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| **Lesson Idea /GRC** | | |
| **NGSS Performance Expectation(s):**  **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. [Clarification Statement: Examples of models could include diagrams, analogies, and physical models using wire to illustrate wavelength and amplitude of waves.] [Assessment Boundary: Assessment does not include interference effects, electromagnetic waves, non-periodic waves, or quantitative models of amplitude and wavelength.]  **MS-PS4-1.** Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.[Clarification Statement: Emphasis is on describing waves with both qualitative and quantitative thinking.] [Assessment Boundary: Assessment does not include electromagnetic waves and is limited to standard repeating waves.] | | |
| **Lesson Performance Expectations:**  Use a model to develop conceptual understanding for the following wave characteristics: wavelength, amplitude, frequency, and energy.  Use a model to demonstrate how wave patterns can change and how the wave’s energy is affected by changing amplitude and frequency.  Develop a model to demonstrate how wave-like occurrences can be represented as a wave, and explain how each of the four wave characteristics is modeled in your analogy:amplitude, wavelength, frequency, and energy transfer. Use the model to show how wave patterns change when components of the model change. | | |
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