

Youth AstroNet

3.P.3A.1 Obtain and communicate information to develop models showing how electrical energy can be transformed into other forms of energy (including motion, sound, heat, or light). (In this activity, we are doing light energy transformed into electrical energy.)

4.P.4A.2 Analyze and interpret data from observations and measurements to describe how the apparent brightness of light can vary as a result of the distance and intensity of the light source. (In this activity, we discuss luminosity and apparent brightness of stars, but do not analyze data to determine the distances of stars.)

4.P.4A.3 Obtain and communicate information to explain how the visibility of an object is related to light.

4.P.4A.4 Develop and use models to describe how light travels and interacts when it strikes an object (including reflection, refraction, and absorption) using evidence from observations.

8.P.3A.5 Construct explanations for how humans see color as a result of the transmission, absorption, and reflection of light waves by various materials.

8.P.3A.6 Obtain and communicate information about how various instruments are used to extend human senses by transmitting and detecting waves (such as radio, television, cell phones, and wireless computer networks) to exemplify how technological advancements and designs meet human needs. (In this activity, we are doing telescopes, which detect waves.)

8.E.4B.5 Obtain and communicate information to describe how data from technologies (including telescopes, spectrosopes, satellites, space probes) provide information about objects in the solar system and the universe.

H.P.3F.2 Plan and conduct controlled scientific investigations to determine the interaction between the visible light portion of the electromagnetic spectrum and various objects (including mirrors, lenses, barriers with two slits, and diffraction gratings) and to construct explanations of the behavior of light (reflection, refraction, transmission, interference) in these instances using models (including ray diagrams).

H.P.3F.6 Obtain information to construct explanations on how waves are used to produce, transmit, and capture signals and store and interpret information (including ultrasound imaging, telescopes, cell phones, and bar code scanners).