# Family Guide 



## Activities for Home

## EXPLORE WITH SHAADOWS』

Grab some:

- construction paper or cardboard
- something to draw with
- scissors
- sidewalk chalk


## TIP!

This outdoor activity works best in the early morning or late afternoon, when the sun is lower in the sky.
1.


Draw a couple of very BIG shapes on the construction paper or cardboard, and then cut them out. When the sun is shining, head outside!
2.


Have a friend hold up the shape, and then trace the shadow onto the sidewalk. Move to another spot and trace the shadow again. Now draw some lines connecting your two shapes. Does your design look like anything to you? Try again with a different shape. Which one do you like the best?

## EXPLORE WITH LПलMTT!



Find a few flashlights or cellphones with a flashlight app, and grab a couple of friends. Go into a room and turn off all of the lights. Start by asking one person to move the beam of his or her flashlight slowly along a wall, the ceiling, or the floor. One by one, ask each person to turn on his or her light and see what happens. Try moving all your lights in the same direction. Then try moving them in different directions. Can you create different shapes and lines with your lights?

## EXPLORE WITH LINES AND SHAPES』

In this activity, we're going to make a kaleidoscope: an instrument that uses mirrors to create colorful patterns.

For materials, you'll need:

- reflective paper
- a cardboard tube
- tape


## TIP!

If you don't have reflective paper on hand, you can use tin foil instead. You'll just need to attach it to a sturdier type of paper first before making it into a triangular or rectangular prism for your kaleidoscope.

An x-acto knife and decorative paper or drawing materials will also be helpful to have on hand.

## OPTIONAL:

First, decorate your cardboard tube. You can either trim paper for the outside or color it with drawing materials (markers work best). If you decide to use decorative paper, adhere it to the outside of the tube using tape.

Next, cut your reflective paper to match the length of the cardboard tube. Then, fold your paper into a cylinder, triangular prism, or rectangular prism.


For the triangular or rectangular prism, use an x-acto knife or scissors to score your edges; it helps to fold the paper.

Finally, secure your shape inside the tube using tape (double-sided tape works beautifully!).


Look through and slowly turn your kaleidoscope!


What is happening? Does it make things around you look different?


