

# Craft a Homemade Kaleidoscope

Kaleidoscopes are fun, novelty toys that can easily be assembled from the odds and ends you probably already have lying around the house. They're a great way to use the small confetti, beads, or other tiny and shiny toys your child loves collect. Here's an activity that will help your child construct her own beautiful kaleidoscope!

You can turn this activity into a math lesson by having a child help you measure the dimensions of the mirror and the kaleidoscope tube, or incorporate a science lesson by talking about the reflective properties of mirrors and the color spectrum.

Since this activity requires the use of sharp tools, smaller children will need to be helped and supervised while creating the kaleidoscope.



## What You Need:

- 2-3 old CDs or DVDs with a silver (neutral color) reflective surface
- A plastic tube (a PVC pipe, a toilet paper roll, vitamin tablet container and so on), approximately 1" in diameter and 5" to 7" long
- Ruler with a metal edge
- Utility knife
- Sharp scissors
- Permanent marker
- 2 small rubber bands
- Clear tape
- Small crosscut or hack saw
- Sandpaper (150 grit), found in any hardware store
- Paper towels
- Clear material for the lens such as plastic CD cases, paper protectors, or transparencies
- Craft glue or superglue
- Small decorations such as beads, confetti, shells, or other trinkets

## What You Do:

1. Your CDs will be the mirrors for your kaleidoscope. Use your metal ruler and permanent marker to draw a rectangle about 2 cm wide and as long as possible on the reflective surface of a CD.
2. Use a utility knife and your metal ruler to score the edge of your rectangle, then use sharp scissors to cut along the marking. Create three of these mirrored rectangles. If the reflective material on the CDs starts to peel, use clear tape on the back side to hold it down.
3. Arrange the rectangles so the mirrored surfaces face each other and the edges meet to form a triangular shape. Fit them into place against each other, and secure them with rubber bands. Check to make sure that the mirrors will be able to slide in and fit snugly inside your kaleidoscope tube.
4. Once the mirrors fit properly together and in the tube, use clear tape to hold the three mirrors together on the outside.
5. Next, prepare the tube for your kaleidoscope. Take your tube and saw off any closed ends if any exist.
6. Measure the length of your mirrors. You'll want to make your tube 1" to 1.5" longer. Make sure you saw evenly, so you can fit a plastic piece to cap the end of it.
7. Now that your tube is a bit longer than the mirrors, saw off a section that is about 3/4" long. This

piece will become the end of the kaleidoscope and will hold the small decorations.

8. Once your tube pieces are cut, check that they are smooth and even enough to sit flush against a surface without significant gaps. Sand the edges of your tube to get rid of extra material sticking out, and then clean them with a paper towel.
9. Now create the lenses for the kaleidoscopes. You can use any clear material for the lenses such as parts of a CD jewel case or a plastic transparency. To make a lens, hold the tube against your lens material, drawing around the tube with a permanent marker to make sure it fits.
10. Cut out the circles using scissors or the utility knife. Make three of these circles.
11. Wash and dry the plastic circles so that they are clean, transparent, and smooth.
12. Glue one of the plastic circles to the small piece of tube that you cut out to be the end of your kaleidoscope.
13. Glue another plastic piece to the longer tube.
14. While your glue dries, gather together the decorations you want to put inside the kaleidoscope. Transparent objects work best at catching the light.
15. Once the glue dries on the smaller tube, fill it with your decorations. Then, seal it by gluing the remaining plastic piece over the other end. Set it out to dry.
16. Finally, slide your mirrors into the longer tube.
17. Glue the long and short tubes together. One of the plastic caps will be between them.

When the glue dries, your kaleidoscope is ready to go! Take it outside and look through your new instrument in the light! You can see different designs by turning the tube around in your hands.

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