

MAINE SCIENCE AND ENGINEERING STANDARDS

1-PS4 Waves and Their Applications in Technologies for Information Transfer

1-PS4-1 Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.

Further explanation: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.

Planning and Carrying Out Investigations, Wave Properties, Cause and Effect

1-PS4-2 Make observations to construct an evidence-based account that objects can be seen only when illuminated.

Further explanation: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer (in Acadia National Park) with a flashlight. Illumination could be from an external light source or by an object giving off its own light.

Constructing Explanations and Designing Solutions, Electromagnetic Radiation, Cause and Effect

1-PS4-3 Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.

Further explanation: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror).

Planning and Carrying out Investigations, Electromagnetic Radiation, Cause and Effect

1-PS4-4 Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.

Further explanation: Examples of devices could include a light source to send signals, paper cup and string “telephones,” and a pattern of drum beats.

Constructing Explanations and Designing Solutions, Information Technologies and Instrumentation