

Brontosaurus Learning

Making science fun!

An Experiment about

Light Magnification



What you will need:

- A set of different magnifying glasses
- A sheet of graph paper

What you will do:

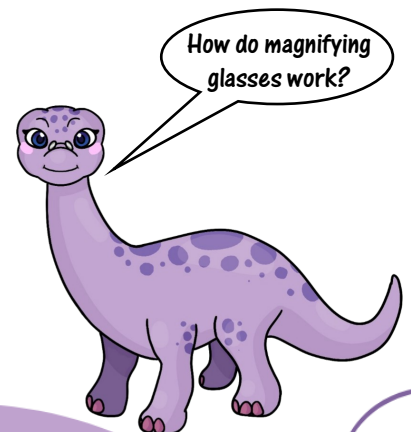
- 1 Place the graph paper on a table and lay the magnifying glass flat on top of it.
- 2 Count how many squares you can see through the magnifying glass.
- 3 Now lift the magnifying glass up. Count how many squares you can see now.
- 4 Try it at different heights—what do you see happening?
- 5 Try it with different magnifying glasses. Look closely at the different magnifying glasses and see if you can work out a pattern between the glass and your observations.

What is going on?

As you lift the magnifying glass off the page the light that reflects back off the graph paper changes so the magnifying glass bends the light differently. Can you describe the pattern?

Challenges:

- Experiment with the magnifying glass looking at different objects in the room. Does this help you observe a pattern?
- Research who invented magnifying glasses and how they did it.



TEACHING NOTES:

Brontosaurus Learning Science
Experiment: Light L13

Topic: Light

Key Concepts:

- ◆ How a magnifying glass bends light

Resources:

- Investigation Record IR01– one copy per student
- Experiment Description Light L13 – one copy per student
- Graph paper and a variety of different magnifying glasses

Lesson Notes:

Remind students to listen carefully to instructions, and to OBSERVE their experiment, looking for patterns.

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".

What should happen in this experiment, and why?

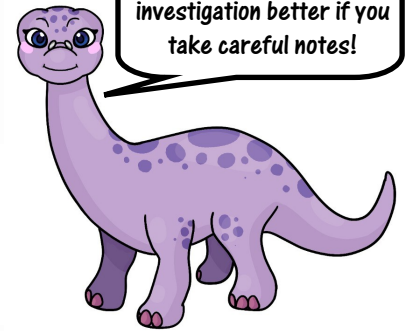
In this experiment your students should be able to observe that the further they hold the magnifying glass from the paper the fewer squares they see, until they pass the focal point of the magnifying glass. This is because the magnifying glass is bending the light from a small area of the paper outwards so it appears bigger.

They should also be able to see a difference between magnifying glasses, although depending on the types of glasses they are using they may not be able to tell that the bigger the curve in the glass the stronger the power of the magnifying glass.

Follow up discussion questions:

- A magnifying lens has a convex lens, which means that it bulges out. What would happen in this experiment if we replaced it with a concave lens, that is one that curves inwards? [images would get smaller]
- How do you think eye glasses work? [same principle—convex for short sighted people who can't see things in the distance, concave for people who need help to see text etc]

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!