

Pipe Instrument

Design an instrument made of pipes that will play the notes to a simple and familiar song.

One way to do that would be to have air blowing like a flute. This type of instrument could have both ends open, so the equation that fits this would be the one for a pipe open at both ends.

Another way to do this would be to create the vibrations by slapping down something like a hand on one end of a pipe that is open on the other end. The equation to use for this one would be the one for a pipe open at one end. One year the students put duct tape over one end and played it like a drum.

Either way your group chooses, find the length of pipe that would be required for each note. Excel may be a nice tool to do multiple calculations for you. Also, if we find that there are modifications to be made, they can be added easily in excel, and all the calculations will be done for you.

Try to sell your design to me as the president of our toy company, and I will buy the materials with a physics class fund. In a short report, let me know how much total pipe of what diameter you would like.