

Building a Kaleidoscope

You will need:

- A sheet of plastic
- Black paper
- A drinking straw
- A selection of coloured beads, buttons and confetti
- A pair of compasses
- Strong glue and Sticky Tape
- A metal cutting ruler
- A craft knife (with cutting mat)

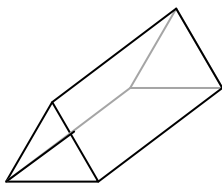
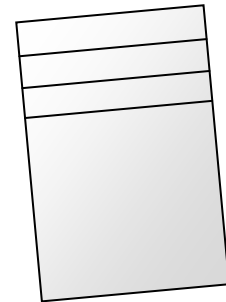
"Kaleidoscope" comes from Greek words meaning "an instrument with which we can see things of beautiful form."

The kaleidoscope was rediscovered in 1817 by Sir David Brewster, who published a paper on it two years later.

Instructions:

1

With the A4 sheet of plastic landscape, cut three strips of width 4cm and the length of the sheet, using the craft knife and metal rule to measure and cut as accurately as you can. You may want to use a marker pen to draw on your lines before you cut the strips.



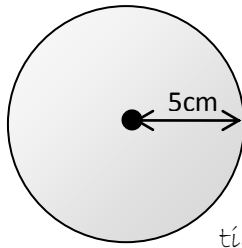
Tape your three strips together to make a triangular prism. Wrap the rectangular sides of your prism in black paper, so that the black side is facing into the prism, sticking it in place using the sticky tape. You must not cover the triangular ends!

2

3

Cut a drinking straw so that it is 1cm longer than your prism. Tape it in the centre of one of the rectangular sides (it doesn't matter which) so that the extra 1cm hangs out over one side.

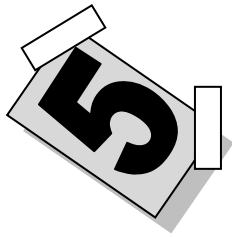




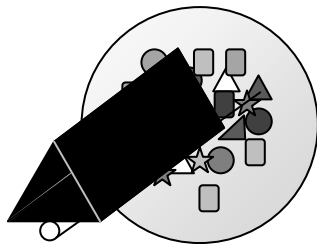
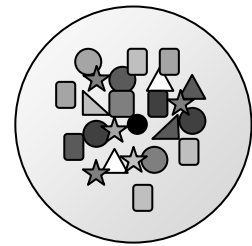
Using your compasses draw a circle with a radius of 5cm on the remaining plastic sheet.

Cut it out using your scissors.

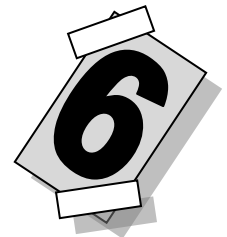
Make a hole in the centre so that the straw can fit in tightly. - Do not put the circle onto the straw yet!



Glue a selection of coloured beads, buttons and confetti onto your circular disk. Do not completely cover all of the plastic as light needs to be able to pass through gaps between the coloured objects. Also make sure your centre hole remains uncovered.



Make sure the glue is dry before continuing! Poke the straw through the hole in the circle. You may want to put a small blob of blu-tac on the end of the straw to stop the circle falling off.



Congratulations!

Your kaleidoscope is now finished! Look through the open end of the triangular prism and turn the disk. Hold it up to the light (NOT THE SUN!) and see how the reflections work in the kaleidoscope.

Make a few coloured drawings of what you see.

How do you think you could improve your kaleidoscope?