Science - Topic 1

Year 7 Term 1

Trinity Academy Bradford

1. Biology

Variation	Differences between organisms.
Continuous	Range of numerical values.
Discontinuous	Values fall into categories.
Organism	A living thing.
Organ system	A group of organs working together.
Organ	A group of tissues working together.
Tissue	A group of similar cells working together.
Cell	The basic unit of a living thing.
Unicellular organism	A simple organism made up of one cell e.g. amoeba.
Multicellular organism	A complex organism made up of multiple cells e.g. plants and animals.

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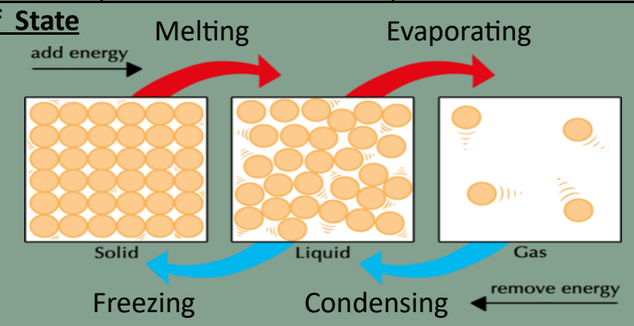
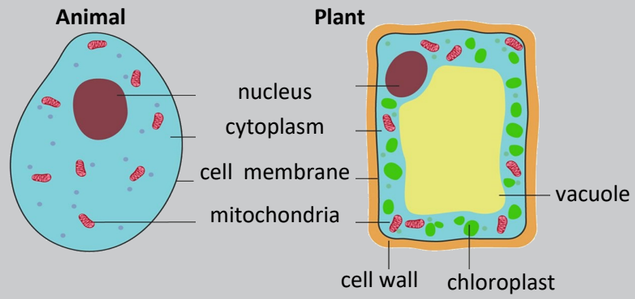
2. Chemistry

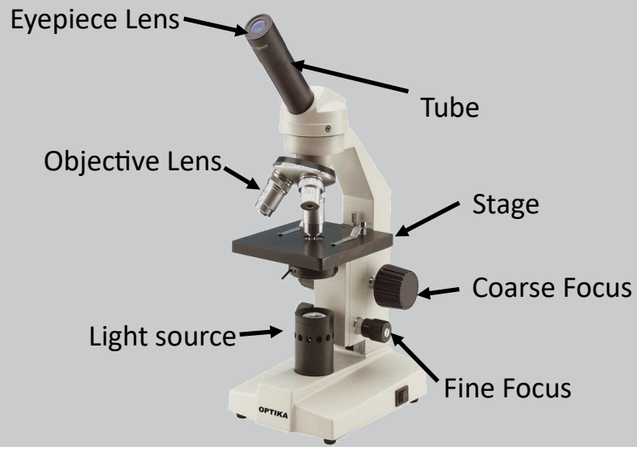
State of Matter	The structure of an object e.g. solid, liquid or gas.
Change of State	When a substance changes from one state to another e.g. melting.
Melting Point	The temperature at which a solid changes state to a liquid.
Boiling Point	The temperature at which a liquid changes state to a gas.
Thermometer	A piece of equipment used to measure temperature.
Atom	A single sphere that makes up matter.

Element	Compound	Mixture
A substance that contains only one type of atom.	A substance that contains different types of atoms that are chemically joined.	A substance that contains different types of particles that are not chemically joined.

