

Paper 2

Chapter 6 — Waves

Colour the word with its meaning

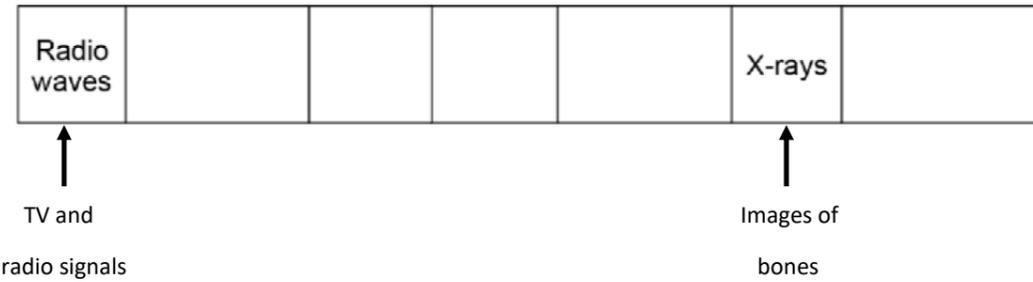
TRANSVERSE	The maximum displacement of a point on a wave away from its undisturbed position
COMPRESSION	The time taken to produce 1 wave (= 1 / frequency)
LONGITUDINAL	A device for viewing waves on a screen (Cathode Ray _____)
RAREFACTION	A wave with the vibrations are perpendicular to the direction of energy transfer (e.g. ripples on water)
AMPLITUDE	The distance from a point on one wave to the equivalent point on the adjacent wave.
FREQUENCY	The unit for frequency
PERIOD	The speed at which the energy is transferred (or the wave moves) through a medium
WAVELENGTH	When particles are closer together in a sound wave
HERTZ	A wave with the vibrations parallel to the direction of energy transfer (e.g. sound waves)
WAVE SPEED	When particles are further apart in a sound wave
OSCILLOSCOPE	The number of waves passing a point each second

Complete the equations

wave speed (m/s) =

Electromagnetic Waves

Complete the diagram, add uses for each type of wave.



Add an **A** to a wave that ages skin prematurely

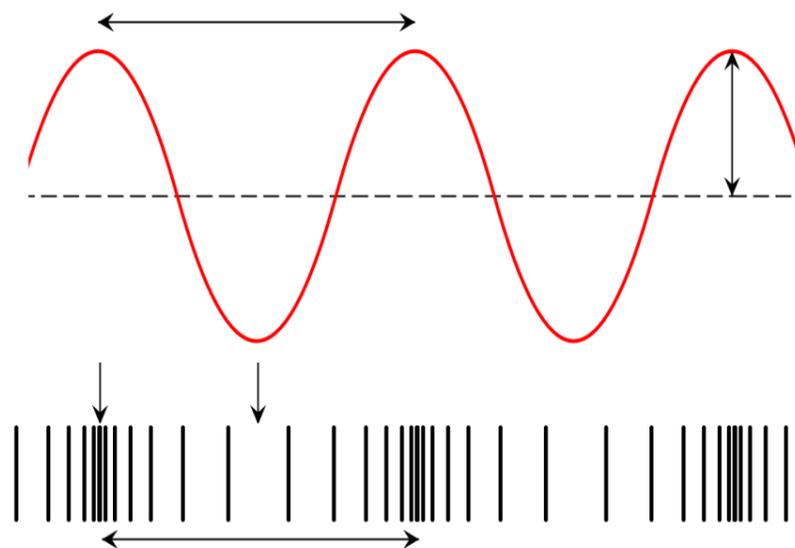
Add a **B** to any waves that are ionising and cause mutations and cancer

Required Practical

Draw a ripple tank. Describe how you can measure the wavelength, frequency and time period of the waves formed.

Waves

What kind of waves are these?



Label the 5 arrows

Practice Calculation

Use the equation to calculate the period of the wave

Period = 1 / Frequency

frequency = 0.1 kHz

Period = ____ (s)

Give examples

Transverse Wave

Longitudinal Wave

Waves

Waves are either t_____ or l_____.

L_____ waves have areas of c_____ and r_____ with the vibrations p_____ to the direction of e_____ transfer.

In t_____ waves the v_____ are at r_____ a_____ to the direction of e_____ transfer.

Waves

The maximum displacement of a point on a wave away from its undisturbed position is the a_____.

The w_____ of a wave is the distance from a point on one wave to the equivalent point on the next wave.

The number of waves passing a point each s_____ is the _____.

Electromagnetic Waves

Electromagnetic waves are t_____ waves that transfer e_____.

Electromagnetic waves form a continuous s_____

All types of electromagnetic wave travel at the same velocity through a v_____ 3_____ m/s.

Electromagnetic Waves

Electromagnetic spectrum are grouped in terms of their w_____ and their f_____. R_____ have the l_____ frequency and the l_____ wavelength.

G_____ w_____ have the _____ frequency and the _____ wavelength.

