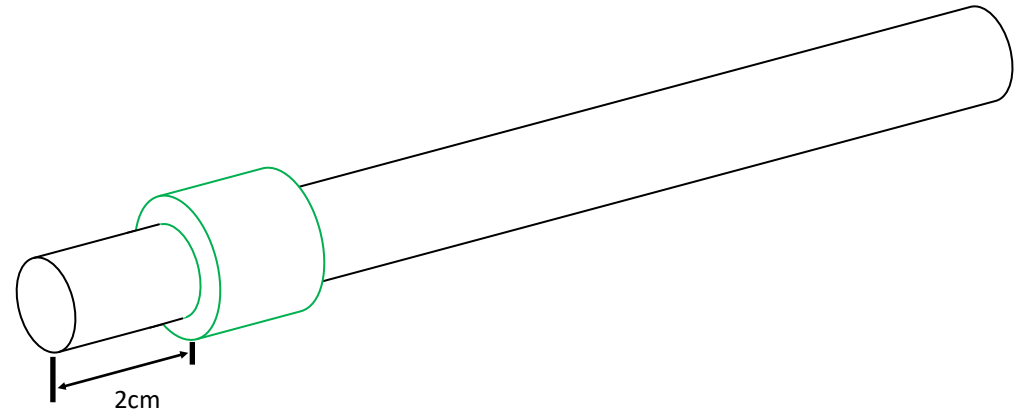
3cm square of cling film



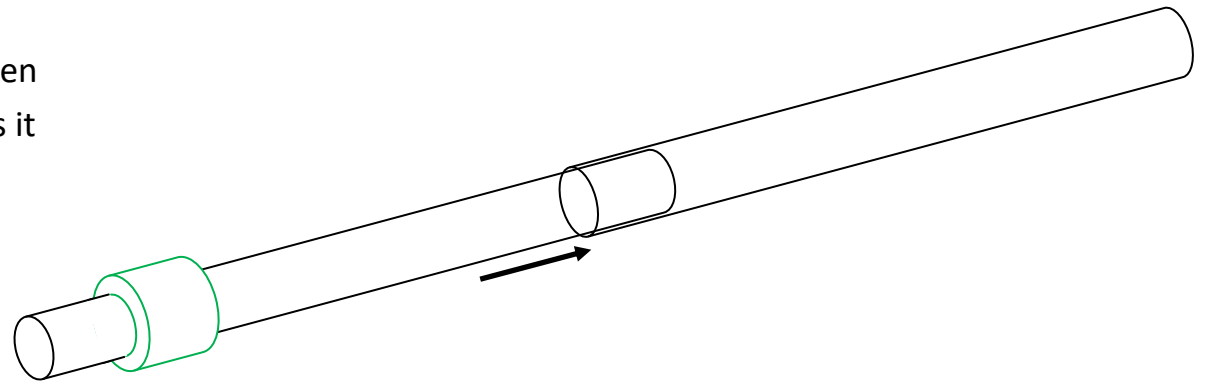
1 small elastic band

Instructions

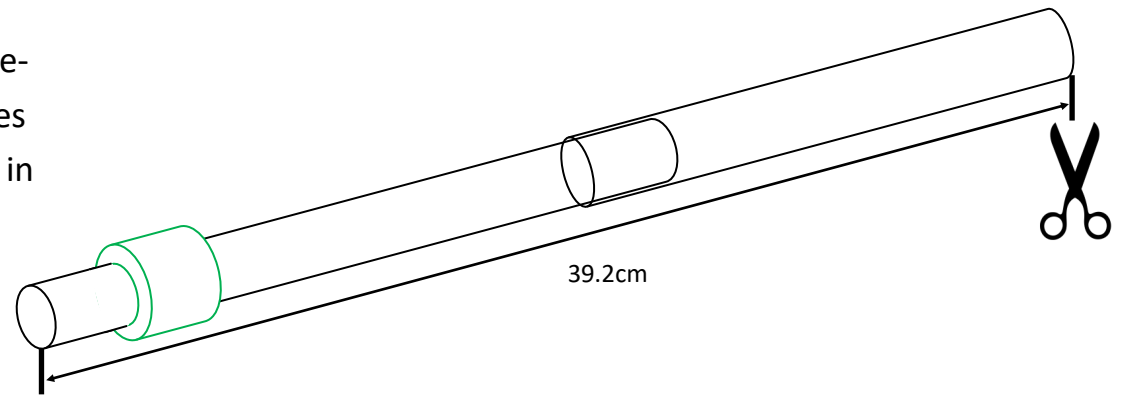
1 Wrap the **37cm tape** around one of the two straws, 2cm from the end of the straw



