

Brontosaurus Learning

Making science fun!

An Experiment about

Light Changing Shadows



What you will need:

- A torch or flashlight
- A magnifying glass
- An object eg a block
- A piece of white cardboard if your walls are dark

What you will do:

- 1 If you have dark walls, place the cardboard against the wall on the floor.
- 2 Place the object on the floor about 8 inches (20cm) in front of the wall.
- 3 Turn on the flashlight and lay it on the floor in front of the object and have a look at the shadow on the wall.
- 4 Now place the magnifying glass between the object and the wall.
- 5 Move the flashlight closer and further away until the shadow is clear. What has changed?

What is going on?

Can you magnify a shadow?



A shadow forms when light is blocked by a solid object and the outline of the shadow is formed by the light coming around the object. The magnifying glass is curved so it was able to collect some of the rays of light from around the object and bend them in towards the wall. This meant more light made it onto the wall so the shadow changed.

Challenges:

- Experiment with changing the distances between the wall, the magnifying glass, the object and the torch. Change the angle of the light too and observe what happens.

TEACHING NOTES:

Brontosaurus Learning Science
Experiment: Light L12

Topic: Light

Key Concepts:

- ◆ How a magnifying glass bends light

Resources:

- Investigation Record IR01– one copy per student
- Experiment Description Light L12 – one copy per student
- Flashlight and a variety of objects of different transparency and shapes, magnifying glasses and white cardboard if your walls are a dark color.

Lesson Notes:

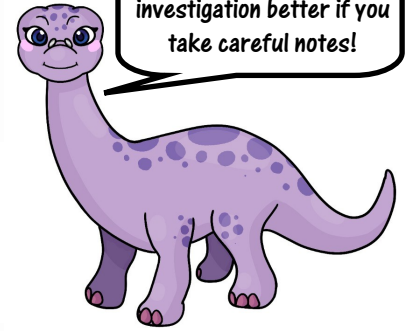
Remind students to listen carefully to instructions, and to OBSERVE their experiment. As a class discuss the experiment prior to undertaking it, and students should complete the sections of their Investigation Report IR01 from "Title to "Hypothesis".

Students should be reminded to start by following the directions carefully, however they can then experiment with moving the objects around. Encourage them to discuss and record their observations.

What should happen in this experiment, and why?

When the magnifying glass is used it will make the shadow smaller because it catches more light.

Investigation Record



Experiment Title:

Scientist (that's you!):

Materials: What will I need?

Investigation—what am I going to do in this experiment?

Diagrams are a great idea!

Hypothesis: What I think will happen:

Observation: What I SAW happen:

Diagrams are a great idea!

From my investigation I learnt:

Great work scientist!