

How light works

Teachers Notes:

Ask students to think about how they think light travels.

Focus questions:

Does light travel in a straight line? Why do you think that?

Is light able to curve? What makes you think that?

Can light change direction on its own? Why do you think that?

Allocate students into groups.

Explain that one group member will be responsible for the collection and return of the materials and instruction sheet.

Distribute materials and a *How light travels: Investigation* sheet to each group.

Ask students to complete the first five steps of procedure 1.

Monitor student engagement.

Allow students to investigate the best way of keeping their cards straight and in line with one another.

Remind students to record their observations on the sheet *How does light travel?*

Explain that they are to complete the first prediction.

Ask students to continue with the investigation.

Tell students to stop at the end of the first procedure.

Invite students to volunteer to explain how they drew their diagrams.

Allow a few students to draw their diagrams on the board.

Explain to students that ray arrows are a scientific convention that is used in diagrams to show the path of light.

Display the sheet *Labelled diagram of investigation set-up* and draw ray arrows, explaining how they show the path of light.

Ask students to redo their diagrams using ray arrows.

Direct students to complete procedure 2.

Monitor students as they are completing their observations.

Question students throughout the activity to elicit their understanding.

Focus questions:

What is happening to the light?

Is the light behaving in the way you predicted? How is it different/the same?

What do you notice about the shape of the light on the book?

Complete the activity.

Gather students to share their observations.

Guide a whole-class discussion on the results of the investigation.

Focus questions:

What did you notice about the way the light moved from the torch to the book?

What did the string show you about the movement of light?

Did you get the results you thought you would?

Does light travel in a straight line?

Co-construct an explanation with the students that uses their observations and any patterns they noticed as evidence.

Create a chat board with the class explaining that an important part of science is to ask questions about things that we observe or things that come into our mind when we are investigating things.

Ask students to write questions and display these on the chat board.

Inform students that in the next lesson they will learn how light travelling in a straight line can explain how light allows us to see things.