

## Kaleidoscope from a Potato Chip Can

Almost everyone has looked through a kaleidoscope (from a Greek phrase meaning “to view a beautiful form”), a popular toy invented by Sir David Brewster in 1816. But how many people know how kaleidoscopes are made or how they work their magic?

Make your own kaleidoscope using these materials:

- large clean *Pringles* potato chip can complete with its translucent plastic lid
- pair of sharp scissors
- colorful wrapping paper
- silver chromolux poster (available at *Michael's*) cut to a 22 cm by 18.75 cm rectangle [ the length of rectangle should be .75 cm less than the length of the can ]
- ruler
- sharp darning needle or poultry lacer
- tape
- 10-cm by 10-cm piece of stiff clear acetate (Christmas card box lid or essay cover)
- 22.5-cm by .75-cm flexible cardboard spacer strip, about 1.5 mm thick
- translucent acrylic mosaic gemstones (available at *Michael's*)

### Steps:

1. Turn the can upside down. Use the scissors (or a large knitting needle or nail) to puncture an eyehole about 6 mm in diameter in the center of the metal end. If the eyehole is irregular, stick a white loose leaf reinforcement over the opening to improve its appearance.
2. Decorate the outside of the can with the wrapping paper.
3. Use the ruler and darning needle to score the rectangle on its non-reflective side into three hinged 22 cm x 6.25 cm mirrors.
4. Fold the hinged mirrors into a equilateral triangle prism, with the reflective side on the inside. Use several pieces of tape to hold the configuration in place.
5. Fit the triangular prism into the can.
6. Cut a circle from the stiff clear acetate precisely the size of the can opening (7.25-cm diameter).
7. Lay the circular shape on top of the triangular prism. If necessary, stack two or more circles for sufficient thickness.
8. Line the inside of the can between the acetate circle and the top rim of the can with the cardboard spacer strip, joining the ends with a small piece of tape.
9. Fill the upper compartment about half full with the acrylic gemstones or other translucent items, then put on the plastic lid. Do not use too many objects or they will not tumble well and may block out too much light.
10. Hold the kaleidoscope up to the light, look into the eyehole, and slowly rotate the can. The three mirrors will symmetrically reflect the objects under the lid and produce the kaleidoscope effect.

