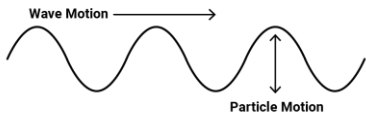
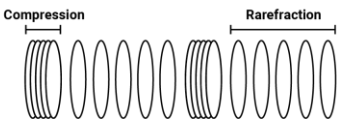


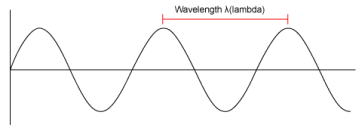
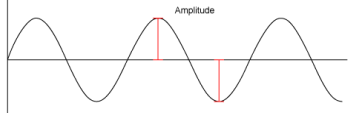
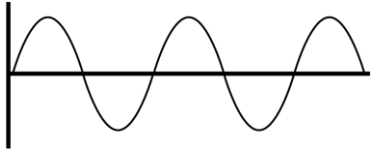
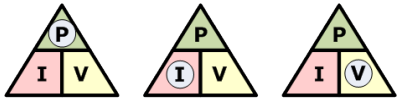
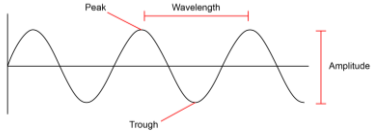



WAVES UNIT VOCABULARY (TEACHER'S GUIDE)

Word	Definition	Examples
Oscillation	Consistently repeating vibration or motion.	
Medium	A physical substance that carries the wave. The wave medium always returns to its original position after the wave passes through it.	Almost any kind of matter, air, water, or solids, such as steel or rock.
Transverse Waves	Bouncy waves when the medium vibrates up and down.	 <p>The diagram shows a sinusoidal wave moving to the right, indicated by a horizontal arrow labeled 'Wave Motion'. A vertical double-headed arrow labeled 'Particle Motion' indicates that the particles of the medium vibrate perpendicular to the direction of wave travel.</p>
Longitudinal Waves	Stretchy waves when the medium expands (stretches) and compresses (squeezes).	 <p>The diagram shows a longitudinal wave moving to the right. It consists of alternating regions of 'Compression' (where particles are crowded together) and 'Rarefaction' (where particles are spread apart). The wave is represented by a series of overlapping loops.</p>
Wave Pulse	A short duration vibration that creates a single displacement traveling through the medium.	 <p>The diagram shows a single, localized disturbance on a string, represented by a single pulse that has traveled a distance from its source.</p>
Driven Wave	A constant oscillation that creates a continuous displacement or vibration of the medium.	 <p>The diagram shows a continuous, repeating disturbance on a string, represented by a series of pulses that have traveled a distance from their source.</p>
Velocity	The speed that something travels at. If we know the speed something is traveling at and the total time the object was traveling, we can determine the distance it traveled.	$\text{Velocity} = \text{distance}/\text{time}$ $\text{Distance} = \text{velocity} \cdot \text{time}$

Word	Definition	Examples
Wavelength λ "lambda"	The horizontal distance between the start and end points of one full wave cycle.	
Amplitude A	The vertical height of a wave, measured from the center line to the top of a peak or the bottom of a trough.	
Frequency f	The number of wavelengths that passes a fixed point in one second.	
The Wave Equation	Velocity = Frequency · Wavelength <ul style="list-style-type: none"> • Velocity is represented by a V • Frequency is represented by f • Wavelength is represented by λ, which is the Greek letter "lambda" 	$v = f \lambda$
Triangle of Power	Visual representation of equations to calculate velocity, frequency, and distance of wavelengths.	 $\textcircled{P} = I \times V \quad \textcircled{I} = \frac{P}{V} \quad \textcircled{V} = \frac{P}{I}$
Inverse Relationship	For two interconnected quantities, as one gets bigger, the other gets proportionally smaller, and vice-versa.	$f \rightarrow \lambda \quad \lambda \rightarrow f$
Interference	When two or more waves combine additively.	

Word	Definition	Examples
Constructive Interference	Waves combine <u>peak + peak</u> or <u>trough + trough</u> to produce a wave of larger amplitude.	
Destructive Interference	Waves combine <u>peak + trough</u> so that amplitudes cancel one another.	
Interference Patterns	When two or more freely traveling waves interfere and merge via constructive and destructive interference.	
Reflection	When a wave bounces off a barrier and changes direction of travel. A wave that encounters a hard barrier is flipped on itself.	
Phase	The position of one wave in relation to another.	
In Phase	Peaks and troughs directly line up.	
Out of Phase	Peaks and troughs do not line up.	
180° Out of Phase	Peaks and troughs are exactly opposite.	
Resonance	When a system vibrates at a single frequency, we call this a standing wave. Only wavelengths that fit within an object will resonate.	
Refraction	The fact or phenomenon of light, radio wave, etc. being deflected in passing obliquely through the interface between one medium and another through a medium of varying density.	

Word	Definition	Examples
Absorption	The process or action by which one thing soaks up or blots out another.	
Emission	Something that has been emitted, released, or discharged.	