

Surviving UV Rays

Materials:

Casio EA-100 Optical Probe
Overhead Projector 3"x3" Holographic Diffraction Grating
Two pieces cardboard (or file folders)

Grade Level: 6+

Concept:

Students will measure and compare brightness of the visible spectrum using a Data Analyzer.

Background:

Ultraviolet (UV) light frequencies lie just beyond the violet visible light and near ultraviolet frequencies on the electromagnetic spectrum. UV-B is of special concern to living organisms. It is the strongest harmful UV radiation which reaches the earth. Researchers work to determine its effect on anchovy larvae, plants, fungi, and humans. In this activity you will measure relative brightness of the different colors of visible light.

Activity:

at a	Tape the diffraction grating
convex	23° angle to the vertical
projector as	lens of your overhead
	shown.
on	Place two pieces of cardboard
that	the platten of the overhead so
projected as a	a slit of light is
	spectrum.
to	1. Connect the optical probe
on.	CH1 of the Data Analyzer.
	2. Turn the Data Analyzer
	3. Select <MODE> so that the
	multimeter setting is
	displayed.
of	4. Hold the probe in a color
A	the projected spectrum.

the
choice

classmate should inspect
probe to ensure the

probe

color is entering the
directly.

5. Record the multimeter reading for each color of the spectrum.
6. Repeat the experiment.

Which color measures the brightest?

Teacher Notes:

Sample Readings:

Red:	161
Yellow:	187
Green:	204
Violet:	208

You may need to adjust the background brightness of the room and the distance to the projected screen to fit within the range of the optical probe.