Name _____

Light's Journey: Through Space and Beyond

Open-Ended Response Answer Key

1. Without an atmosphere, there would be no medium for light to travel through, so there would be no visible objects or illumination. Everything would appear completely dark, and there would be no way to perceive the environment through sight.
2. Refraction has several practical applications, such as in eyeglasses and camera lenses. Eyeglasses use refraction to correct vision problems, and camera lenses use it to focus and capture images. Telescopes also use refraction to magnify distant objects in space.
3. The colors of a rainbow appear in a specific order due to the dispersion of light. Each color of light has a different wavelength, and when light passes through a medium like raindrops, these different wavelengths are bent by varying amounts, causing the separation of colors in a consistent order.
4. Absorption and reflection play a crucial role in solar panel design. Solar panels are designed to absorb sunlight and convert it into electricity, which is why they are typically dark in color. Reflective surfaces are avoided to minimize the reflection of light, which would reduce the efficiency of energy conversion.