MAKER JAWN

PROJECT IDEAS

Kaleidoscope

Design and Build a kaleidoscope.

This is an LED hacked kaleidoscope, where instead of using natural light source for the kaleidoscope, LEDs are placed on one end to create a visual effect for the viewer. The design is rudimentary, and is intended to stimulate makers' creativity and prompt new ideas for LED useage. Makers can consider ideas about design by observing variation in the projects of their peers. What happens if the tube of the kaleidoscope is wider? Or longer? Does the effect change?

Project Type: Creative/ Tactile, Electronics, Tinkering

Group/Individual: Individual, Collaborative, Pairs

Lesson Plan Audience: Maker Mentor, Maker

Time: 1 Hour

Hard Skills: Building, Circuitry

Soft Skills: Design concepts, Experimentation, Mathematics

Ideal # of Participants: Up to 10

Age Group: 7-11

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Materials:
Cardboard
Paper
Tape
Scissors
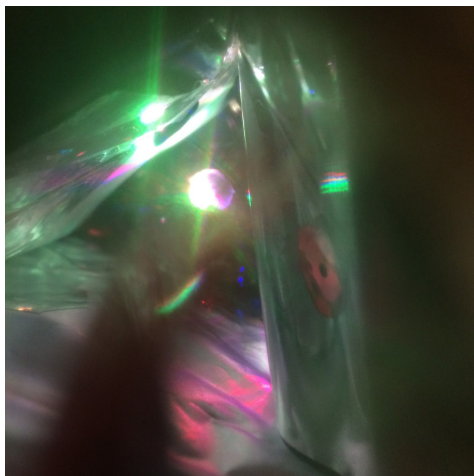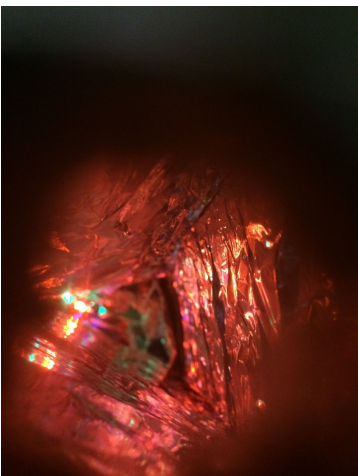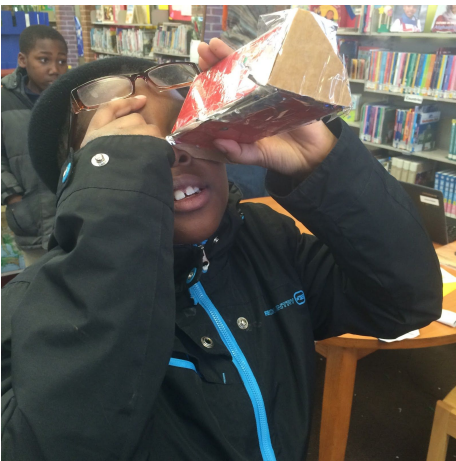Glue
Small sequins and beads
Aluminum foil (or other reflective material)
LEDs

Materials:

1. Cut three long rectangle out of cardboard.

2. Cover a single side of each rectangle in aluminum foil.

3. Tape the long sides of the 3 rectangles together to create a triangular tube. Make sure the aluminum foil side of the cardboard pieces is facing the inside of the tube.

4. Trace or measure the triangles at either end of the tube and cut them out of cardboard.

5. Cover one of the triangles you just cut out with aluminium foil. Assemble LEDs with batteries, and tape them to the same triangle you just covered with aluminum. Tape the triangle to one end of the tube, with the LED/foil side facing the inside of the tube.

6. Fill your kaleidoscope with a small amount of sequins and beads.

7. Cut a hole in the remaining triangle piece.

8. Tape over the hole with clear packing tape on both sides, then tape it to the end of the tube.

9. The LEDs should reflect light on the objects and sides of the tube. Turning the tube around will result in variations in the reflections, making patterns.