Kit: $ 3.50

RAFT IDEAS

Topics: Reflection, Light, Images, Symmetry

Materials List
- ✓ 15 cm (6") Cardboard tube
- ✓ 4 cm (1½") Black tube
- ✓ Portion cup
- ✓ Eyepiece (black)
- ✓ Sheet of Mylar, 8 cm x 15 cm (3" x 6")
- ✓ Plastic wrap
- ✓ Tape
- ✓ Transparent objects for object chamber (beads, colored plastic sheet)

This activity can be used to teach:
CO Science Standard 1: Physical Science
- Reflection
- Light

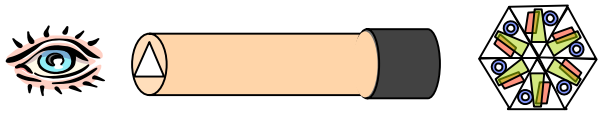
CO Math Standard 4: Shape, Dimension, and Geometric Relationships
- 3-D Shapes: Prism
- Symmetry

Grades: PK, K, 1, 2, 4, 6, 8, HS

raft resource area for teaching
2875 Blake Street • Denver, CO 80205

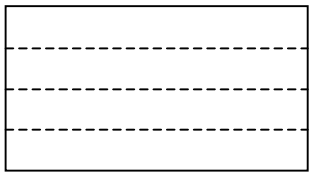
Quickie Kaleidoscope

Goes Together Fast, but the Possibilities are Endless

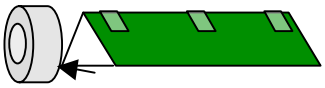


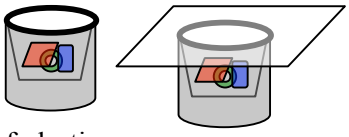
This quickie kaleidoscope is easy to build and beautiful to look through!

Assembly



1. Fold and crease the Mylar sheet horizontally, shiny-side in. Open the Mylar piece and fold and crease each edge into the center fold to create 4 "panels".
2. Overlap 2 panels to create a triangular prism shape. Secure the Mylar prism into shape with tape.
3. Nest the Mylar prism into the eyepiece, and insert the prism/eyepiece assembly into the cardboard tube.
4. Place the portion cup inside the short, black tube and create the object chamber by adding pieces of colored plastic sheet (cut into pieces), beads, or other transparent or translucent objects into the portion cup (do not fill the portion cup completely).





5. Cover the open-end of the object chamber with 2 layers of plastic wrap. Stretch the plastic wrap over the sides of the black tube and secure the ends with tape. The tape should go all the way around the tube. (Option: use colored masking or electrical tape for a fancier look.)

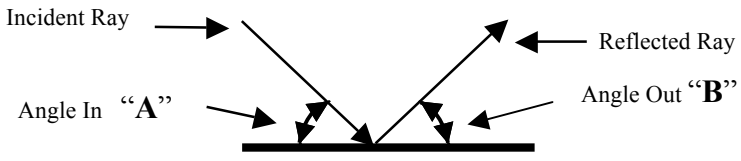
To Do and Notice

Look through the eyepiece end of the kaleidoscope and notice the repeating, symmetrical patterns. Turn the scope to see the image change.

The Content Behind the Activity

After Invention by Scottish scientist Sir David Brewster in 1816, kaleidoscopes have been amazing and entertaining young and old alike. Images from flat mirrors appear as the real objects, only they are reversed. A mirrored prism creates a series of reflections yielding beautiful, symmetric patterns.

The general rule for reflection is "angle in = angle out":



Angle A = Angle B

Web Resources (Visit www.raft.net/more for how-to videos and more ideas!)
For more information about kaleidoscopes, visit: http://kaleidoscopeheaven.org/ and http://www.math.rutgers.edu/pub/goodman/mirrors.pdf

Developed and written by Coral Clark (RAFT)