Claim, Measurement Target, and PE Bundle

Grade 8 Overall Claim
The student has demonstrated proficiency in integrating Scientific and Engineering Practices with important Disciplinary Core Ideas and Crosscutting Concepts to scientifically investigate and understand natural phenomena and solve important science and engineering design problems.

Unit 4 Measurement Target: Students are able to apply Science and Engineering Practices with an emphasis on developing and interpreting models and using mathematical representations related to how waves transfer energy and information through various materials and utilizing elements of structure and function of an object's material to determine and describe why light is reflected, absorbed, or transmitted through different materials.

Unit 4 PE Topic Bundle:

- **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.]
- **MS-PS4-2.** Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials. [Clarification Statement: Emphasis is on both light and mechanical waves. Examples of models could include drawings, simulations, and written descriptions.] [Assessment Boundary: Assessment is limited to qualitative applications pertaining to light and mechanical waves.]
- **MS-ETS1-1.** Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

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