ENGINEERING
CHALLENGE

21

MAKE A PERISCOPE

THE
JAMES
DYSON
FOUNDATION

MAKE A PERISCOPE

ENGINEERING CHALLENGE **21**

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The brief

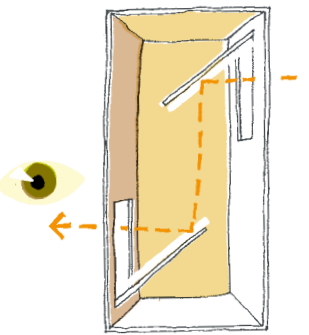
Design and build your own periscope to see around corners.

The method

1. Remove the box lid.
2. Place one mirror on the side and near the bottom of the shoebox and trace around it. Place the second mirror at the opposite end of the shoe box and trace around that too.
3. Cut out the traced sections to make a door flap. Slant the doors at 45 degree angles.
4. Tape the mirrors onto the slanted doors.
5. Adjust the mirrors. Keep moving them into place until you can see out of the top hole when you look in through the bottom hole.
6. Seal the mirrors into place using PVA glue.
7. Glue the shoebox lid back on.

Materials

- Shoebox
- Two small mirrors
- A pencil
- Scissors (with adult supervision)
- Tape
- PVA glue



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.