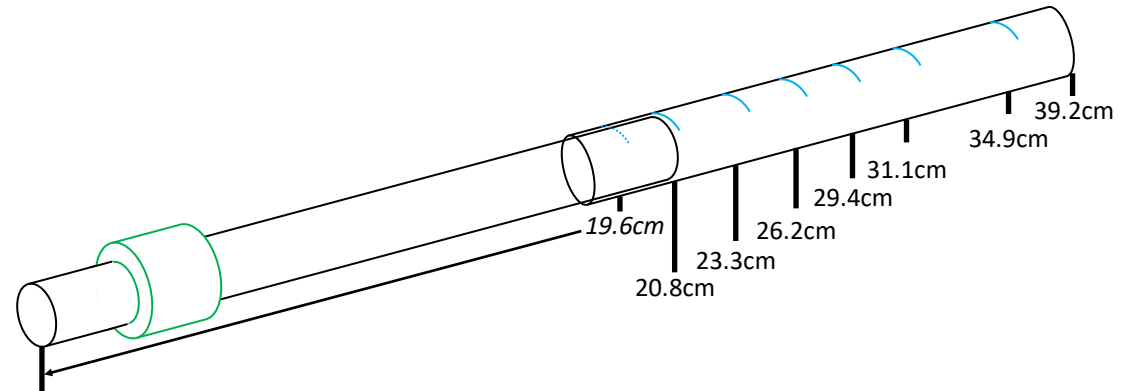
2 Widen the end of the second straw with a pen and slide the straw with tape into it as far as it will go (typically around 1.5cm).



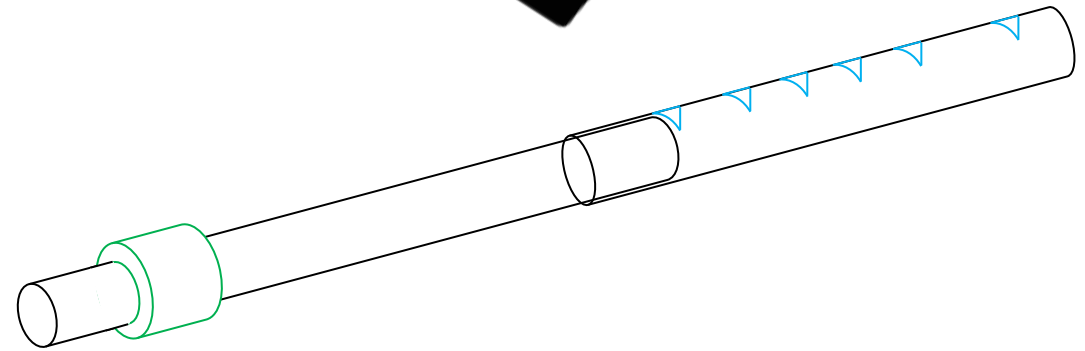
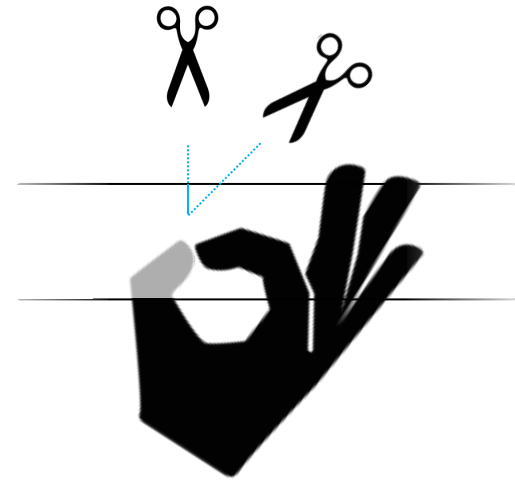
3 Place the straws into the ruler block and, if required, cut them down to **39.2cm**. This makes the straw clarinet concert-pitch, so it will be in tune with other instruments.



