

Y3 Light Shadows

KS2 Science · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

How is a shadow made?

Step 1 · What do you need?

A light source, an object and a surface behind it

Step 2 · What does an opaque object do to the light?

It blocks it — light can't pass through

Step 3 · What is left on the surface behind?

A dark area where the light can't reach: a shadow

Answer: A shadow forms when an opaque object blocks light from a light source.

Check: No light source = no shadow.

2. Now try one with the steps

**Read the results: torch 10 cm away → shadow 50 cm; torch 40 cm away → shadow 20 cm.
Describe the pattern.**

Step 1 · What happened when the torch was closer?

Step 2 · What happened when it was further away?

Answer:

3. Practice

Have a go at each one. There is space underneath to work it out.

1. What THREE things do you need to make a shadow?

2. What does 'opaque' mean?

3. Which makes a darker shadow: card or tissue paper?

4. What word describes a material that lets some light through, like frosted glass?

5. Does clear glass make a dark shadow?

6. What happens to a shadow when you move the torch closer to the object?

7. What happens to a shadow when you move the torch further away?

8. A shadow has the same outline shape object, but does it show colours or details like eyes?

9. Results: 10 cm → 50 cm, 20 cm → 30 cm, 40 cm → 20 cm. What shadow height did you get with the torch 20 cm away?

10. Using the same results, how much bigger was the shadow at 10 cm than at 40 cm?

11. To test shadow size fairly, what must stay the same each time?

12. Why is your shadow on the playground long in the early morning and short at midday?

13. Why can't you get rid of your shadow on a sunny day by running faster?

14. A puppeteer wants a huge dragon shadow on the screen. Should she put the torch near the puppet or far away?

4. Before you hand it in

A shadow is a reflection of the object.

A shadow is a dark area where light can't reach because an opaque object is in the way.

Moving the torch further away makes the shadow bigger.

The closer the light source is to the object, the bigger the shadow.

Shadows show the colour of the object.

Shadows are dark shapes with the same outline object.

Transparent objects make the darkest shadows.

Opaque objects make the darkest shadows; transparent ones hardly make any.