

# Making Sound

## Task #1

Materials: paint stirrer, party noisemakers, kazoo, water bottle, beans, cord, recorder

Find a way to make a sound with each of the objects in your bag. In each case, carefully consider what you must do to make the sound, and how the sound is made.

Choose two of the objects to analyze. Try to pick two things that make sound in different ways. Record your thinking for each object on half the whiteboard. **For each object,**

- **Draw a picture** of how you made the noise
- **Explain** how you think the noise is made

After you finish your drawings, figure out what all the sound makers have in common.

**Write your conclusions in your science notebook. Draw one of your sound makers and show how it makes sound in your science notebook.**

## Task #2

Sound is created when air particles move quickly. We hear those moving air particles when they hit our eardrum and make it move quickly.

For each of your sound makers, **identify the part that made the air move. Label** the moving parts on your diagrams, including the one in your notebook. Show the moving air particles.

## Task #3

Energy is the thing that changes systems. For example, when heat is added to water, the water changes into water vapor. So heat is a kind of energy.



Unless you are creating a nuclear reaction, you can't create or destroy energy – you can only move it around. So when you heat the water, energy moves from the power lines to the heating element of the stove, to the pan, to the water, and from there to the air as the water evaporates.

Sound is a form of energy transfer. To make sound, energy has to come from somewhere and go somewhere else.

For **one** of your sound makers, **trace the energy flow. Show on your diagram:**

- where the energy comes from,
- how the energy moves through the sound maker
- where the energy went.

## Task #4: Reflective Writing

Take a moment to write about what you have learned so far about sound.

### **Task #5: Experimenting with pitch and volume**

**Pitch** is how high or low a tone is.

**Volume** is how loud a sound is.

Put your paint stirrer so it hangs off the edge of the table. Using one hand to hold it down, use your other hand to “twang” the end hanging off the table. What happens?

Now experiment with the paint stirrer to change the pitch and volume of the tone. Record your results in your science notebook. What must you do to change the pitch? What must you do to change the volume?

For the two sound makers you already analyzed, figure out how to change the pitch and volume for each (if you can). Record your findings on your whiteboard.

What are the common factors in changing pitch and volume, no matter what you use to make sound? Write a general rule for each of these:

Pitch changes when...

Volume changes when...

Write your rules in your science notebook.

### **Task #6: Now you do one**

Ask a question based on the activities you have already done. Your question might be an extension of something you have already done, or you might want to work on some new materials (see Challenge box at the front of the room).

BEFORE you start to work on the answer to your question, you should record this information on your whiteboard:

- What is the question?
- What is your plan to answer it?
- What is your prediction?

Show your whiteboard to your instructor before proceeding with your experiment.

AS YOU WORK ON YOUR EXPERIMENT:

- Record what you do
- Record what you find
- Think about how to present your findings.