

Investigation 5

Bottled Light

Light and Optics

Goal:

Students analyze and explain how light and optics work.

Time:

4 to 6 class sessions

Introduce the Investigation:

Bottled light is the hot item for the holiday season. It's a valuable item in many dark places! Why does everybody want bottled light?

Optics for Kids is an educational page on a commercial site for Optical Research Associates. They do not sell any materials, but they do have links to material suppliers to help teachers find desired resources.

Investigate the Optics for Kids Web site:

<http://www.opticalres.com/kidoptx.html>

Note: You can access this site through your CD-ROM by clicking on Investigation 5.

For the one-computer classroom: You may want to print out the article and pass it out to the class.

Activity 1

A Little Light Research

Everyone has so many questions before they buy their bottled light. You have all their answers. Fill in the blanks or answer the questions on the Frequently Asked Questions (FAQ) sheet.

The questions on the FAQ sheet (page 30) follow the article exactly. An answer key for this activity is provided on page 75.

Access the site for this activity through your CD-ROM:

Click on Investigation 5, Activity 1

Bottled Light

Investigation 5 (cont.)

Activity 2

A Picture is Worth a Thousand Words

You know the phrase “a picture is worth a thousand words.” Create a poster to help increase the holiday sales of bottled light. On your poster show:

- a. What will your bottled light look like?*
- b. Where could it be useful?*
- c. How long does the light last?*
- d. How much will it cost?*

Access the site for this activity through your CD-ROM:

Click on Investigation 5, Activity 2

Activity 3

The One-Minute Approach

With the installation of a new phone system in your office, you find that you are making a lot more phone calls trying to sell your bottled light. It's finally time to fine-tune your one-minute phone call sales pitch. Write a one-minute sales pitch to sell your bottled light over the phone.

Access the site for this activity through your CD-ROM:

Click on Investigation 5, Activity 3

Bottled Light

Investigation 5 (cont.)

Activity 4

Phone Follow-Up Demonstrations

More and more people are asking for demonstrations of light and what colors are in your bottled light. Obtain a prism and a light from your teacher. Use the prism to separate the light into its primary colors.

- List all the colors you think you should see from your light.*
- List all the colors you actually see from your light.*
- Which colors are not in your light but you thought should be there? Why are they not there?*
- Which colors are the brightest?*

Materials needed: light source (flashlight or sunlight), prism

Access the site for this activity through your CD-ROM:

Click on Investigation 5, Activity 4

Activity 5

Resolving Concerns

A Siberian tanning salon is investigating a new light source. They have one big concern: Should they get a white light or laser light source? Write your response to them in the form of a business letter.

Have your students explain why they should get a white light source for tanning, rather than a laser.

Access the site for this activity through your CD-ROM:

Click on Investigation 5, Activity 5

Name _____

Frequently Asked Questions about Light and Optics

Investigation 5, Activity 1

1. Light is a form of _____.
2. Is light harmful? _____
3. How fast does light travel? _____
4. How long does it take light to reach Earth from the sun? _____
5. What do you call a straight path of light? _____
6. How can I control the light? _____
7. Name at least 10 things that use light.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
8. How do plants use light? _____

9. What are the two simple types of lenses? _____
10. Does sunlight really contain all the colors of the rainbow? _____
