

ACTIVITY

4

Exploring with Lenses

Each of the lenses that you will use in this activity is different. Observe how each lens is different from the others.

MATERIALS:

- Sets of lenses
- Science Notebooks
- Flashlight

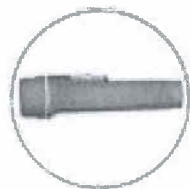


1. With a partner, examine each of the lenses in your package, one at a time.
2. Look at different things around you with each of the lenses. Shine the flashlight on each of the lenses. Compare how things look when you look through each lens.
3. In your Science Notebook list each lens. Then, as you make your observations, write about each of the lenses.

How do things look through the lens?

What happens to the light when you shine it through the lens?

4. Draw each of the lenses and label your drawing. Be sure to include a side (profile) view.
5. Write 5 sentences about lenses.
6. List any questions you have about lenses in your Science Notebook.



ACTIVITY



Looking through Lenses

A lens is a piece of transparent (see-through) material. Lenses are usually made out of glass or plastic and they have special characteristics some of which you explored in Activity 4, Exploring with Lenses. Now you will look at only two kinds of lenses and observe the similarities and differences.

MATERIALS:

- 2 Convex Lenses
- 2 Concave Lenses
- Flashlight
- White paper
- Science Notebook



1. Look closely at the lenses and answer these questions in your Science Notebook:

How are they shaped?

How are the lenses alike? How are the lenses different?

2. Look through the lenses at different things. Look at the pages of a book, your hands, a hair, and other things. Draw what you see in your Science Notebook and answer these questions. Label each picture with the type of lens with which you observed the object.

How does a convex lens make things look?

How does a concave lens make things look?



3. Lenses bend light in different directions. Shine a flashlight through the lenses onto a piece of white paper.

In what direction do convex lenses bend light?

In what direction do concave lenses bend light?



4. Shine the flashlight through different combinations of lenses: two convex lenses, two concave lenses, one concave and one convex lens. Draw a picture of what you see in your Science Notebook and answer these questions:

What happens? Can you use two different lenses to make things far away appear closer?

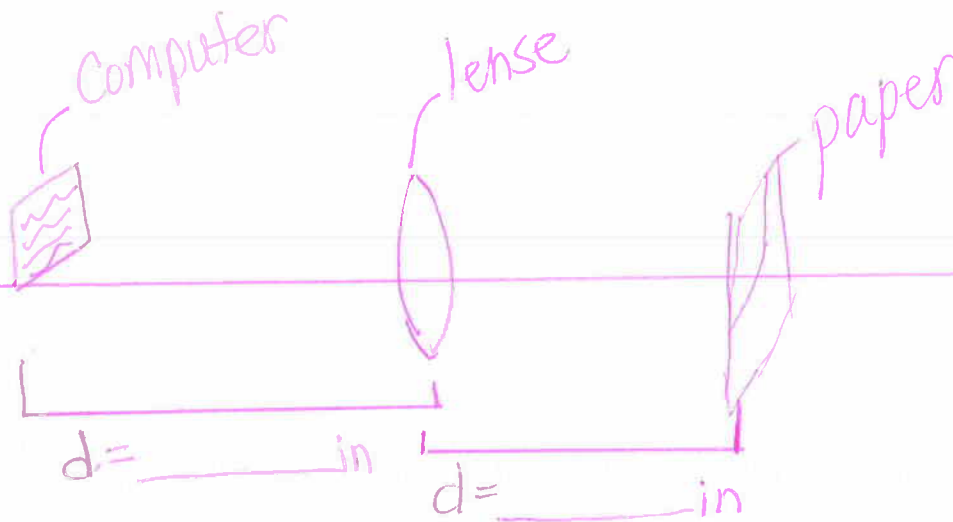
5. If you can, darken the room and place a convex lens between a sunlit window and a white piece of paper. Place the lens close to the paper then slowly move the lens towards the window. Draw a picture of what you see in your Science Notebook.
6. Design an activity for a younger student that would help you explain to them the difference between a convex lens and a concave lens.



7. Using a convex lens, go to a bright computer screen. Place the lens in between the screen and the white blank paper. Move the white paper until the image is most clear. * Measure the distance from the screen to the lens and from the lens to the paper.

* Record your measurements on the diagram below.

* draw the light rays between the computer and the lens and then from the lens to the paper. (page 445 may help.)



STUDENT SELF-CHECK

MODULE 2: LIGHT AND LENSES

Now that you have completed Module 2, follow the directions below as a self-check to see if you need more practice.

1. A window is transparent. What does that mean?
2. Which type of lens has a surface that is curved outward?
3. Which type of lens has a surface that is curved inward?
4. Name three instruments that use lenses?
5. A magnifying lens is a convex lens; does it spread light out or bring light rays together to a point?
6. If you place a convex lens between a window and a white piece of paper, what happens to the image?
7. How do you bring an image into focus using a lens?