Kaleidoscope

In this toy, the special arrangement of mirrors creates an endless variety of patterns.

Materials
- 2 mirrors, each 7cm x 30cm
- stiff, heavy card 7cm x 30cm, painted black on one side
- insulating tape
- ruler, pencil and scissors
- white paper 8cm square
- clear sticky tape
- colorless cellophane 16cm square
- tiny colored paper shapes or tiny sequins and beads

1. Using the insulating tape, fix the mirrors together as shown.

2. Open the mirrors out flat so that the shiny sides face up.

3. Lay the card, black side down, on one mirror so that it completely covers that mirror.

4. Use insulating tape to stick the bottom edge of the card to the bottom edge of the mirror.

5. Fold the panels. shiny and black sides in, into a triangular tube.

6. Stick insulating tape across the two edges to hold them, then down the length of the tube.

Note: A low-cost reflective film called “Mirror Board Sheets” can be purchased via the internet. It can be cut to shape and mounted on cardboard as an easy-to-use substitute for glass mirrors.
7. Stand the tube on the white paper and trace round the base.
8. Cut out the paper triangle.

9. With the tip of the scissors, make a 1cm-diameter hole in one corner of the paper.

10. Put the paper over one end of the tube, with the hole between the mirrors. Fix the paper into place with clear sticky tape.

11. Hold the papered end of the kaleidoscope to your eye and look through the hole at some objects. You will see a circular pattern of six identical images. You can achieve the same effect with colored shapes, if you do steps 12-18.

12. Make two cellophane triangles, following steps 7 and 8.
13. Using clear sticky tape, join two sides of the cellophane triangles to make an envelope.

14. Put the paper shapes (or sequins and beads) into the envelope.
15. Seal the open side of the envelope with clear sticky tape.
16. Put the cellophane envelope over the open end of the tube and fix it in place with clear sticky tape.

17. Look toward the light through the paper-covered end of the tube.
18. Shake the tube and look again to see a different pattern.