HUGK12 Activity

TITLE:

Wavelength vs. Frequency

PREPARED BY:

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DCPS STANDARDS:

8.5.7. Know the sun's radiation consists of a wide range of wavelengths, mainly visible light and infrared and ultraviolet radiation.

8.8.3. Explain how electromagnetic waves differ from mechanical waves in that they do not need a medium for propagation; nevertheless, they can be described by many of the same quantities: amplitude, wavelength,
frequency (or period), and wave speed.

GOAL:

Students will understand the relationship between wavelength and frequency.

OBJECTIVES:

Students will be able to observe different wavelengths and calculate the respective frequency.

PREREQUISITE KNOWLEDGE:

Background

-The visible light is composed of the colors red, orange, yellow, green, blue, indigo, and violet..
-Light travels in waves with properties of wavelength and frequency.
-Wavelength is the distance between identical locations on adjacent waves.
-Frequency is the number of complete waves, or wavelengths, that pass a given point - each second.
-All light travels at the same speed, but each color has a different wavelength and frequency.
-It is their different wavelengths that cause the different colors of light to separate.

ESSENTIAL QUESTION:

How do objects with the same mass or different masses respond to a collision?

LABORATORY MATERIALS:

Adding machine tape with different wavelengths marked
Stiff paper with viewfinder cut out
Time piece

DIFFERENTIATING INSTRUCTION:

English Language Limited students should have no problems with this activity.

RATIONALE:

This activity is designed to have students become frequency.

RESEARCH ACTIVITY:

Students will observe average number of wavelengths appearing in the viewfinder and calculate the frequency of each wavelength.

EVALUATION AND ASSESMENT:

Students will compare the wavelength and frequencies and note the relationship.