transverse vibration - occurs when an object vibrates perpendicular to its axis (a pendulum)

longitudinal vibration - occurs when an object vibrates parallel to its axis (a spring)

torsional vibration - occurs when an object around its axis (a spring)

cycle - one complete vibration

frequency - the number of cycles per second

\[
f = \frac{\text{cycles}}{\text{time}}\]

*measured in Hertz, 1 Hz = cycles/s

period - the time required for one cycle

\[
T = \frac{\text{time}}{\text{cycles}}\]

*measured in seconds (s)

frequency-period relationship - frequency and period are inversely proportional

\[
f = \frac{1}{T} \quad \text{and} \quad T = \frac{1}{f}
\]

wavelength - distance between successive wave particles in phase (λ)

transverse wave - particles in the medium move perpendicular to the direction of the wave (ie. a water wave)

longitudinal wave - particles in the medium move parallel to the direction of the wave (ie. a spring or sound wave)
Universal Wave Equation - the speed of a wave can be determined by:

\[ v = \frac{\lambda}{T} \]

\[ v = \lambda \cdot f \]

\[ v = \text{speed} = \frac{\text{distance}}{\text{time}} \]

\[ v = \text{wavelength} \cdot \text{frequency} \]

Wave Interference - occurs when two or more waves act at the same time on the same particles in a medium

Constructive Interference - occurs when waves build upon each other (amplitudes are added together)

Destructive Interference - occurs when waves cancel each other out (amplitudes cancel)