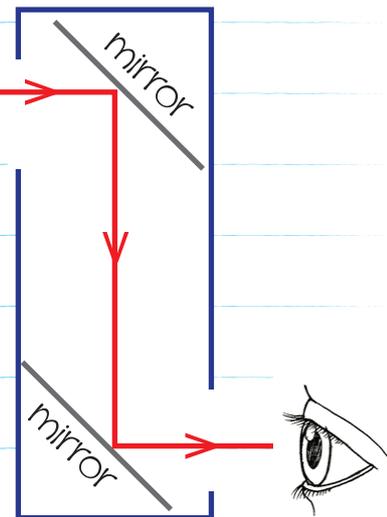
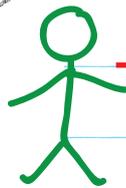
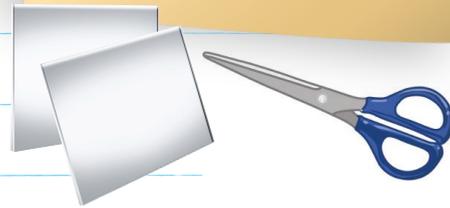
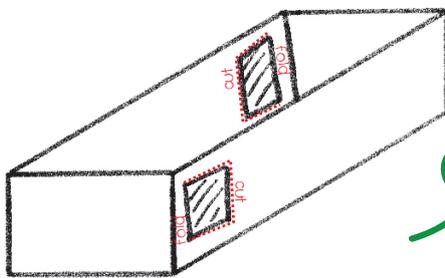
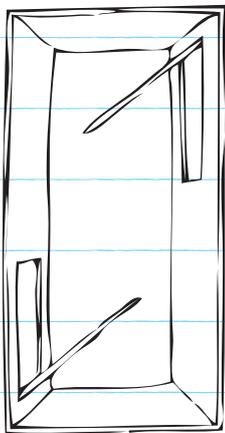


What to do:

Take off the box lid. Hold one mirror on the side and near the bottom of the shoebox and trace round it. Hold the second mirror at the opposite end of the box and trace round that too. Cut around three sides of both traced sections so that you make a flap. Slant the flaps at about 45 degrees. Hold the box on its end. Tape a mirror onto each of the flaps. Move the mirrors so that you can see out of the top hole when you look through the bottom hole. When they are in the right position, you can glue them and then glue the lid onto the shoe box.

- Things you'll need:
- Shoebox with lid
 - Two small mirrors
 - Pencil
 - Scissors
 - Tape, glue or double-sided pads.



How does it work?

Light reflects away from a mirror at the same angle that it hits the mirror. In your periscope, light hits the top mirror at a 45 degree angle and reflects away at the same angle, which bounces it down to the bottom mirror. The reflected light hits the second mirror at a 45 degree angle and reflects away at the same angle, into your eye. So horizontal rays of light are sent first in a downward direction, and then horizontally.

Time to Think:

- What uses did soldiers in WW1 make of periscopes?
- How would adding some lenses make a difference to your periscope?
- How would a periscope be useful in a tank or armoured vehicle?
- What modern technologies could replace the periscope?



Did you know?

Periscopes were essential for submarines wanting to observe what was happening, without fully surfacing and so being seen by enemy ships.

Camouflage was important so the part of the periscope which was to be above water was as long and thin as possible.

