

# Forming shadows

Outstanding Science Year 3 - Light - OS3D005

## Learning Objective



I can explain how shadows are formed.

Me:

Teacher:

## What are shadows?

**Light** travels from a **light source** in straight lines. Some light hits the **surface**, lighting it up. Some light is **blocked** by the **opaque object** and lights that up instead. The part of the surface which is not receiving light from the light source is called a **shadow**.

Figure 1. No light source

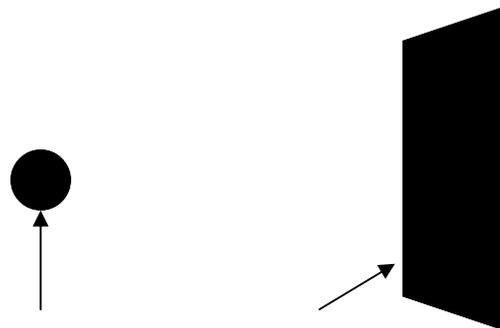
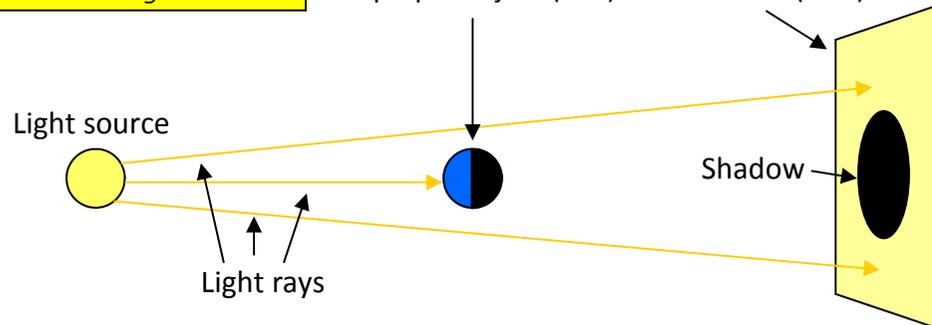


Figure 2. With light source



## National Curriculum Statutory Requirements

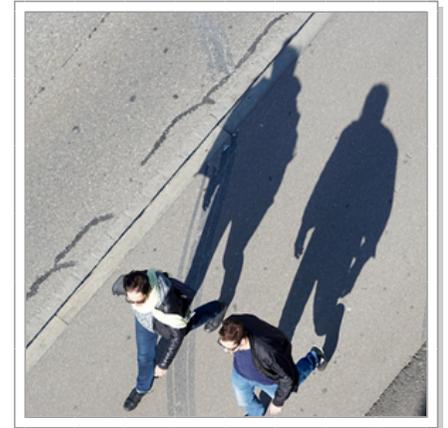
**3D4** - recognise that shadows are formed when the light from a light source is blocked by a solid object; **LKS2W2** - setting up simple practical enquiries, comparative and fair tests; **LKS2W3** - making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers; **LKS2W7** - using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions;

## Scientific question

How does the shape of an object affect its shadow?

## You will need:

- A light source (an OHP projector is ideal)
- 10 small objects
- 10 sheets of A4 paper
- A pencil
- Blu-tak (optional)



## Method

Choose one of the objects. Stick a piece of paper to the wall with Blu-tak. Position the object and the light source as in Figure 2 so that the object casts a shadow onto the paper. Carefully draw around the shadow. Repeat for all of the objects.

## Discussion

How does the shape of an object affect its shadow?

Do all objects cast the same sort of shadow?

Which result was the most surprising?

Which shadow was the hardest to draw? Why?

Are your shadows identical to the ones drawn by the other children in your class? Why?

Does it matter how far away the object is from the light source?

Does it matter if you turn the object?