

**Task: Electromagnetic PASTA**

## Alignment of Performance Task with National Standards

Grade Level: 9-12

<b>Specific skills and knowledge demonstrated by the task:</b>	<b>Alignment with Project 2061 Benchmarks for Science Literacy</b>	<b>Alignment with National Science Education Standards</b>
Students' ability to describe the different types of electromagnetic radiation, including their uses by humans.	<b>4F- Motion (9-12)#3:</b> ...A great variety of radiations are electromagnetic waves: radio waves, microwaves, radiant heat, visible light, ultraviolet radiation, x-rays, and gamma rays.	<b>Standard B: Physical Science- Interactions of Matter and Energy:</b> ...Electromagnetic waves include radio waves (the longest wavelength), microwaves, infrared radiation (radiant heat), visible light, ultraviolet radiation, x-rays, and gamma rays. The energy of electromagnetic waves is carried in packets whose magnitude is inversely proportional to the wavelength.
Students' ability to represent an abstract concept with a physical model/analogy	<b>11B Models (6-8)#1:</b> Models are often used to think about [things and] processes that happen too slowly, too quickly, or on too small a scale to observe directly...	<b>Unifying Concept and Processes-Evidence, Models, and Explanation:</b> Models are tentative schemes or structures that correspond to real objects, events, or classes of events, and that have explanatory power...Models take many forms, including physical objects...
Students' ability to critique a model, understanding how it is both like and unlike the real thing.	<b>11B Models (6-8)#3:</b> Different models can be used to represent the same thing. What kind of a model to use and how complex it should be depends on its purpose. The usefulness of a model may be limited if it is too simple or if it is needlessly complicated. Choosing a useful model is one of the instances in which intuition and creativity come into play in science...	<b>Standard A: Inquiry- Recognize and Analyze Alternative Explanations and Models:</b> ...examining logic so as to decide which explanations and models are best...