Sci-Map Site
“Monochord” Instrument Exhibit

Name of Activity
Build a Panpipe

Before, While, or After?
After Your Visit

Materials
Paper Smoothie Straws (1-2)
Masking Tape
Scissors
Ruler (Metric)
Dowel Rod or Pencil with Unused Eraser
Pencil for writing

Procedure
(See attached file ‘Assembly_pg1’ for Steps 1-4)
Step 1 : Place marks on your straw at 8.2 cm and 14.2 cm
Step 2 : Write C6 and G6 on your straw as shown below.
Step 3 : Cut the straw on your marks. Keep all 3 pieces.
Step 4 : Hold your C6 straw with the cut-end up. Make small folds with your finger as shown below. Stand the straw up on a table so you can put the eraser-end of a pencil inside. Tap the pencil up and down to flatten the folds at the bottom. Do the same for the G6 straw.

(See attached file ‘Assembly_pg2’ for Steps 5-6)
Step 5 : Cut a piece of tape that are ~3 cm long. Place the tape over the folded end of your C6 straw as shown below. Place the eraser-end of the pencil inside the straw again and tap, tap, tap to flatten the bottom against the tape. Do the same for the G6 straw.
Step 6 : Place your 3 straws on the table as shown below. Cut ~ 10 cm of tape and wrap it around your pipes.
You’re ready to play your panpipes! Blow into the top of the pipes to play your beautiful music!

The Science Behind It
Do you remember taping the bottom of your pipes? That means the pipes are closed at the bottom. When you blow into the open end at the top you start a sound compression wave traveling in the pipe. When the compression wave hits the bottom of the pipe it is reflected back to the top. These forward and reflected compression waves develop a standing wave which we hear as a particular note for the pipe.

Did your two pipes sound different notes? The length of the pipe determines the note you will hear. Want to try different notes? See the chart on the attached supporting file 'Assembly'.

Want to know more about the math of sound waves in pipes? Go here,
http://www.phys.unsw.edu.au/jw/flutes.v.clarinets.html

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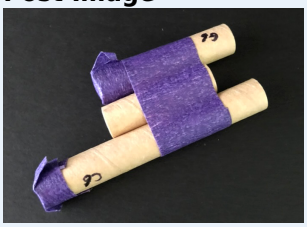

Supporting File 1 - Printable templates or additional information

- PanPipe-Sci-Map-Activity.pdf

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