

What Do You See?

Learning Objectives

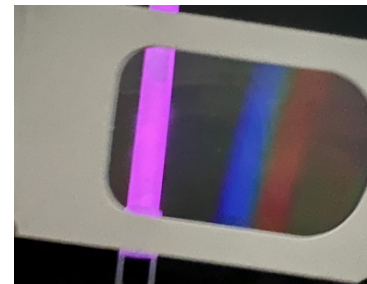
Students will be able to:

- Observe and describe color components of white light
- Compare colors emitted by different types of light sources

Background: Light is considered to carry energy because it is made of tiny packets called photons. Light does not have mass and moves in a “wave-like” fashion.

Visible light is a very small part of the electromagnetic spectrum. Some parts of the electromagnetic spectrum cannot be seen with our eyes such as ultraviolet, radio waves, and microwaves.

Visible light can be separated into a rainbow of colors by prisms, diffraction glasses (, or other physical devices. Red light has a lower frequency than blue light (Higher frequency = higher energy) and reacts differently when passing through materials like prisms or slits as diffraction glasses. This type of light separation is a quantum based phenomenon.



Investigation:

Use the diffraction glasses to explore different types of light sources such as the ceiling lights and glow sticks.

Have students illustrate the visible colors from the light sources and create a chart comparing different sources with the colors seen.

Do all light sources emit the same colors as viewed through the glasses?

Teacher Notes: Students should discover that different light sources emit different patterns. These patterns are like a fingerprint for the light and are one of the quantum properties of light. The branch of science that studies these patterns is called spectroscopy and is useful in astronomy, chemistry, materials science, and physics.