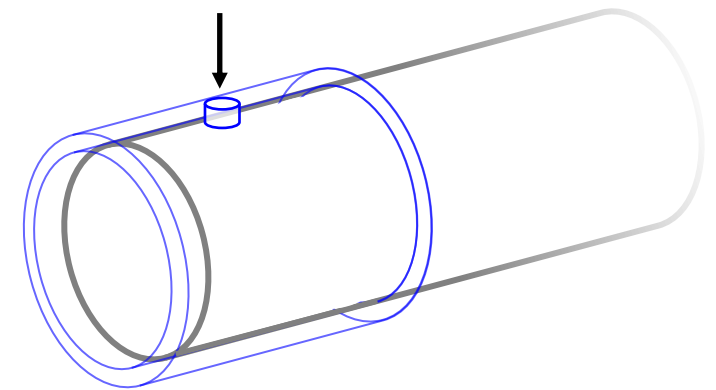
4 With the straw in the ruler block, use one of the markers to mark the lengths given on the right (*note: the 19.6mm hole is optional, as it can affect the structural integrity of the straws*).



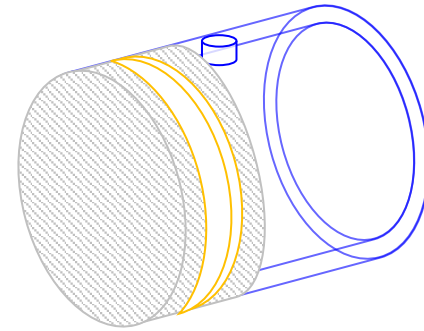
5 Squeeze the bottom of the straw, opposite the marks, so that the marks are folded in half along the top edge. Cut along each of the marks, ensuring to cut into no more than 1/4 of the straw, then cut at an angle to leave a triangular hole.



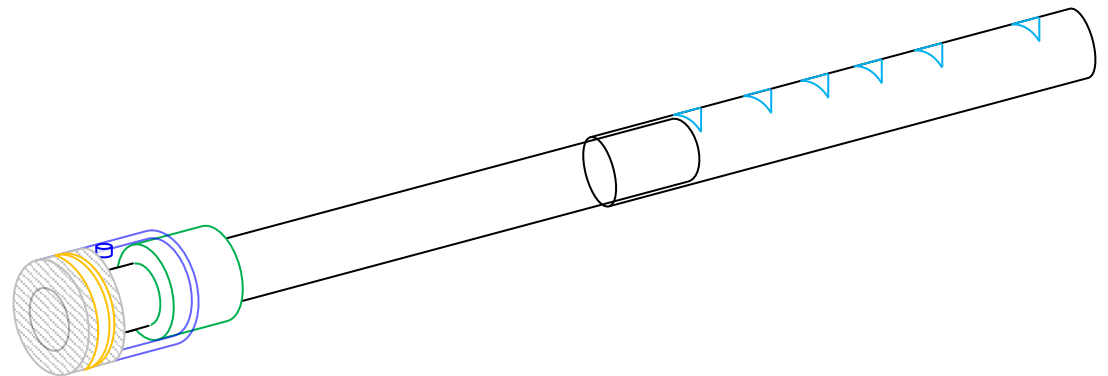
6 Place a scrap pencil or dowel inside the hose to ensure you do not pierce both sides of the hose. Use a sharp object to punch a hole at the centre of your hose segment. **Keep fingers and limbs well clear of the punch.**



