

Mirror, Mirror

Objective

To create a take-home science activity kit about the reflection of light, using mirrors to direct reflected light, to promote family involvement in education.

Materials

To send home with each student:

One small durable non-glass mirror (discarded CDs work well)

Activity instructions with open-ended questions for adults to engage children and a data collection sheet to bring back to school.

A bag to hold both items

1. Think of, or search the Internet Resources for, an engaging question for students to investigate at home with their families using inexpensive and simple materials. Choose one that is related to what students are working on in your class, such as investigating how light can be reflected.
2. Plan how to best communicate the question to families and how to send the materials home with students.
3. Write instructions to the families including how to support their child's exploratory behavior by asking questions which require some thinking, not a simple "yes" or "no." For example,

Dear families,

This science activity kit is for you and your child to use to discover what you can learn by holding a mirrored surface under a light source. The materials you need are all in this bag except for a source of light such as the sun, a lamp, or streetlight. Your child has been learning about shadows at school and investigating how they form. Help her or him learn by doing this science activity at home, and recording what is seen with writing and drawing (this will be your data). When the data are brought to school, it will be interesting to see what students have noticed. Making observations and asking questions to learn about the properties of materials are science practices.

One question to investigate is: What happens to light when it falls on a mirrored surface? As you and your child do the activity, talk about what you see and think, and ask questions. The questions are not a test. They are a way of getting students to think about the activity.

What to do:

- 1. Have your child and other family members hold the mirror (shiny side of the CD) and look in it to see what they can see.*
- 2. Hold the mirror below a light—the sun, a lamp, flashlight, or street light. Draw a picture of the light source and the light coming from it. Draw in the mirror and the path of the light to the mirror. Remind children to never look directly at the sun or at the reflected light.*
- 3. Move and tilt the mirror around under the light. What happens when you move the mirror under the light source? Look around the room to see if the light is reflected. “Reflected” means that some of the light bounces off the mirror and travels elsewhere. Can you make the reflected light move where you want it to go? Do you see any other interesting effects? Does a different light source change the effects you see? Reflect the light onto a wall and then move the mirror closer to wall and farther away. What happens to size of the reflected light image?*
- 4. Draw a picture of the path of the light as it bounces off the mirror. Write down or draw all the things that family members noticed (these are observations).*

Return the data and the CD to school with your child on Monday. The class will look at the data for evidence to explain what they noticed.

Sincerely, Your child’s teacher

4. Now that you’ve written the note to families, review the process with your students so they are aware of the activity and the question it explores, and the day for the data (and materials) to be returned.

5. When most of the data sheets are returned, review and discuss the data with the class to learn their ideas about what they observed, look for patterns, and check for understanding that some surfaces reflect light that comes from another source. Children may say, “I made the light go up there,” “When I moved the mirror the light went up and down,” “The light didn’t shine very

much from the lamp,” “The light reflected,” or “The light that was reflected got small when I got close to the wall.”