

THE STRAW OBOE

A. Question: *Does the pitch of sound get affected by length of vibrating air?*

B. Materials Needed:

1. Two plastic drinking straws.
2. A pair of scissors.

C: Procedure:

1. Cut small holes on one side of a straw, about 1 to 1.5cm apart from each other.
2. Flatten one end of both straws and cut triangle pieces out.
3. Place the end of the straw with holes in the mouth holding your lips just where the cut ends are, and blow until an oboe sound is produced. (Shifting the straw somewhat in or out of the mouth might help obtaining the sound.)
4. Place three fingers of the left hand on the farthest three holes and three fingers of the right hand on the nearest three holes of the straw; and open or close holes for the different pitches.
5. Now blow the straw with no holes. Make the oboe sound, take the pair of scissors and cut small pieces off the straw while blowing.

D: Anticipated Results:

Students should observe different pitches when closing or opening a hole on the straw.

E: Thought Questions for Class Discussion:

1. What was actually producing sound?
2. What pitch did we get when all holes were closed, compared to when all holes were open?
3. What does opening or closing a hole in the straw really mean in terms of vibrating an air column?
4. Which musical instruments are based on this principle?

F: Explanation:

This demonstration especially shows that the pitch of a note is determined by the length of vibrating air. By cutting the end of the straw we are actually making two reed-like protrusions, which when air is blown through them, will vibrate and produce the oboe sound. The air column in the straw is vibrating with it and produces the pitch. With the holes in the straw we are able to make the vibrating air column longer or shorter, by either closing or opening a hole or several holes at a time.

This principle is applied in the flute, clarinet, oboe, saxophone, and their varieties soprano, alto, tenor and bass instructions.