

# Motion

## Threshold Concept

Speed equals distance travelled in a given time

## Speed, distance, time

- Speed is measured in metres per second (m/s)
- Distance is measured in metres (m)
- Time is measured in second (s)



## Keywords

- **Speed:** Distance travelled in a certain time
- **Distance:** how far an object has travelled. It is a scalar quantity
- **Time:** how long something takes
- **Metres** a unit measurement of distance (m)
- **Seconds:** a unit measurement of time (s)

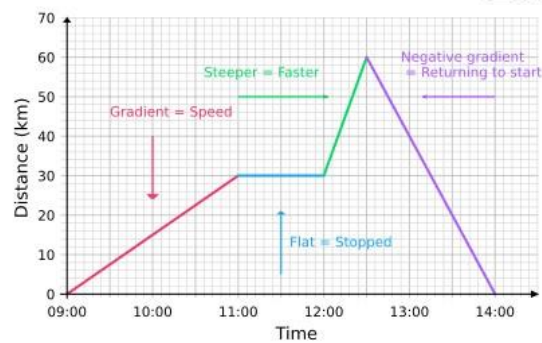
## Scalar and vector quantities

Scalar - a measurement of something. They only have **MAGNITUDE** (size)

Vector - a measurement of something. They have **DIRECTION & MAGNITUDE** (size)



## Distance - Time Graphs

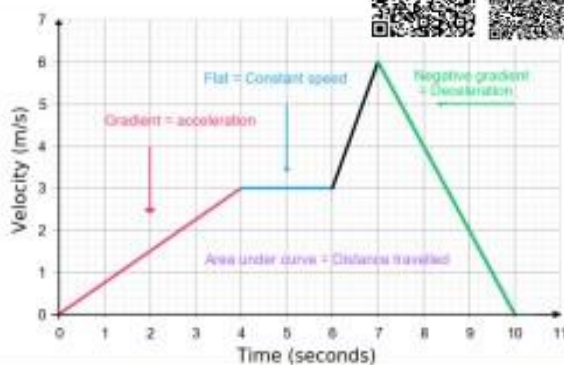


## Terminal velocity

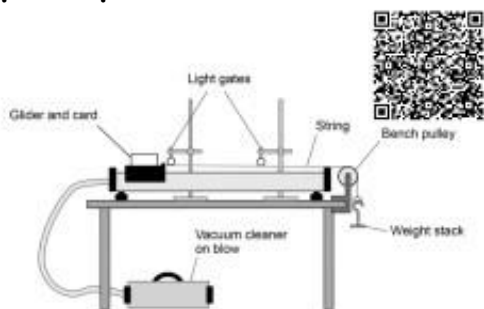
At terminal velocity, the object moves at a steady speed in a constant direction because the **resultant force** acting on it is zero



## Velocity - Time graphs



## Required practical - Acceleration



## Equations for this topic

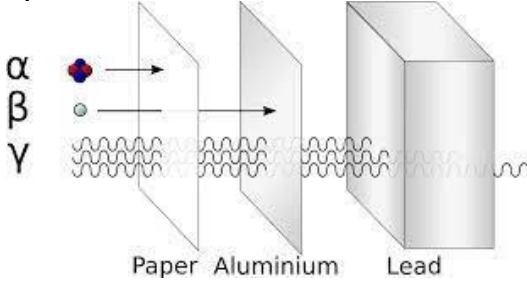
- Speed = Distance ÷ Time
- Change in Velocity = Acceleration × Time
- Force = Mass × Acceleration

# Atomic Structure

## Threshold Concept

Identify that there are three types of radiation

## Alpha, Beta and Gamma



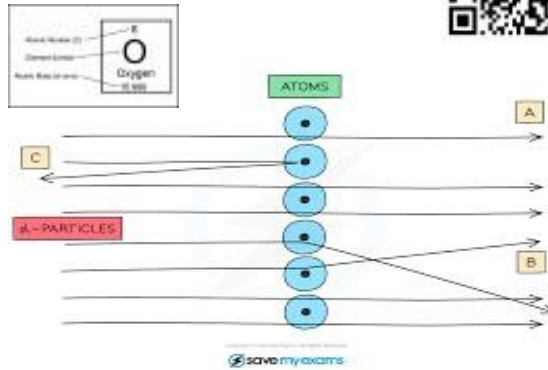
## Keywords

Atom - the smallest particle of a chemical element that can exist  
Proton - positively charged particle

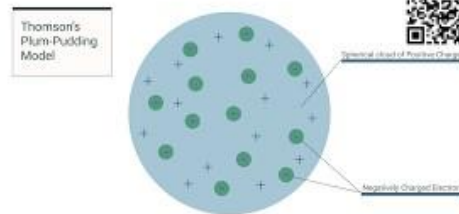
Neutron - Particle with no charge  
Electron - Negatively charged particle

Wave - Energy transfer method

## Rutherford's Scattering Experiment

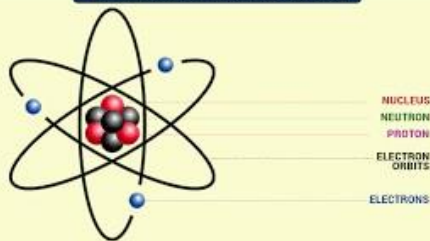


## Plum Pudding Model

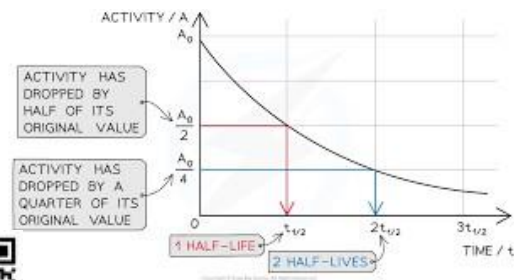


## Nuclear Model

### Rutherford's Model Of Atoms



## Half Life



## Uses and Dangers of Radiation

	Irradiation	Contamination
Description	Object is exposed to radiation but does not become radioactive	Object becomes radioactive and emits radiation
Source	Danger is from radiation emitted outside the object	Danger from radiation emitted within the object
Prevention	Prevented by using shielding, such as lead clothing	Prevented by safe handling of sources and air-tight safety clothing
Causes	Caused by the presence of radioactive sources outside the body	Caused by inhalation or ingestion of radioactive sources

## Equations for this topic

