MAINE SCIENCE AND ENGINEERING STANDARDS

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

4-PS4-1 Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.

Further Explanation: Examples of models could include diagrams, analogies, and physical models using wire to illustrate wavelength and amplitude of waves. Use an oscilloscope app to illustrate the patterns in an animal call or musical instrument and engineer a pattern to mimic the call.

Developing and Using Models, Wave Properties, Patterns

4-PS4-2 Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.

Further Explanation: Examples of Maine animal eyes at night such as coyotes, deer and foxes reflecting light from their retinas.

Developing and Using Models, Electromagnetic Radiation, Patterns

4-PS4-3 Generate and compare multiple solutions that use patterns to transfer information.

Further Explanation: Examples of solutions could include drums sending coded information through sound waves, using a grid of 1's and 0's representing black and white to send information about a picture, and using Morse code to send text or introduce basic computer code.

Constructing Explanations and Designing Solutions, Information Technologies and Instrumentation, Optimizing the Design Solution, Patterns