



Things to make and do

**WARNING!**

When using the kaleidoscope, never look directly at the Sun.

**What you need**

- A piece of thin, clear, flat plastic
- Pen
- Tube from a kitchen roll
- Scissors
- Mirrored card or (or thin card from a cereal box and tin foil)
- Ruler
- Sticky tape
- Beads and sequins
- Old wrapping paper

# Make a kaleidoscope

Create colourful light patterns with a kaleidoscope.



Make amazing patterns.



## Things to make and do



**1** Take the piece of plastic (we used part of an old fruit punnet), and draw around the end of the kitchen roll tube twice to make two circles.



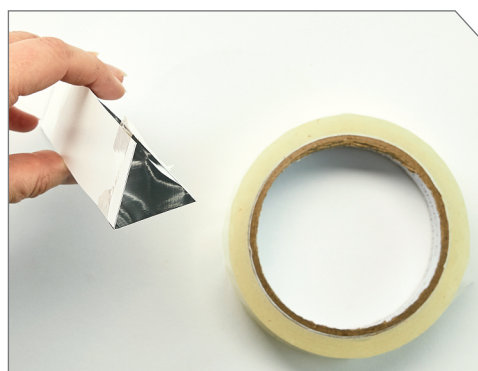
**2** Cut out one circle just inside the line so that it will fit snugly inside the roll. Cut the other circle a little bit bigger, so that it will cover the end of the roll.



**3** Next, cut out three strips of mirrored card. Make them all the same length, slightly shorter than the kitchen roll tube, and all 3cm wide.



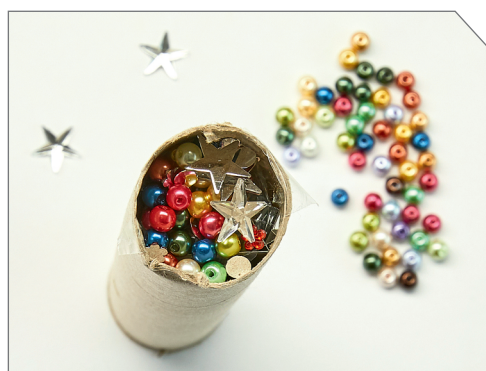
**4** If you don't have mirrored card, you can cover strips of thin card with foil, shiny side up. Smooth the foil down so there aren't too many wrinkles.



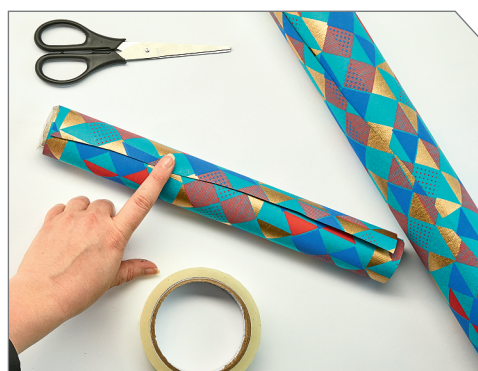
**5** Tape the three strips together lengthways to create a triangular prism, with the shiny sides on the inside. Slide the prism inside the tube.



**6** Stand the tube upright. The prism should end just short of the top of the tube. Place the smaller disc on top of the prism and secure it with sticky tape.



**7** Cover the disc with beads and sequins. Take the larger disc and place it over the end of the tube, above the beads and sequins. Secure with sticky tape.



**8** Cover the tube with old wrapping paper. Trim it to the length of the tube and fix the paper in place with sticky tape.



**9** Take the card and draw around the end of the tube. Cut out the card disc, make a viewing hole in the middle and stick it to the open end of the tube.

### How does it work?

When you look through your kaleidoscope you will see colourful patterns. A kaleidoscope uses light and a prism of reflective surfaces like foil or mirrors facing each other to create repeating patterns. The sealed, clear part of the kaleidoscope containing the beads is called the object chamber. The object chamber keeps the colourful beads in place and allows light through to filter

their colours. When you look through the prism, the light shines through the beads, and then reflects back and forth off the reflective surfaces. The reflections bounce off one another, causing the eye to see different patterns. When you turn the tube, the beads move, and the patterns change. Artist Olafur Eliasson uses mirrors in his artwork *Your Spiral View* and says they "enhance the dizzying sense of movement created by the jagged walls".

### DID YOU KNOW?

Kaleidoscope comes from the ancient Greek words, *kalos* meaning beautiful, *eidos* meaning form and *skopeo* meaning to look or examine.

