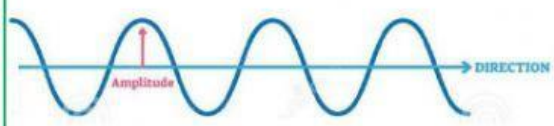
WAVES - Worksheet 1

Waves

'A wave is a disturbance that propagates in space and time.'

- A wave is caused by a **vibrating source**.
- Waves transfer **energy** but do not transfer the medium.

There are two basic types of wave motion (choose the right option)



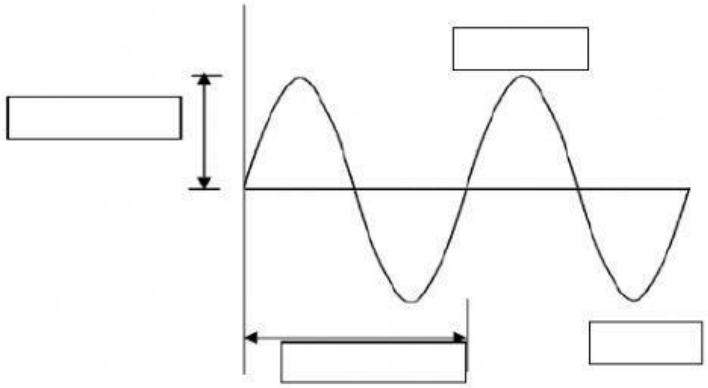


- **progressive** waves – travelling disturbances that transfer ……;
- **stationary** (or ……) waves – non-travelling waves that …… transfer energy from one end to the other.

Key terms

term	symbol	definition	unit
amplitude		The …… displacement of the medium from its …… (*equilibrium*) position	
wavelength		The spatial period of the wave in the direction of motion: thedistance Between any two successive points with the …… phase (e.g…… to ……)	
crest		the …… point on a wave	
trough		the ……point on a wave	
frequency		the …… of waves passing a point per …… ……	
period		the …… taken for …… complete wave to pass	

Use key terms from the table to label:
Wavelength **amplitude** **crest** **trough**



The connection between *f* and *T*

f =

T =

Connection between v, f and λ

V =

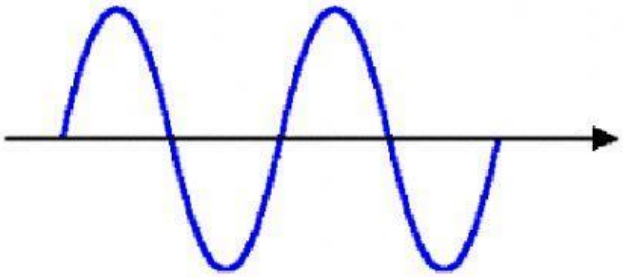
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WAVES - Worksheet 2

Use these words to complete the paragraph below

peaks	**energy**	**frequency**	**pitch**	**two**
wavelength	**hertz**	**crest**	**amplitude**	**colour**

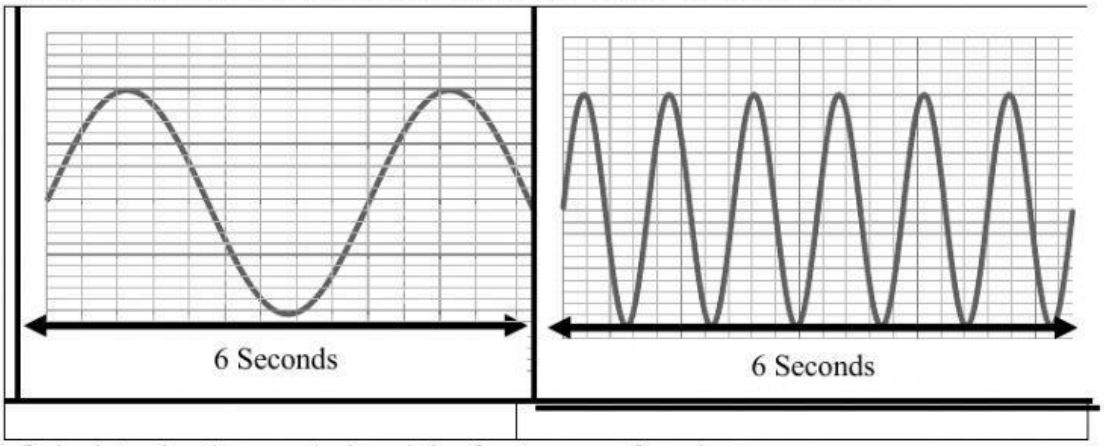
The distance between two consecutive_____of a wave is called the_____of the wave. The furthest point of wave above the undisturbed position is called the peak or_____of the wave. The furthest point of a wave below the undisturbed position is called the trough of the wave. The height of a peak measured from the undisturbed position is called the_____of the wave. There are_____complete waves in the diagram below. The number of complete waves passing a point per second is called the_____of the wave and is measured in_____.
All waves carry_____from one place to another. The wavelength, frequency and amplitude affect the **properties** of the wave. For example, the wavelength and frequency of a sound wave affect the sound's_____.
The wavelength and frequency of a light wave affect the light's_____. The amplitude of the wave affects the **intensity** of the wave, eg the brightness of a light wave or loudness of a sound.



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WAVES - Worksheet 3

1. Draw on the wavelength and the amplitude of the following waves.



Calculate the time period and the frequency of each wave.

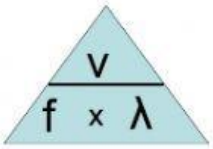
2. A wave travelling at 3000 m/s has a wavelength of 1 m.
   a. Calculate the frequency of the wave.
   b. Calculate the time period of the wave.
   c. How many complete wave cycles will occur in:
      i. 1 second?
      ii. 10 seconds?
      iii. 1 minute?

3. A radio wave has a wavelength of 1000 m and a frequency of 3×10^5 Hz. Calculate the wave speed.

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WAVES - Worksheet 4

Individual Wave Calculations



2. A wave travelling on a string has a wavelength of 0.10 m and a frequency of 7 Hz. Calculate the speed of the wave.

3. A sound wave travelling in water at 1440 ms^{-1} has a wavelength of 0.5 m. Determine the frequency of the wave.

4. An electromagnetic wave moving through free space at 3 ms^{-1} has a frequency of 4.62 Hz. Find the wavelength of this wave.

5. A water wave is moving across the surface of a lake. The wave has a wavelength of 2 m and a frequency of 2.5 Hz. Calculate the speed of the wave.

6. A sound wave is moving through air. The wave has a wavelength of 0.65 m and a frequency of 512 Hz. Calculate the speed of the wave.

7. A light wave moving due east through the air at 3×10^8 m/s has a frequency of 5.55×10^{14} Hz. Calculate the wavelength.

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