**NOTES 4.1: Properties of Waves**

* A wave is a disturbance or movement that transfers \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ through matter or space without causing any \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the capacity to apply a force over a distance.
* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is a push or a pull on an object.
	+ Examples of waves include:\_\_\_\_\_\_\_\_\_\_\_\_\_waves, \_\_\_\_\_\_\_\_\_\_\_ waves, and microwaves.

**Parts of a wave**

* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the highest point on a wave.
* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the lowest point on a wave.
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the distance, in metres, for one complete cycle of the wave. Crest to crest or trough to trough.
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the height of a wave crest or depth of a trough, as measured from its rest position.
* **The larger the amplitude, the greater the energy transported…**
	+ **Light waves 🡪 bright light has a large amplitude (more energy)**

 **🡪 dim light has a lower amplitude (less energy)**

Label each of the following parts of a wave

F =\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

G=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

H=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

J=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



The matter that waves travel through is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Two types of waves that travel through a medium are:
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ wave – matter in the medium moves perpendicular to direction of the wave

 

* + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ wave – matter in the medium moves parallel to direction of the wave.



**Frequency**

* Frequency is the number of repetitive motions, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , that occur in a given time.
* Frequency is usually measured in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* When the frequency of a wave increases the wavelength decreases.
	+ Wavelength and Frequency behave as opposite’s 🡪 they have an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Frequency can be calculated using the following equation:

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Use the above equation to find the frequency for each of the following: (complete on separate sheet of paper)

* a) A hummingbird flaps its wings 120 times in 3 seconds.
* b) A DVD spins 350 times in 1 minute seconds.

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