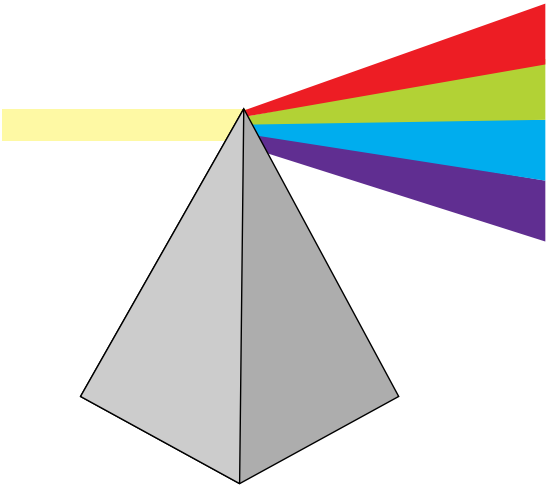
DAY 2

Rainbow Maker

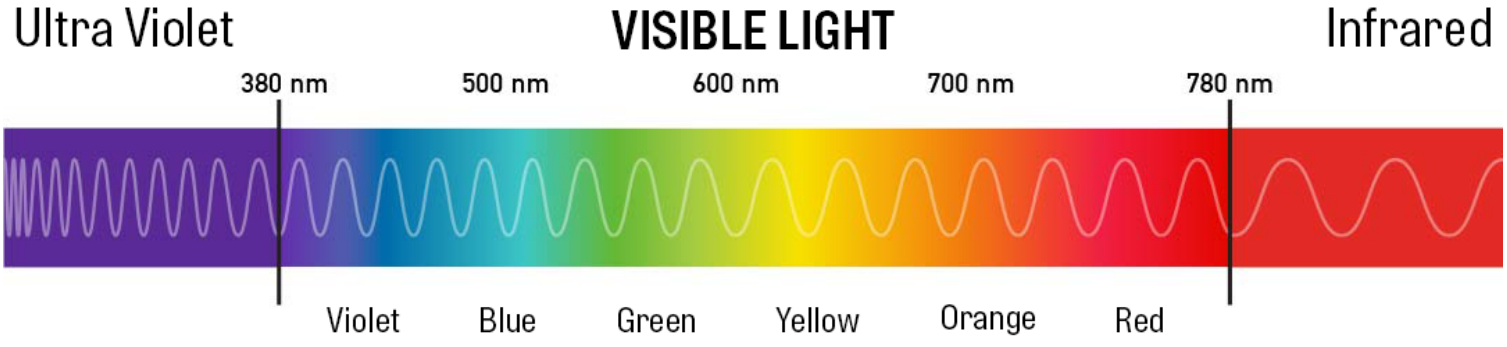
When you picture the Sun, what color do you think of? It is a common misconception that the Sun is yellow, orange, or even red. However, the Sun is essentially all the colors of the rainbow mixed together, appearing to our eyes as white.



The diffraction foil in the peephole you found on day 2 diffracts the white light — meaning it slows and bends the light — so the light waves spread out as they pass through it. This disperses white light into its spectral colors — red, orange, yellow, green, blue, indigo, and violet.

Each color has its own wavelength, which gets measured in nanometers.

Violet: 380 to 425 nm.
Indigo: 425 to 445 nm.
Blue: 445 to 520 nm.
Green: 520 to 565 nm.
Yellow: 565 to 590 nm.
Orange: 590 to 625 nm.
Red: 625 to 740 nm.



Because white light is made of these seven colors, and each has a different wavelength, when they are slowed down and bent, they bend at different degrees. Shorter wavelengths bend more sharply and longer wavelengths bend less.

A nanometer is 0.000001 millimeters (or one billionth of a meter). The human eye can only perceive colors whose waves are between 380 and 740 nanometers in size, so, while we cannot see colors that fall outside of this range, they may be visible to other organisms. For example, bees can see ultraviolet light, with wavelengths as low as 300–400 nm.