Changes of State







3. Physics

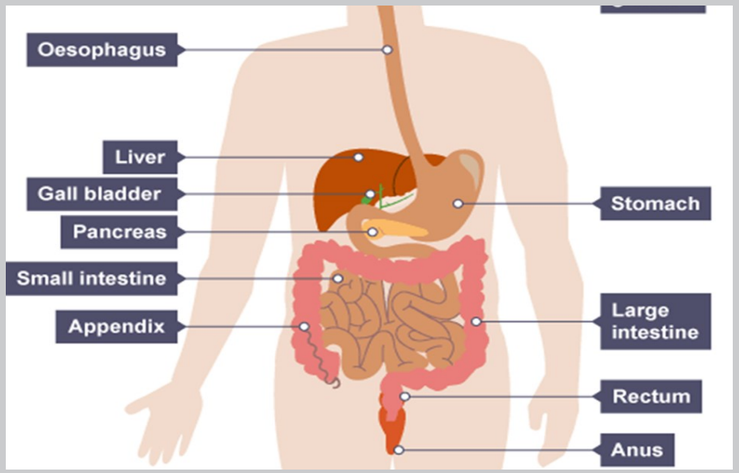
Force	The pushing or pulling effect.
Balanced	When all of the forces in one direction are equal in size to all of the forces in the opposite direction.
Unbalanced	When all of the forces in one direction are not equal in size to the forces in the opposite direction.
Moment	The turning effect caused by a force.
Newton meter	A piece of equipment containing used to measure the size of a force.

Science - Topic 2

Year 7 Term 1

1. Biology

Stomach	Where ingested food is stored and broken down.
Small intestine	Where food molecules are absorbed into the blood.
Large intestine	Where water molecules are absorbed into the blood.
Enzymes	Biological catalysts



Diet

Nutrient groups:

- Carbohydrates (for energy)
- Protein (for growth and repair)
- Lipids (for energy and insulation)
- Fibre
- Vitamins
- Minerals

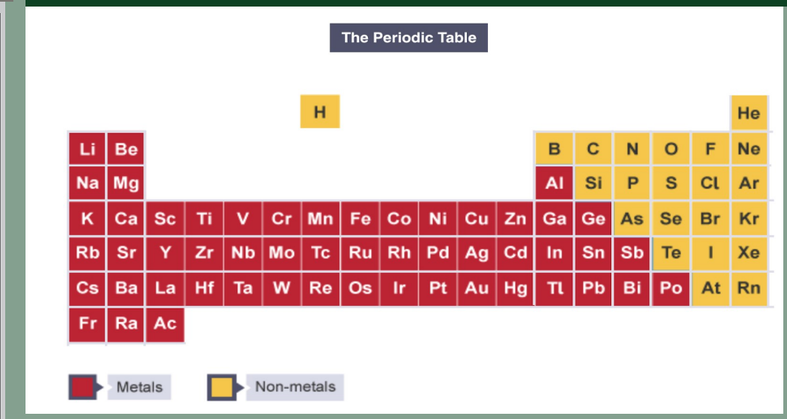
Plants synthesise their own food using energy from the sun.

This allows them to make carbohydrates such as sucrose, starch and cellulose.

Deficiency	Cause
Scurvy	Lack of vitamin C
Rickets	Lack of vitamin D
Anaemia	Lack of iron

Risks from overeating: obesity, type 2 diabetes, heart disease, stroke

2. Chemistry



Formulae show us which elements are present in compounds

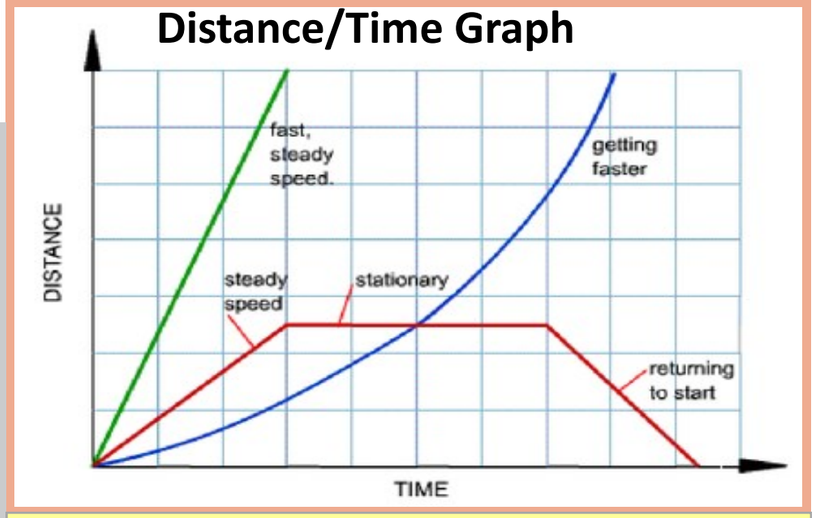
H_2O	Water
CO_2	Carbon Dioxide
CH_4	Methane
NH_3	Ammonia

Metals	Left hand-side of periodic table
Non-	Right hand-side of period table
Groups	Columns that read up and down
Periods	Rows that read left to right

3. Physics

Speed = Distance ÷ time
(m/s) (m) (s)

Time is measured using a **stopwatch**.



