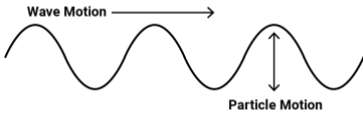
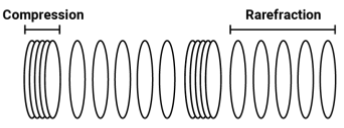

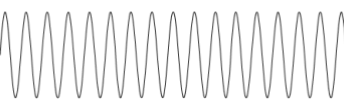
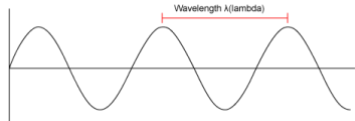
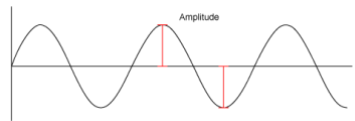
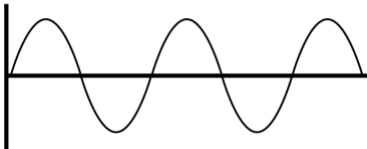
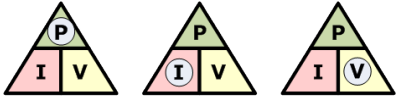
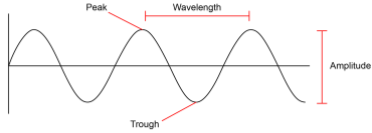



## WAVE VOCABULARY TEACHER GUIDE

Term	Definition	Examples
<b>Oscillation</b>	Consistently repeating vibration or motion	
<b>Medium</b>	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.
<b>Transverse waves</b>	Bouncy waves; 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>
<b>Longitudinal waves</b>	Stretchy waves; 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), represented by a series of ovals.</p>
<b>Wave pulse</b>	A short duration vibration that creates a single displacement traveling through the medium	 <p>The diagram shows a single, localized disturbance on a string, consisting of a few cycles of a wave pulse that has traveled a certain distance.</p>
<b>Driven wave</b>	A constant oscillation that creates a continuous displacement or vibration of the medium	 <p>The diagram shows a continuous, repeating sinusoidal wave, representing a steady-state oscillation.</p>

Term	Definition	Examples
<b>Velocity</b>	<p>The speed that something travels</p> <p>If we know the speed something is traveling and the total time the object was moving, we can determine the distance it traveled.</p>	<p>Velocity = distance/time</p> <p>Distance = velocity · time</p>
<b>Wavelength: <math>\lambda</math></b> <i>"lambda"</i>	<p>The horizontal distance between start and end points of one full wave cycle</p>	
<b>Amplitude: A</b>	<p>The vertical height of a wave, measured from the center line to the top of a peak or the bottom of a trough</p>	
<b>Frequency: f</b>	<p>The number of wavelengths that passes a fixed point in one second</p>	
<b>The wave equation</b>	<p>Velocity = Frequency · Wavelength</p> <ul style="list-style-type: none"> <li>• Velocity is represented by a V</li> <li>• Frequency is represented by f</li> <li>• Wavelength is represented by <math>\lambda</math>, which is the Greek letter "lambda"</li> </ul>	$v = f \lambda$
<b>Triangle of Power</b>	<p>Visual representation of equations to calculate velocity, frequency, and distance of wavelengths</p>	 <p> <math>P = I \times V</math>     <math>I = \frac{P}{V}</math>     <math>V = \frac{P}{I}</math> </p>

Term	Definition	Examples
<b>Inverse relationship</b>	For two interconnected quantities, as one gets bigger, the other gets proportionally smaller, and vice-versa.	$f \rightarrow \lambda$ $\lambda \rightarrow f$
<b>Interference</b>	When two or more waves combine additively	
<b>Constructive interference</b>	Waves combine <u>peak + peak</u> or <u>trough + trough</u> to produce a wave of larger amplitude.	 <p>A diagram of a sinusoidal wave. A horizontal line represents the equilibrium position. The wave oscillates above and below this line. A red arrow points to the highest point, labeled 'Peak'. A red arrow points to the lowest point, labeled 'Trough'. A red double-headed arrow spans the distance between two consecutive peaks, labeled 'Wavelength'. A red vertical double-headed arrow on the right side indicates the height from the equilibrium line to a peak, labeled 'Amplitude'.</p>
<b>Destructive interference</b>	Waves combine <u>peak + trough</u> so that amplitudes cancel one another.	
<b>Interference patterns</b>	When two or more freely traveling waves interfere and merge via constructive and destructive interference	 <p>A photograph showing a complex interference pattern of light, likely from a double-slit experiment. The pattern consists of numerous overlapping, concentric, and somewhat irregular bands of varying colors (blues, purples, and greys), creating a textured, circular appearance.</p>
<b>Reflection</b>	When a wave bounces off a barrier and changes direction of travel; A wave that encounters a hard barrier is flipped on itself.	
<b>Phase</b>	The position of one wave in relation to another	

Term	Definition	Examples
<b>In phase</b>	Peaks and troughs directly line up.	
<b>Out of phase</b>	Peaks and troughs do not line up.	
<b>180° out of phase</b>	Peaks and troughs are exactly opposite.	
<b>Resonance</b>	When a system vibrates at a single frequency we call this a standing wave; only wavelengths that fit within an object will resonate.	
<b>Refraction</b>	The fact or phenomenon of light, radio waves, etc. being deflected in passing obliquely through the interface between one medium and another through a medium of varying density	
<b>Absorption</b>	The process or action by which one thing soaks up or blots out another	
<b>Emission</b>	Something that has been emitted, released, or discharged	

