# DIY Kaleidoscopes

**Kaleidoscopes usually contain mirrors and pieces of colored glass or paper to produce changing patterns visible through an eyehole when the tube is rotated. Our Kaleidoscope is made from a cardboard tube, cardstock, a transparent sheet, a coffee filter, pipe cleaners, and your imagination and creativity.**

A kaleidoscope works by reflecting objects multiple times. Light passes through the colored paper or beads and bounces around the reflective surface inside the scope, creating colorful repeating symmetrical patterns.

As you turn the kaleidoscope, it moves the objects inside which changes the pattern.

## Materials

- A cardboard tube such as a toilet paper roll or a paper towel roll cut in half.
- Decoration items: colored paper, scrapbook paper, washi tape or stickers
- Clear tape
- Black cardstock paper
- Transparent sheet
- Coffee filter
- Pipe Cleaners
- Colored markers

## Instructions

1. Decorate the cardboard tube

2. Cut both the transparent paper and black cardstock paper into rectangles measuring 10.5cm long and 9.7cm wide. (This size may need to adjust based on the width and length of your cardboard tube.)

3. Place the transparent paper on top of the black cardstock to make the mirror.

4. Keeping them together, fold the two sheets in thirds.

5. Bring the outside thirds together and tape them, forming a triangular-shaped tube, with the black paper on the outside and the transparent paper on the inside.

6. Insert this triangular tube into the decorated round cardboard tube.

7. Color the coffee filter with geometric shapes. See the examples or create your own designs.

8. Poke a hole in the center of the filter, and insert the pipe cleaner.

9. Make a loop in the pipe cleaner to hold the filter in place.

10. Tape the pipe cleaner to the side of the cardboard tube

11. Turn the coffee filter with your hand while you look into your kaleidoscope to see the reflections created by your design.

12. Make more patterns on other coffee filters to experiment with their reflections.