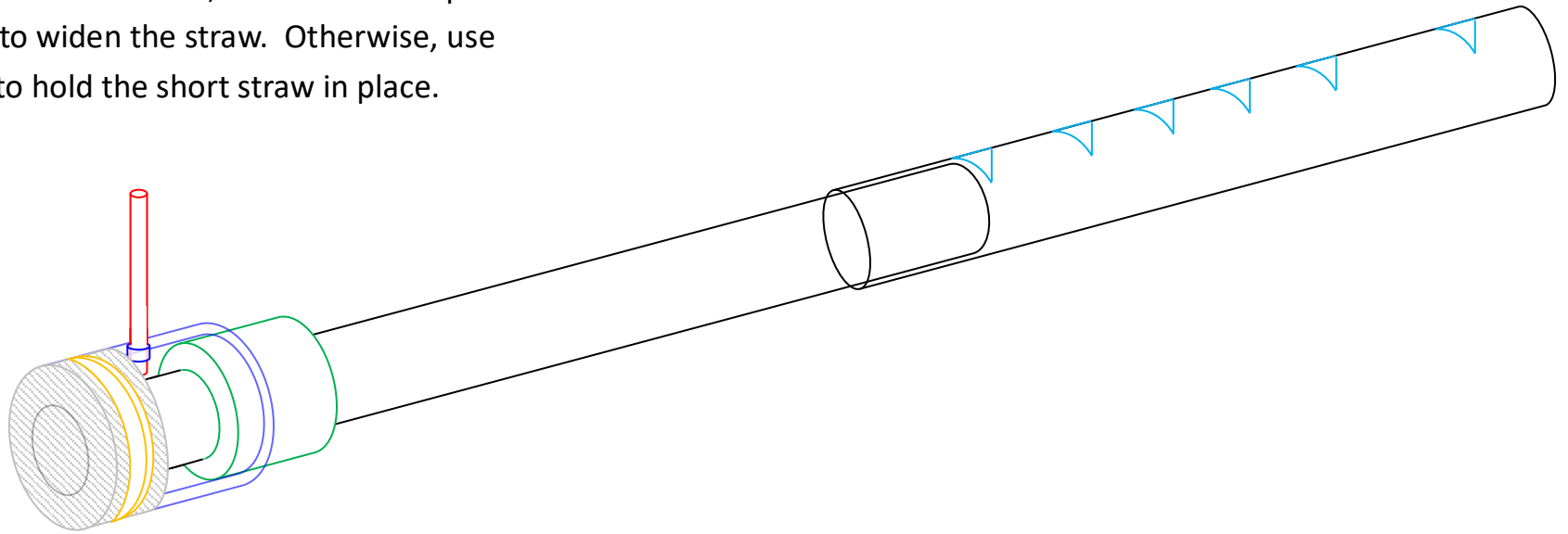
7 Wrap the cling film around one end of the hose segment, making sure there are no creases, and secure with the elastic band.



8 Place the hose section over the end of the straws, so that the straw presses against the cling film.



9 Wedge the short straw into the hole punched in the hose. If it is loose, use the short tape segment to widen the straw. Otherwise, use the tape to hold the short straw in place.



Troubleshooting

- If blowing produces no sound at all, check whether the cling film is too tight or too loose by adjusting the elastic band. Ensure that the straw is pressed against cling film. If this does not work, check that there are no air leaks around the hose.
- If the lowest notes are not sounding, slide the hose outwards while playing the highest note. When the note stops sounding, slide the hose back inwards gently until it sounds again. This will ensure the cling film is not too tight against the straw.

How does it work?

1. Blowing into the small straw increases the pressure of the area between the hose and the straw.
2. This forces air between the cling film and large straw, causing the cling film to vibrate.
3. This vibration produces a note, the wavelength (shown in purple) of which is determined by the length of the straw. Note that the length of the straw is one quarter of the wavelength.
4. By covering the holes cut in the straw, you are changing its effective length.
5. As the speed of sound in air is constant, the wavelength is directly proportional to the frequency of the note; so changing the wavelength changes the frequency, or pitch, of the note.

