



Light Maze

LINKED CHALLENGE

To use mirrors to pass light through a maze

ACTIVITY OVERVIEW

Before beginning, discuss with the children the importance of not shining torches near or into their, or anyone else's, eyes. Prompt children to give reasons as to why this is so important.

Children choose one from a selection of mirrors and explain to their partner how it works. Draw out the key facts around how light travels and how mirrors work as a result. Building on this, place a piece of black sugar paper on the wall and ask the children to place their torches parallel to it. With their partner/group, can they use a mirror to make the light beam hit the sheet of paper?

Set the children a challenge: The children still need to make their light beam hit the sugar paper, but this time they must direct light through a shoe box. Each pair/group can use putty to position mirrors in the box and then try out their design. For this to be effective, they will need to put the lid back on the box. Challenge the children first to use two mirrors per box, adding another mirror each time they meet the challenge.

Each pair/group should share their design with another. Are they all the same? Why/why not? Are there any similarities or difference in the different designs they used to obtain the same results?

Extension Activity: Provide children with periscopes to explore. How do they work? What could they be used for? Can they recreate the workings of a periscope by using 2 mirrors?

KEY FACTS/SCIENCE

Light travels in straight lines until it hits an object. This might be a dull or dark object that absorbs most of the light; it might be a shiny object that changes the direction of (reflects) the light. We are able to see things that give out their own light (a light source) or reflect light into our eyes. A mirror reflects light and is usually made from clear glass that has been coated with a thin layer of metal, such as aluminium.

When light from an object is reflected by a surface, it changes direction. The light bounces off the surface and travels away at an equal and opposite angle to the incident light. The more shiny and smooth the surface, the better it reflects light; dark, dull and rough objects do not reflect light well. If a surface is rough, light will bounce back from the object in many different directions, so an image cannot form - this is why mirrors need to be smooth. Shiny surfaces allow an image to form.

Beams of light can be directed through a maze by using multiple reflections.



RESOURCES

Black sugar paper	Variety of clean mirrors
Scissors	Shoe boxes with lids, each with a pencil-sized hole at either end but opposite sides (one per pair/group)
Masking tape/mounting putty	
Strong/bright torches (one per pair/group)	

Extension Activity

Periscope (more than one if possible)

Health & Safety:

Discuss the importance of keeping the light from torches away from eyes.

QUESTIONS/FURTHER LEARNING

- How do we see things?
- How does a mirror work?
- Can other materials be used to create mirrors?

Online supporting video:

<https://www.bbc.co.uk/bitesize/topics/zbssgk7/articles/z2s4xfr>