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Chapter 6 — Waves

Colour the word with its meaning

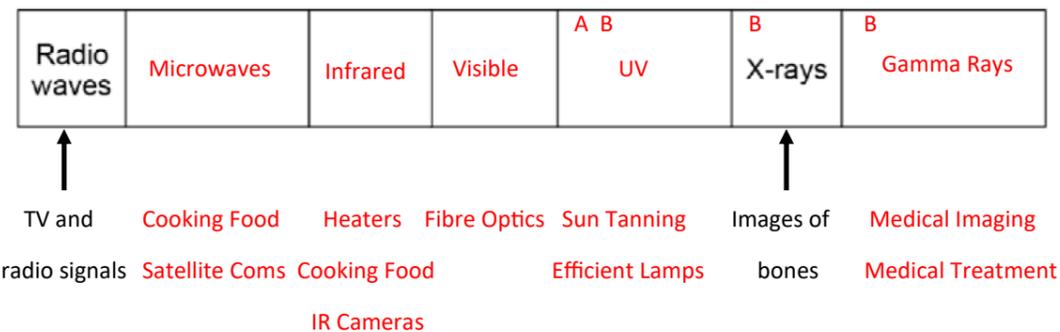
TRANSVERSE	The maximum displacement of a point on a wave away from its undisturbed position
COMPRESSION	The time taken to produce 1 wave (= 1 / frequency)
LONGITUDINAL	A device for viewing waves on a screen (Cathode Ray _____)
RAREFACTION	A wave with the vibrations are perpendicular to the direction of energy transfer (e.g. ripples on water)
AMPLITUDE	The distance from a point on one wave to the equivalent point on the adjacent wave.
FREQUENCY	The unit for frequency
PERIOD	The speed at which the energy is transferred (or the wave moves) through a medium
WAVELENGTH	When particles are closer together in a sound wave
HERTZ	A wave with the vibrations parallel to the direction of energy transfer (e.g. sound waves)
WAVE SPEED	When particles are further apart in a sound wave
OSCILLOSCOPE	The number of waves passing a point each second

Complete the equations

wave speed (m/s) = frequency (Hz) x wavelength (m)

Electromagnetic Waves

Complete the diagram, add uses for each type of wave.



Add an **A** to a wave that ages skin prematurely

Add a **B** to any waves that are ionising and cause mutations and cancer

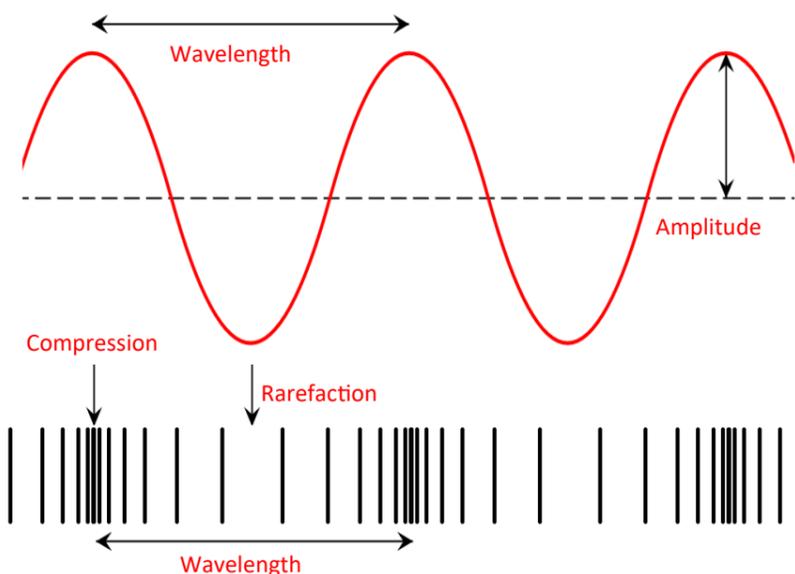
Waves

What kind of waves are these?

Transverse Wave

Label the 5 arrows

Longitudinal Wave



Waves

Waves are either **transverse** or **longitudinal**.

Longitudinal waves have areas of **compression** and **rarefaction** with the vibrations **parallel** to the direction of **energy** transfer.

In **transverse** waves the **vibrations** are at **right angles** to the direction of **energy** transfer.

Waves

The maximum displacement of a point on a wave away from its undisturbed position is the **amplitude**.

The **wavelength** of a wave is the distance from a point on one wave to the equivalent point on the next wave.

The number of waves passing a point each **second** is the **frequency**.

Required Practical

Draw a ripple tank. Describe how you can measure the wavelength, frequency and time period of the waves formed.

Set up tank start the dipper

Take photo with a ruler in picture

Peak to peak in metres is wavelength

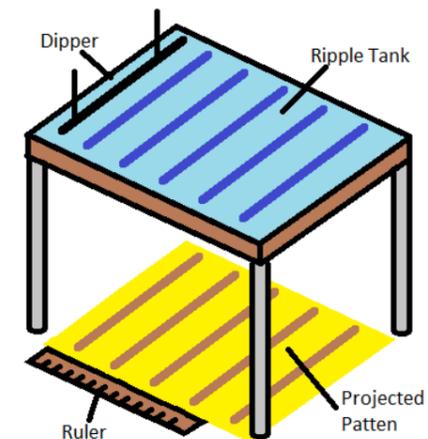
Take a video with a stop watch in it

Time 10 seconds a count waves past a point

Divide by 10 (reduces error to do 10 seconds)

Waves per second past a point is frequency (Hz)

1 / Frequency is Time Period (s)



Practice Calculation

Use the equation to calculate the period of the wave

Period = 1 / Frequency

frequency = 0.1 kHz

1/100Hz = 0.01

Period = 0.01s

Give examples

Transverse Wave

Ripples on a pond

Electromagnetic Waves

Longitudinal Wave

Soundwaves

Electromagnetic Waves

Electromagnetic waves are **transverse** waves that transfer **energy**.

Electromagnetic waves form a continuous **spectrum**.

All types of electromagnetic wave travel at the same velocity through a **vacuum** 300,000,000 m/s.

Electromagnetic Waves

Electromagnetic spectrum are grouped in terms of their **wavelength** and their **frequency**.

Radio waves have the **lowest** frequency and the **longest** wavelength.

Gamma waves have the **highest** frequency and the **shortest** wavelength.