

STEAM Drawing Robots

Objective: To understand the motion within motors, see force influencing objects, and predict how changing variables will change the direction and behavior of the robot.

Materials:

- Paper
- Tape
- Rubber band
- Washable markers
- Small, motorized object
- Waxed paper cups
- Watercolor paint



Finished Project!

Open the Conversation:

Start by discussing simple machines and force and demonstrate how to build a simple robot. Then ask students what factors could influence the force and behavior of the robot (i.e. tilting the surface of the paper, adding weight to the cup, using a low powered battery, repositioning the balance of the motors and markers).

Step One:

Slip the rubber band around the cup.

Step Two:

Pick three markers that make a nice color grouping and slip them under the rubber band with the cap pointing down.

Step Three:

Adjust the markers to act as legs, holding the cup up. Secure markers with tape (you should still be able to remove lids when needed).

Step Four:

Balance motorized object evenly across or inside of the cup and tape securely. When turned on, your robot should vibrate, jump, or move without falling over on a level surface.

National Standards for Visual Arts (2015 Standards):

Anchor Standard #1. Generate and conceptualize artistic ideas and work.

Anchor Standard #2. Organize and develop artistic ideas and work.

Anchor Standard #3. Refine and complete artistic work.

Anchor Standard #10. Synthesize and relate knowledge and personal experiences to make art.

See more at:

<http://www.nationalartsstandards.org/content/national-core-arts-standards-anchor-standards#creating>

Step Five:

Take off all three marker caps and place robot on paper. Turn on and watch it draw! Continue until paper is decorated.

Step Six:

Shift environment to manipulate robot.

Step Seven:

When finished, you may want to sketch in a silhouette in pencil, then trace in permanent marker. Afterward, brush paper with water or watercolors to see the robot's patterns and lines swirl into beautiful strokes.

