

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

## PhET: Prisms and Refraction MiniLab

Use the directions and simulation found at the bottom of the StickMan Physics Light page with a direct link here:

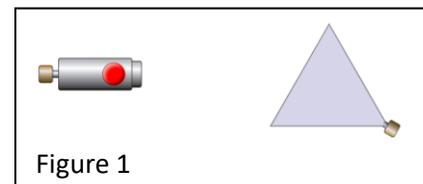
- <https://www.stickmanphysics.com/stickman-physics-home/electromagnetic-waves/color-of-light/#PhETinteractive>

Click on Prisms in the PhET animation

1. Turn on the laser by pressing the button. What color is the laser at a wavelength of 650 nm where it begins?
2. Change the wavelength of light to 550 nm. What color light do you have now?

Reset the animation and place a glass prism in front of the laser as seen in Figure 1

3. Does red laser light separate into other colors when you turn on the laser with the setup in Figure 1?



4. Change the light to white light and turn on the laser. Do the colors of light separate now?

5. Why does white light separate but red laser light does not?

Continue with the setup in figure 1 and white light

Remember that **refraction** occurs when light goes from one medium to another at an angle from a normal line and bends. The bending occurs because light travels at a different speed in a new medium that has a different density. The **normal line** is an imaginary line perpendicular to the surface of the new medium used to study the bending during refraction or reflection of light.

- 6a. What happens when you change the medium of the environment from air to water?

- 6b. Why do you think this occurs?

- 7a. Change the environment to glass around the glass pyramid. What happens?

- 7b. Why does this happen?

Explore:

Use various shapes of glass to separate the light by refraction and get the pattern in Figure 2. Draw the setup you created and the pattern of light that resulted.

