3 -5 Physical Science
Southern Nevada Regional Professional Development Program

Colored Light

INTRODUCTION

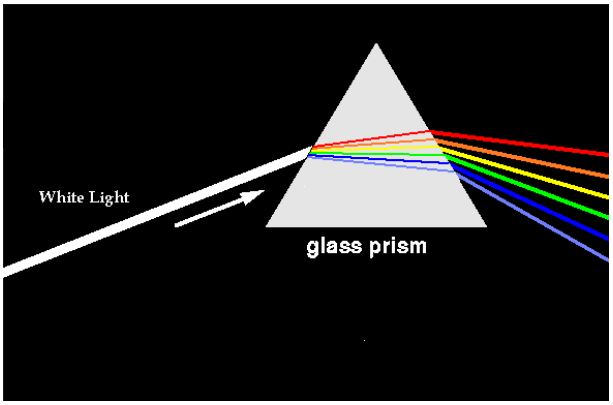
Children are fascinated by the world around them. Light and color make our world a brighter place. Children rarely equate all the colors they see with white light. This investigation will help students see light as a form of energy that is moving through their world. This lesson addresses the spectrum of light that can be seen when white light is reflected off of a prism.

WHERE'S THE SCIENCE?

Light travels in a straight line. Mirrors reflect light. Water is a natural prism which bends the light into a spectrum. **White light** is made from all of the waves of light. When white light is passed through objects, like water or a **prism**, the light is bent and as each wave is bent differently, it shows its color resulting in a rainbow effect. The colors you see in the rainbow are always in the same order. Therefore, color is a property of light. The color we see in objects is the color that reaches our eye. If an object appears to be black, it is not reflecting light. If an object is white, it is reflecting all the wavelengths of light. At the end of the investigation, students will understand that white light is made up of a mixture of all colors of light.

MATERIALS

- One shallow dish
- Water
- Window in the sun
- Piece of paper



PROCEDURES

1. Introduce the lesson by asking students what they think they know about light. Chart students' ideas and post in a visible place in the classroom.
2. Tell the students that today they are going to investigate colored light. They will work with partners and record the results of their investigation in their science notebooks. Instruct them to follow the next series of directions with their partner. Posting these directions in the front of the room will avoid confusion or missing steps.
    1. Fill a shallow dish with water.
    2. Put it by a window in the sun.
    3. Slant a small mirror in it facing the sun.
    4. Hold a piece of paper above it and move the mirror until the sun is shining through the water until reflected on the paper.
    5. What is happening and why?
    6. Record results, with illustrations.
3. Instruct the students to return to the carpet or group area with their science notebooks when the investigation is complete. Discuss what they did and their results. Ask the students what colors they saw in the rainbow. Do they see any other blended colors in the rainbow colors? Return back to the chart paper and record their ideas and further questions.

Additional Resources

http://www.misd.net/MIBIG/WavesandVibrations.html
This site has information on light.
http://www.bbc.co.uk/schools/ks2bitesize/science/activities/light_dark.shtml
This interactive website lets students experiment with light and dark.
Color and Light ISBN-10: 1-59242-366-3 Delta Science Readers www.deltaeducation.com

Vocabulary

Prism: A transparent body of this form, often of glass and usually with triangular ends, used for separating white light passed through it into a spectrum or for reflecting beams of light.

White light: light that contains all the wavelengths of the visible spectrum, as in sunlight.

Nevada State Science Standard

P5C1 Students know light can be described in terms of simple properties (e.g. color, brightness, reflection). I/S
N5A1 Students know scientific progress is made by conducting careful investigations, recording data, and communicating the results in an accurate method. E/S
N5A5 Students know how to plan and conduct a safe and simple investigation. E/S
N5B3 Students know the benefits of working with a team and sharing findings. E/L