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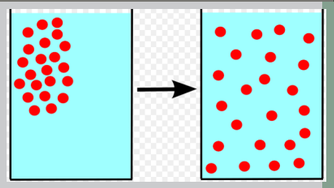
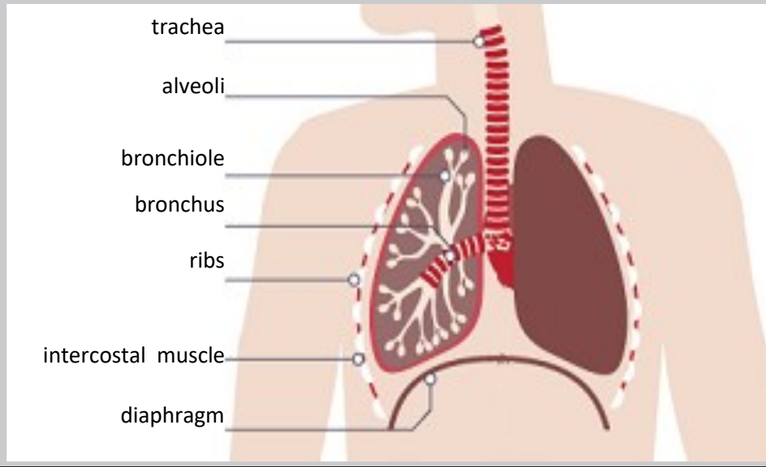
Science - Topic 3

Year 7 Term 1

Biology

Diffusion is the net movement of particles from an area of high concentration to an area of low concentration.





Inhalation	Exhalation
Diaphragm contracts, moves down-wards.	Diaphragm relaxes, moves
Intercostal muscles contract, ribs move up and out.	Intercostal muscles relax, ribs move down and in.
Air drawn in to the lungs.	Air forced out of the lungs.

Gas Exchange	The process which occurs at the alveoli in animals moving oxygen into our blood and carbon dioxide out of our blood. In plants takes place through stomata
Stomata	Tiny holes on the underside of a leaf.

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Chemistry

Chemical changes	Three signs of a chemical change: colour change, bubbling (a gas is produced), or a temperature change.
Thermal Decomposition	Break down of a substance using heat.
Oxidation	Addition of oxygen to an element in a chemical reaction.
Combustion	Where oxygen reacts with a fuel to produce carbon dioxide and water releasing energy as heat.
Conservation of Mass	The mass of reactants is the <u>same</u> as the mass of products.

The Reactivity Series:

potassium	most reactive	K
sodium		Na
calcium		Ca
magnesium		Mg
aluminium		Al
carbon		C
zinc		Zn
iron		Fe
tin		Sn
lead		Pb
hydrogen		H
copper		Cu
silver		Ag
gold		Au
platinum	least reactive	Pt

Effects of smoking:

- Smoker's cough.
- Emphysema.
- Coronary heart disease.

Tar	Causes cancer of the lungs, mouth and throat.
Nicotine	Addictive drug found in tobacco/cigarettes.
Smoke	Damages the lining of the airways causing a smoker's cough.
Carbon monoxide	This is a gas that reduces the amount of oxygen carried in the blood.

Physics

Contact Forces	Friction, air resistance, water resistance, normal contact
Non-contact Forces	Magnetism, weight, electrostatic
Mass	Mass is the amount of **<u>matter</u>** in an object (g or kg)
Weight	The force applied on the **<u>matter</u>** by gravity (N)

Weight (N) = Mass (kg) x Gravitational field strength (N/kg)

- 1000g = 1 kg
- 1000 N = 1 kN