

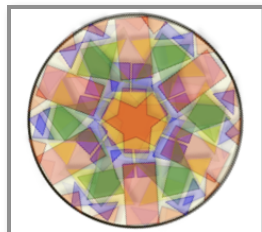
Name: _____ Date: _____

SCIENCE ART

Kaleidoscope

Project:

Make your own kaleidoscope to explore the properties of light!



Materials:

- Construction Paper (black)
- Paper Towel Tube (8")
- Pen
- Plastic Sheets (various colors)
- Plastic Wrap (4" x 4")
- Report Cover (clear plastic)
- Rubber band
- Ruler
- Scissors
- Scotch Tape
- Wax Paper (4" x 4")

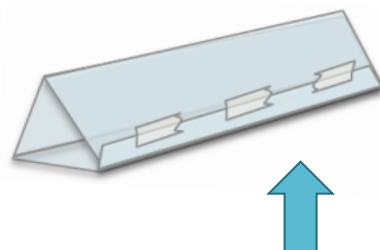
Instructions:

- 1. Brainstorm:** Begin by thinking about how light travels. What happens when it hits a reflective surface? You are you going to find out by building a kaleidoscope! Like the periscope you made earlier in this lesson, kaleidoscopes operate on the principle of multiple reflections. They are usually made with three mirrors, but for this project you will use the reflective surface of a plastic report cover as a substitute.
- 2. Measure:** Use your ruler to draw an 8"x 4" rectangle on your plastic report cover. Then mark the points listed below along each width of your rectangle.



Connect these points to form three horizontal line.

- 3. Cut:** Cut out the 8"x 4" rectangle and then fold the plastic along these three lines to form a triangle. The smallest piece of plastic should be on the outside. Tape this flap down.

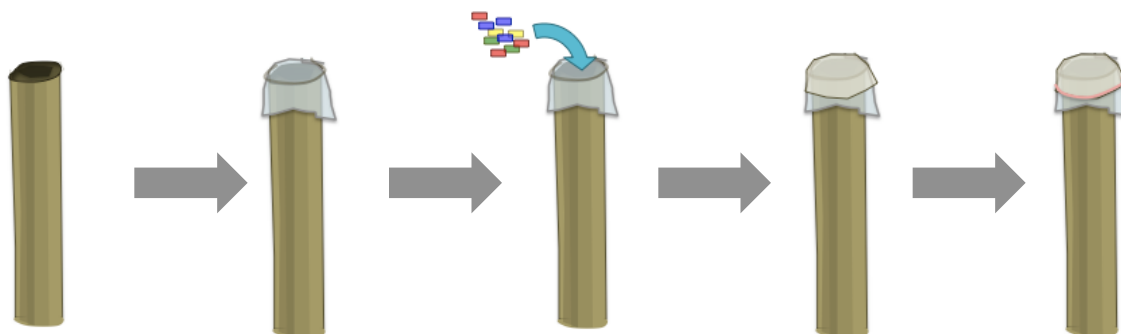


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Instructions (continued):

Next, take your sheets of colored plastic and cut them into smaller pieces. Do not worry about the shape of these plastic shards, just make sure that you have at least 10 of them and that they are around the size of a sequin.

4. **Trace:** Place one end of the paper towel tube on your piece of black construction paper and trace a circle. Cut this circle out and then use your pen to make a small hole in the center of this circle.
5. **Assemble:** Tape this circle to one end of your paper towel tube and then insert your plastic triangle through the other end. Put a piece of plastic wrap around this end of the tube, leaving a small pouch in the very center. Place your pieces of colored plastic in this pouch and then cover this end with a square of wax paper. Then put a rubber band over the wax paper to keep all of these elements in place.



6. **Observe:** To activate your kaleidoscope, hold it up to the light and look through the hole in the construction paper. You will see a colorful, geometric pattern and as you turn your kaleidoscope, you will see this image change. Think about the plastic triangle inside the tube and what role it has in creating these images...

