# PHYSICS 1B REVISION

## WAVES

**Using the following words [wavelength, frequency, transfer, amplitude] complete these sentences.**

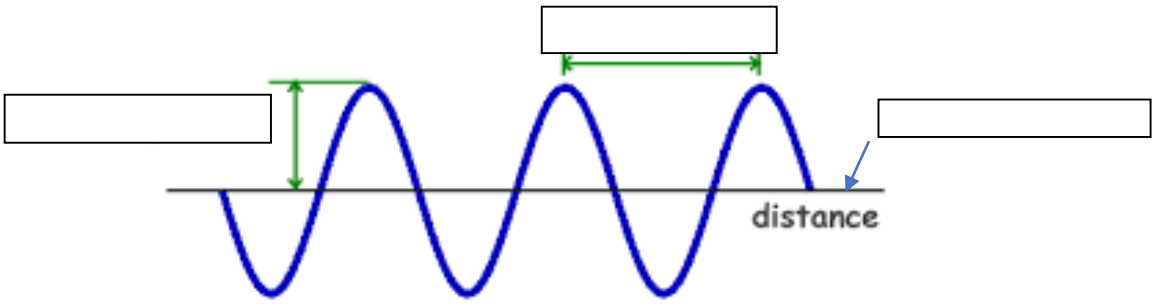
Waves …… energy and information.

The …….. of a wave is the number of complete waves passing a certain point each second.

The …… is the distance between one point and the same point of the next wave. For example, from the top of one wave to the top of the next wave.

The …….. is the maximum distance from its rest position.

**Label the image using these words: amplitude, wavelength, rest position**



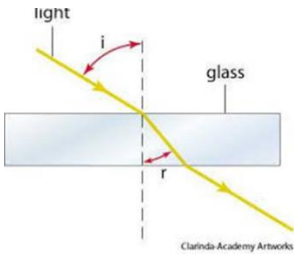

**WAVE SPEED = FREQUENCY X WAVELENGTH**

If the frequency is **4 waves/sec** and the wavelength is **10 metres**, what is the wave speed? (Remember to show your working)

Wave speed = ……..

**Using the following words [refraction, glass, direction, changes] complete this sentence.**

Waves change …….. when they pass through a different material. For example, when light waves pass through air and then through …….. the light beam changes …….. (see below). This is called ……



# PHYSICS 1B REVISION

## ELECTROMAGNETIC WAVES

**Using the following words [infrared, lower, higher, vacuum] complete this sentence.**

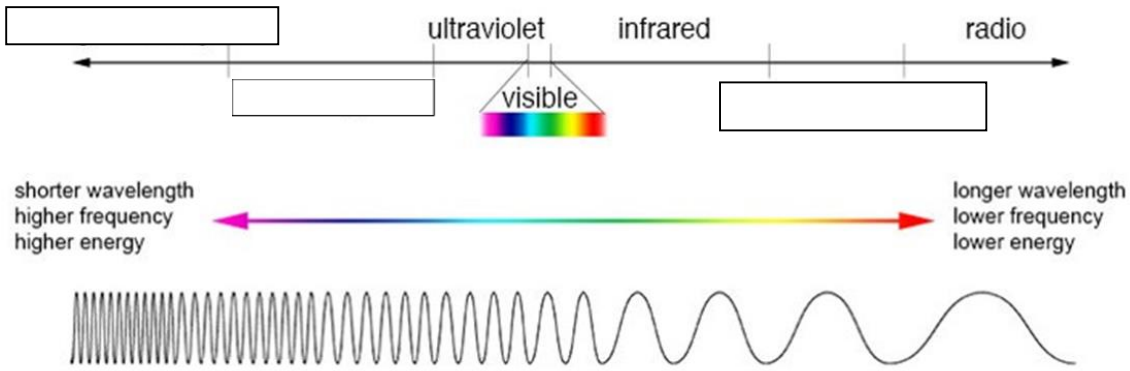
Electromagnetic waves travel at the same speed in a …….

The order of EM waves from longer wavelength to shorter wavelength is radio, microwave, ……., visible, ultraviolet, x rays, and gamma rays.

Radio waves have …… energy, lower frequency and longer wave length.

Gamma rays have …… energy, shorter wavelength and higher frequency.

