

# Music to Our Ears

Design a musical instrument and see if you can create it out of household materials.



## Instructions

- 1** Solicit student suggestions to make a list of musical instruments. If kids don't think of them, add kazoos, drums, rattles, tambourines.
- 2** Explain that students will choose a kind of musical instrument that they want to make. They will draw a design for it and then build it out of the materials displayed.
- 3** Give students time to explore the materials that they can use and tell them to think of something they want to make. Talk about sounds they could try for—beeps, squeaks, pings, rattles, thuds, whistles.
- 4** As they draw their plans, instruct students to: name their invention, describe the sounds they want it to make, the materials they'll need, and what it will look like.
- 5** Tell kids to follow their plans to invent their instruments.
- 6** Have everybody take turns demonstrating their instruments and explaining how their inventions did, or did not, come out as planned.

## Materials

### PER STUDENT:

- Pencil
- Paper

### PER CLASS:

- Masking tape
- Staplers
- Music making supplies—plastic and paper cups, paper plates, beans, beads, jingle bells, paper towel rolls, pipe cleaners, straws, waxed paper, combs, rubber bands, balloons, craft sticks, plastic containers, aluminum foil, small boxes, other found objects

## Engineering & Science Connections

- 🔗 Acoustics is the scientific study of sound. Engineers use acoustics to figure out how to build better instruments, by improving the quality of the sound that comes from the vibrations of strings (as with a guitar or piano), wind chambers (as with a flute or saxophone), or skins (as with drums). Engineers test instrument designs using recording equipment in special rooms where sound doesn't reflect; every surface is covered in sound absorbing foam.

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- 🔗 Historically, musical instruments were used to create sounds to inform people. In Africa, people have used drum telegraphy for centuries to communicate with each other from miles away. In the US, the bugle was used in war to signal the attack or retreat.

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- 🔗 To solve problems and make inventions, engineers use an approach called the engineering design process. In this activity, the students invented an instrument. After testing their initial design, they may have revised and retested it to better serve its intended purpose. That is what engineers do too.

## Guiding Questions ?

Why do inventors make plans?

If your instrument isn't turning out as planned, how will you revise your design or change your goal?

What did you learn about the process of invention from making your instrument?

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