

Waves Notes

A wave is a _____ that carries _____ but not _____.

Two types of waves: Mechanical & Electromagnetic

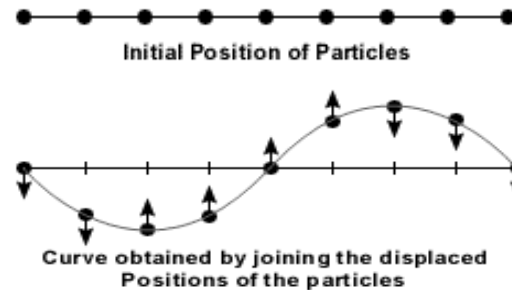
_____ require a physical _____. Energy causes a molecule of matter to move, and bump into a neighboring molecule. The momentum of the first molecule transfers to the second.

The particles in the medium can move in two different ways:

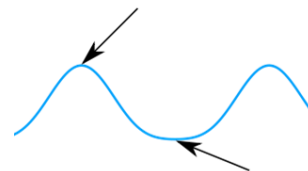
- In a _____ wave, the particles in the medium move _____ to the direction of the wave.
- In a _____ wave, the particles in the medium move _____ to the direction of the wave.
- A _____ wave is often a combination of the two. Particles typically move in _____ or _____ paths at the surface of a medium.

_____ : Waves in which the medium moves perpendicular to the direction of the wave

Ex: _____, _____



Parts of transverse waves:

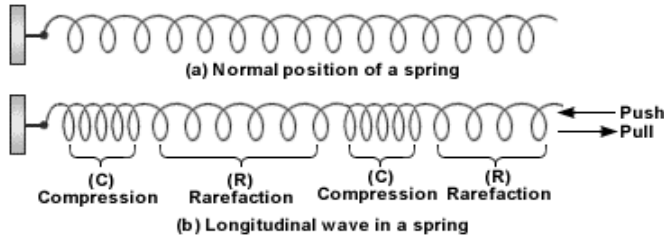


_____ : the highest point of the wave

_____ : the lowest point of the wave

_____ waves: Waves in which the medium moves _____ to the direction of the wave

Ex: _____,



Parts of longitudinal waves:

_____ : where the particles are close together

_____ : where the particles are spread apart

Wave Properties

Wave properties depend on what (_____) is making the waves.

_____ : The distance between one point on a wave and the exact same place on the next wave.



_____ : How many waves go past a point in one second; unit of measurement is hertz (Hz).

The higher the frequency, the more energy in the wave.

- 10 waves going past in 1 second = _____ Hz
- 1,000 waves go past in 1 second = _____ Hz

_____ : How far the medium moves from rest position (where it is when not moving).

- For _____ waves, the highest point is the crest, and the lowest point is the trough.
- With _____ waves, the closer together (compressions) and further apart (rarefactions) the particles are, the larger the amplitude

Changing Wave Direction

_____ : When waves bounce off a surface.

- If the surface is flat, the angle at which the wave hits the surface will be _____ (angle in = angle out).
- This is the law of reflection.

_____ : Waves can bend.

- This happens when a wave enters a new medium and its _____.
- The amount of bending depends on the medium it is entering.

_____ : The bending of waves _____ an object.

- The amount of bending depends on the size of the obstacle and the size of the waves.
- Large obstacle, small wavelength = _____ diffraction
- Small obstacle, large wavelength = _____ diffraction

_____ waves Do Not Need _____ (a medium) to transfer energy. They can travel through _____. EM waves are considered _____ waves because they have similar characteristics.

Examples: _____, _____ & _____ waves, _____, _____, _____, energy from _____, _____

The electromagnetic _____ illustrates the range of wavelengths and frequencies of electromagnetic waves.