

Wright City Science Curriculum

Grade	8th Grade
Unit of Study	Waves
Length of Unit	4 Weeks

Sample Essential Questions	Sample Corresponding Big Ideas
How does a wave transfer energy without transferring the material it travels through?	Waves Transfer Energy: Waves are a mechanism for transferring energy from one place to another without transferring matter.
What is the relationship between the physical properties of a wave (like amplitude) and the amount of energy it carries?	Energy and Wave Amplitude: The amount of energy a wave carries is directly related to its amplitude (the height of the wave). A larger amplitude means more energy.
How do different materials affect the way waves (such as light or sound) interact with them?	Wave Interactions: When waves encounter a new medium or object, they can interact in predictable ways: they can be reflected (bounced back), absorbed (converted to other forms of energy, like heat), or transmitted (pass through the material).
Why is using mathematical representations and models important for understanding and predicting wave behavior?	Modeling Waves: Mathematical models and visual representations (like diagrams or computer simulations) can be used to describe the properties of waves and predict how they will behave.
How do different materials cause a wave to be reflected, absorbed, or transmitted? What determines whether a wave will bounce off, pass through, or be stopped by an object?	Material Dependence: The specific material an object is made of determines how a wave will interact with it (how much is reflected, absorbed, or transmitted)

Missouri Learning Standards

Priority Standards

- 6-8.PS4.A.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.
- 6-8.PS4.A.2:** Develop and use a model to describe how waves are reflected, absorbed, or transmitted through various materials.

Unit 5 Sequence

MLS	Topic(s)	Learning Targets	Academic Vocabulary
6-8.PS4.A.1	Wave Properties	I will be able to describe how matter and energy interact when waves are generated.	Wave, Energy, Amplitude, Matter, Model, Reflection, Absorption, Transmission, Medium, Mechanical Wave, Frequency
		I will be able to identify the properties of waves and distinguish between the two main types of mechanical waves.	
		I will be able to describe the relationship between a wave's amplitude and its energy.	
6-8.PS4.A.2	Wave Models	I will be able to compare and explain how an object's material and light's frequency affect the way light is reflected, absorbed, or transmitted	

MLS	Learning Activities	
6-8.PS4.A.1, 6-8.PS4.A.2	Generation Genius: Wave Absorption, Reflection and Transmittance	Can Do
6-8.PS4.A.1, 6-8.PS4.A.2	Mechanical Waves Notes	Must Do
6-8.PS4.A.1, 6-8.PS4.A.2	Mechanical Waves Lab	Must Do
6-8.PS4.A.1, 6-8.PS4.A.2	Bill Nye: Waves Activity	Can Do
6-8.PS4.A.1, 6-8.PS4.A.2	Longitudinal Waves Lab	Must Do
6-8.PS4.A.1, 6-8.PS4.A.2	Electromagnetic Waves Notes	Must Do
6-8.PS4.A.1, 6-8.PS4.A.2	Electromagnetic Spectrum Article Assignment	Can Do
6-8.PS4.A.1, 6-8.PS4.A.2	Bill Nye: Light Optics Activity	Can Do
6-8.PS4.A.1, 6-8.PS4.A.2	Generation Genius: Electromagnetic Spectrum Assignment	Can Do

Assessments		
MLS	Description or Location	Rubric/Location
6-8.PS4.A.1, 6-8.PS4.A.2	Unit 5 Quiz 26/27	Pear Assessment

Additional Resources