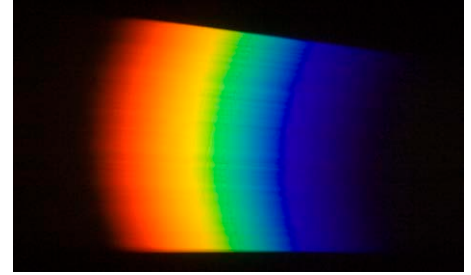
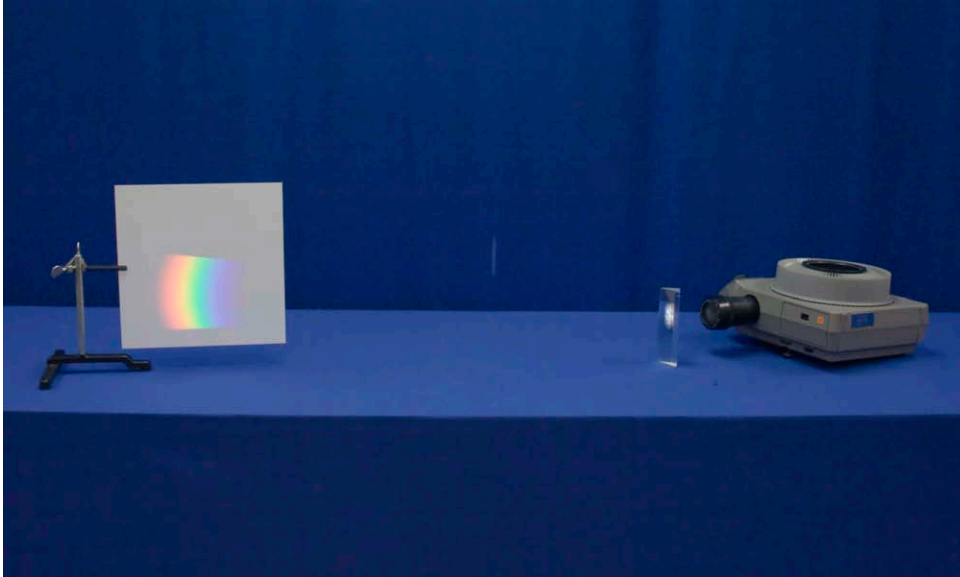


Optics

Color

Dispersion



## Concept:

This demonstration reveals the normally dispersive property of a glass prism. Dispersion is the property of a medium in which the incident electromagnetic wave (light) has a wavelength dependent phase velocity. This implies a wavelength dependent index of refraction, and in turn Snell's Law predicts that different colors of visible light will be refracted at different angles as they emerge from the medium.

In normal dispersion, such as a glass prism with visible light, this phenomenon is manifested by the shorter wavelength blue light being refracted (bent) at a greater angle than the higher wavelength red light. Some interesting applications of *anomalous* dispersion are referenced in the Notes below.

## Procedure:

1. Setup the equipment (slide projector, prism and screen) as shown in the images above.
2. Turn on the slide projector to its brightest setting and verify that the slide is being imaged and the light is going through the prism.
3. Adjust the magnification and focus of the projector and the orientation of the prism such that you get a good color spectrum on the screen
4. Adjust the screen's angle so that the spectrum is "smeared" on the screen and as spread out as desired.
5. Turn off the lights for maximum effect.

## Notes and Extras:

- Anomalous Dispersion, see, [http://en.wikipedia.org/wiki/Dispersion\\_\(optics\)](http://en.wikipedia.org/wiki/Dispersion_(optics))

## Equipment:

- Small Rod Stand
- Small Rod Clamp
- White Screen
- Glass Prism
- Slide Projector
- Slide with Slit