

**Project FOCUS  
Best Lessons  
FOURTH GRADE**

**Title of Lesson:** Be Dazzled- making kaleidoscopes

**Theme:** Physical Science

**Unit Number:** 6      **Unit Title:** Sound and Light

**Performance Standard(s) Covered (enter codes):**

S4P1

**Enduring Standards (objectives of activity):**

**Habits of Mind**

- Asks questions
- Uses numbers to quantify
- Works in a group
- Uses tools to measure and view
- Looks at how parts of things are needed
- Describes and compares using physical attributes
- Observes using senses
- Draws and describes observations

**Content (key terms and topics covered):**

Light travels in a straight line through empty space, but when it bumps into an object, it changes direction. Some shiny surfaces, like the plastic report cover or a mirror, send or reflect light back to you. (Think of a ball bouncing off a wall.) The sides of the plastic tube inside the kaleidoscope reflect the beads, sequins, and confetti. The reflections bounce back and forth from side to side creating multiple images. When you turn the kaleidoscope, the pieces move, and you see a different design.

**Learning Activity (Description in Steps)**

**Abstract (limit 100 characters):** Students investigate light

**Details:** 1. Draw an 8-by-4-inch (20-by-10-centimeter) rectangle on the report cover. Cut it out.

Draw three lines across the rectangle as shown.

2. Fold the plastic along the lines to form a triangular shape. The quarter-inch (.6-centimeter) strip goes on the outside. Tape the strip along the edge so it stays closed.

3. Slide the plastic triangle into the paper towel roll.

4. Turn the paper towel tube on one end. Trace a circle around it on the construction paper. Poke a hole through the center of the circle and tape it over one end of the tube.

5. Place a square of plastic wrap on the other end of the tube. Press down to create a pouch in the end of the plastic triangle. Put some beads, sequins, and confetti in the pouch.

6. Place a square of waxed paper over the pouch. Stretch the rubber band over both the waxed paper and the plastic wrap. Be sure it's on tight so nothing spills out! Trim the corners of the squares. Decorate the outside of the paper towel roll with stickers or wrapping paper.

7. Hold the tube up to one eye and look through it. Turn it and watch your own light show!

**Materials Needed (Type and Quantity):**

For each Kaleidoscope that is made one of each is needed

Paper towel tube cut eight inches

clear plastic report cover

ruler

pen

paring knife

four-inch squares (one each) of black construction paper, plastic wrap and waxed paper

scissors

ruber band

clear tape

colored transparent beads, small sequins and shiny confetti

stickers and wrapping paper

**Notes and Tips (suggested changes, alternative methods, cautions):**

My special ed class had a wonderful time working on this experiment. Before we sat down to work on the activity I showed them a powerpoint I had prepared that explained the properties of light as well as who invented the kaleidoscope. There are no real cautions that need to be taken. With my kids we had to help them every step of the way but that is because their motor skills are not fully developed.

To facilitate this lesson I layed out all of the materials we needed at our work sation. Each of my students made their own. I found the lesson very straight forward. There were some modifications but they all depend on the materials that are used and are hard to address before hand. The best advice I can give is to be flexable. Our lesson went very smoothly and there is nothing I would change when doing it again- however that may be because the teachers and aids did the majority of the work since we were in the epecial ed class.

I only had two students however this could also be done in groups of three or four.

**Sources/References:**

1) <http://kids.nationalgeographic.com/kids/activities/funscience/be-dazzled/>

I found this activity on the National Geographic Kids website

2)

3)