8th Grade Science Unit 4: Waves (S8P4) Proficiency Sheet
S8P4. Obtain, evaluate, and communicate information to support the claim that electromagnetic (light) waves behave differently than mechanical (sound) waves.

Lessons	Learning Target / Activity	Achievement Level Descriptors
	S8P4.a Ask questions to develop explanations about the similarities and differences between electromagnetic and mechanical waves.	**Beginning:** I can recognize the similarities and differences between electromagnetic and mechanical waves.
		Developing: I can compare the similarities and differences between electromagnetic and mechanical waves.
		Proficient: I can ask questions to develop explanations about the similarities and differences between electromagnetic and mechanical waves.
		Distinguished: I can evaluate questions used to develop explanations about the similarities and differences between electromagnetic and mechanical waves.
	S8P4.b Construct an explanation using data to illustrate the relationship between the electromagnetic spectrum and energy.	**Beginning:** I can use data to illustrate the relationship between the electromagnetic spectrum and energy;
		Developing: I can construct a simple explanation using data to illustrate the relationship between the electromagnetic spectrum and energy.
		Proficient: I can construct an explanation using data to illustrate the relationship between the electromagnetic spectrum and energy.
		Distinguished: I can evaluate graphical display or other model to illustrate the relationship between the electromagnetic spectrum and energy.

S8P4.c Design a device to illustrate practical applications of the electromagnetic spectrum (e.g., communication, medical, military).	**Beginning:** I can recognize that the electromagnetic spectrum can be used to help make devices used in communication, the medical field, and technology.
	Developing: I can explain how the electromagnetic spectrum is used in practical applications in devices.
	Proficient: I can design a device to illustrate practical applications of the electromagnetic spectrum (e.g., communication, medical, military).
	Distinguished: I can refine the design of a device used to illustrate practical applications of the electromagnetic spectrum.
S8P4.d Develop and use a model to compare and contrast how light and sound waves are reflected, refracted, absorbed, diffracted or transmitted through various materials.	**Beginning:** I can recognize that light and sound waves are reflected, refracted, absorbed, diffracted or transmitted through various materials.
	Developing: I can use a provided model to describe how light and sound waves are reflected, refracted, absorbed, diffracted or transmitted through various materials.
	Proficient: I can develop and use a model to compare and contrast how light and sound waves are reflected, refracted, absorbed, diffracted or transmitted through various materials.
	Distinguished: I can refine models used to compare and contrast how light and sound waves are reflected, refracted, absorbed, diffracted or transmitted through various materials.

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	S8P4.e Analyze and interpret data to predict patterns in the relationship between density of media and wave behavior (i.e., speed).	**Beginning:** I can recognize that a relationship exists between density of media and wave behavior (i.e., speed).
		Developing: I can use provided data to describe patterns in the relationship between density of media and wave behavior (i.e., speed).
		Proficient: I can analyze and interpret data to predict patterns in the relationship between density of media and wave behavior (i.e., speed).
		Distinguished: I can create graphical displays used to predict patterns in the relationship between density of media and wave behavior (i.e., speed).
	S8P4.f Develop and use a model (e.g., simulations, graphs, illustrations) to predict and describe the relationships between wave properties (e.g., frequency, amplitude, and wavelength) and energy.	**Beginning:** I can identify some properties of waves.
		Developing: I can use provided models describe the relationships between wave properties and energy.
		Proficient: I can develop and use a model (e.g., simulations, graphs, illustrations) to predict and describe the relationships between wave properties (e.g., frequency, amplitude, wavelength) and energy.
		Distinguished: I can critically analyze models used to predict and describe the relationships between wave properties and energy.

	S8P4.g Develop and use models to demonstrate the effects that lenses have on light (i.e., formation an image) and their possible technological applications.	**Beginning:** I can recognize the effects that lenses have on light.
		Developing: I can use provided models to describe the effects that lenses have on light and their possible technological applications.
		Proficient: I can develop and use models to demonstrate the effects that lenses have on light (i.e., formation an image) and their possible technological applications.
		Distinguished: I can critically analyze models to demonstrate the effects that lenses have on light and their possible technological applications.

Vocabulary

Electromagnetic wave   Mechanical wave   Transverse wave   Longitudinal wave   Crest   Trough   Speed

Compression   Rarefaction   Density   Reflection   Refraction   Diffraction   Transmission   Absorption

Scattering   Frequency   Wavelength   Amplitude   Convex   Concave   Focal length   Magnification

Real image   Virtual image

Graph Your Grade

100										
90										
80										
70										
60										
50										

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