

Reflection of light

Student worksheet-starter

This is not a complete worksheet – it is a suggestion that your teacher group can build on. You have probably found worksheets that were not right for your classes. Well, now you can change this one until it is right for your classes.

Task 1 Write a worksheet which will lead the students through Brian's activity to find the position of the image and its distance behind the mirror. (You might not be able to show the students the video so you will have to lead them through the activity.)

Task 2 Write these words in block letters, just as you see them, and then put a small mirror on the dotted line. Look at the images that form in the mirror. Why does the second word appear the right way up while the first word is inverted?

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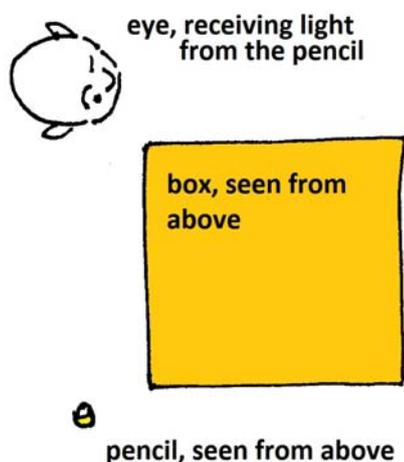
Task 3 Ask the students to write some other words in such a way that they look like normal writing when you see their image in a mirror.

Task 4 Of course, your students should make model periscopes, as you saw in the video. In the Teachers' Notes you will find ideas for making periscopes using materials different from the ones you saw in the video.

Task 5 Design and make a mirror system that will allow you to see around two corners of a building. Use a box to represent the building, as you see in **Figure 1**. Use as many mirrors as you want.

- 5.1 How does the law, *angle i = angle r*, apply in this case? Can the students sketch the normals and the rays?
- 5.2 Could you arrange 3 mirrors so that you could see your own ear if you stood where the eye is in **Figure 1**?
- 5.3 Would your head appear upside down, or the right way up?

Figure 1 Can you set up mirrors so that you see the pencil, around two corners?

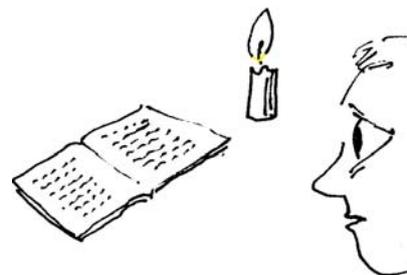


With the following questions you can do some research on how your students think about light.

Task 6 Draw **Figure 2** on the board. Ask them to copy and *complete the drawing in any way that they choose*, to show how the person can see the book when the candle is burning. They must then *write a sentence* to explain what the picture is showing.

Task 7 This is another task you can use to research your students' ideas. You can use this wording and sketch the pictures on the board. The students must write down which picture they think is the best explanation, so that they are committed to their idea. Then they can talk about why they feel that is the best explanation. You can read the discussion of the student responses in the Teachers' Notes for this video.

Figure 2 Why is the person able to see the book?



Here is the task for the students: Most people do not try to explain how we see. They simply say, “We **can** see, unless our eyes are closed.” But in science, we like to ask “How does it happen?”

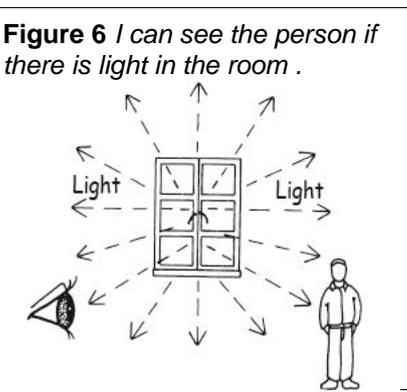
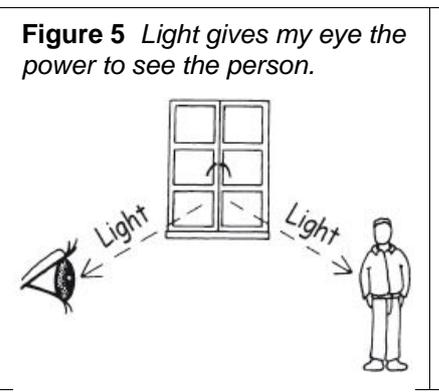
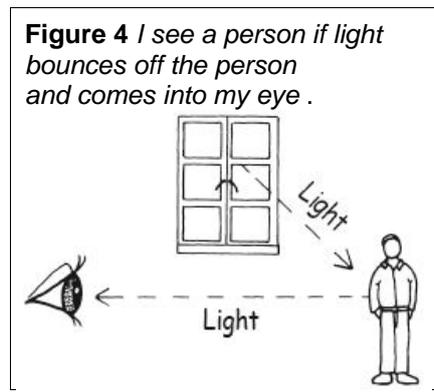
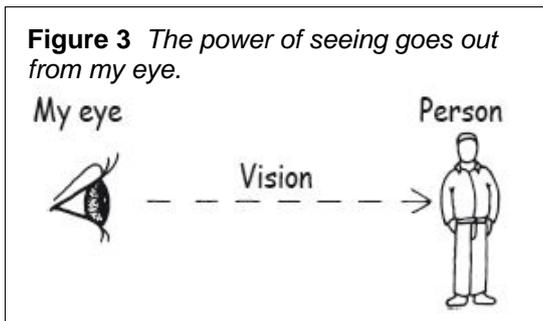
How do **you** think we see things? Work in pairs. Discuss the following statements, and choose the one that you agree with most strongly.

Statement A When I see a person, my power of seeing goes out from my eye to the person (see **Figure 3**).

Statement B I see a person if light bounces off the person and comes into my eye (**Figure 4**).

Statement C Light gives my eye the power to see a person in the room (**Figure 5**).

Statement D If there is light in the room, my eye can see the person (**Figure 6**).



Write down the statement you choose. You can come back to it and change your opinion after you have learned more about light and how the eye works