



Sound Machine

Maker Connect

Music is made up of a combination of sounds, notes and rhythm. A rhythm is a regular movement or repeated pattern of movements that can be used in many different ways. In mechanical machines, a rhythm can help keep a machine running smoothly. It can also be used to generate different sounds in music.

Look at the photos below and answer the questions.

- What do you see?
- Can you see any new design opportunities?
- What problems can you see?
- How could you make use of the LEGO[®] bricks, Programmable Brick, motors, and sensors?



Student Worksheet - Sound Machine

Name(s): _____ Date: _____

Defining the Problem

What problems can you see in the pictures? Pick one problem and explain it below.

Brainstorm

Individual work: Now that you have defined a problem, take three minutes to generate ideas for solving it. Be prepared to share your ideas with your group.

Group work: Share and discuss your ideas for solving the problem.

Define the Design Criteria

You should have generated a number of ideas. Now select the best one to make.

Based upon your brainstorming discussion, write out two or three specific design criteria your design must meet:

1. _____
2. _____
3. _____



Documenting your work is very important during the design process. Record as much as you can using sketches, photos, and notes.



Use LEGO® bricks and sketches to explore your ideas.



Sometimes simple ideas are the best ideas.



Design criteria example:
The design must...
The design should...
The design could...



Go Make

It is time to start making. Use the components from the LEGO® set to make your chosen solution. Test and analyze your design as you go and record any improvements that you make.

Review and Revise Your Solution

Have you managed to solve the problem that you defined at the beginning of the lesson? Look back at your three design criteria.

How well does your solution work? Use the space below to suggest three improvements to your design.

- 1. _____
- 2. _____
- 3. _____

Communicate Your Solution

Now that you have finished, make a sketch or take a photo of your model, label the three most important parts, and explain how they work. You are now ready to present your solution to the class.



You can use other materials from around the classroom.



Print off your photos, and attach all of your work onto a piece of paper or card stock.