**Label this diagram using these words: X-ray, microwave, gamma ray**




**Connect the uses to the correct wave**

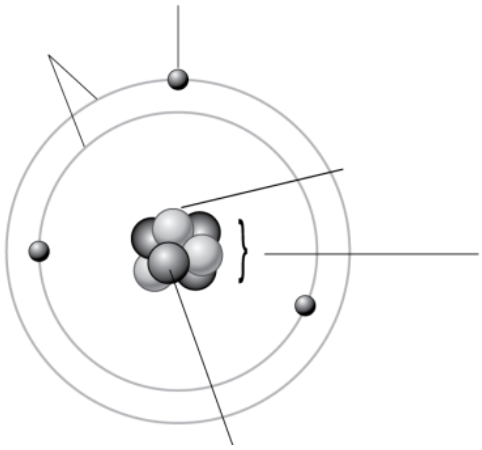
| | |
|---|---|
| Microwaves | communication |
| Radio waves | cooking |
| Ultraviolet | TV remote |
| Infrared | security marking |
| X-rays | sterilising water |
| Gamma rays | visualising bones and airport security |

**Connect the lines between the harmful effects of the types of waves when exposed excessively.**

| | |
|---|---|
| Microwaves | damage to skin cells and cancer |
| Infrared | internal heating of body cells |
| Ultraviolet | DNA mutation or damage to cells |
| X rays and gamma rays | skin burns |

# ATOMS

**1** Using the labels on the right complete the diagram of this **atom**.



electron
neutron
nucleus
proton
shells

**Use these 'words' to complete the sentences [isotopes, electrons, neutrons, shells, equal, +1, -1, almost 0, 1]**

The **nucleus** of an atom contains protons and …….. **Electrons** are found in the ……... arranged around the nucleus. Electrons have a charge of …….. and a relative mass that is…… Protons have a charge of ……. and a relative mass of ……. Atoms have no overall charge because the number of positive protons ……. the number of negative …… Atoms of the **same** element with **different number of neutrons** are called …….

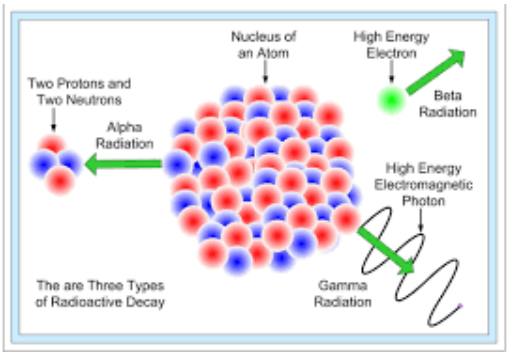
**7.** Complete the table below to show the properties of the three subatomic particles.

| Subatomic particle | Relative charge | Relative mass | Where found in atom |
|---|---|---|---|
| P…….. | | | |
| N…….. | | | |
| E…… | | | |

| | True | False |
|---|---|---|
| Most of the mass of an atom is in the nucleus | ☐ | ☐ |
| The nucleus of an atom is very small compared to the overall size of the atom. | ☐ | ☐ |
| Atoms of a particular **element** have the same number of **protons** in the nucleus. | ☐ | ☐ |
| The **atomic number** of an atom is the number of **protons** in its nucleus. | ☐ | ☐ |
| The **mass number** of an atom is the total number of **protons** and **neutrons** in its nucleus. | ☐ | ☐ |

PHYSICS 1B REVISION

# RADIATION




Study the diagram above and then fill in the gaps in the table:

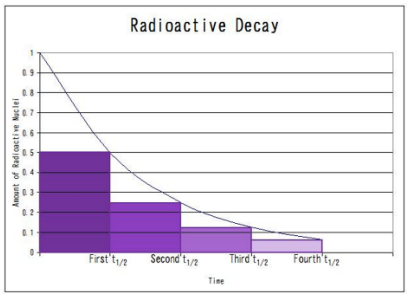
| Type of radiation | Composition | Stopped by |
|---|---|---|
| | 2 protons + 2 neutrons | Paper |
| Beta (β) | | Aluminium |
| | Gamma rays | Lead |

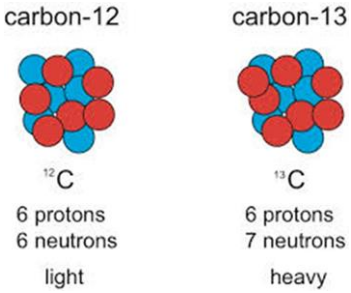
**Complete the following sentences using these words [beat, decays, unstable, activity, half]**

When an …… atom …… it can emit an alpha(α) particle a …….. (β) particle or a gamma (γ) particle.

Number of decays per second = …….. of a radioactive source.

Half life is the time it takes for the activity to……




**Isotopes**

Atoms of an element with a different number of neutrons is an called an ……..

Example carbon 12 and carbon 13 have the same number of …… but a different number of ……

Radioactive isotopes can cause cells in the body to die, be damaged or cause the DNA to mutate

# PHYSICS 1B REVISION

**Complete the following sentences using these words [increase, time, contact,]**

Minimise exposure by reducing direct …….. with the radioactive source, …….. distance from the source and to reduce …….. of exposure

**Connect the words with their meaning:**

| | |
|---|---|
| Irradiation | when an object becomes in contact with a radioactive source |
| Contamination | when alpha, beta or gamma radiation passes through an object |