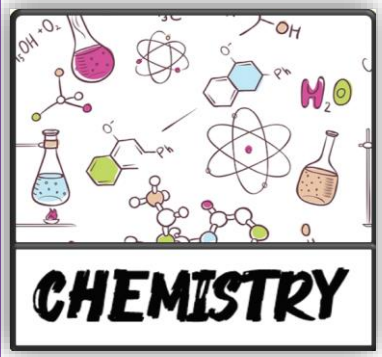
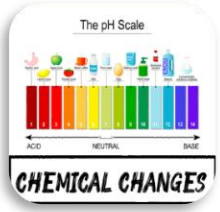
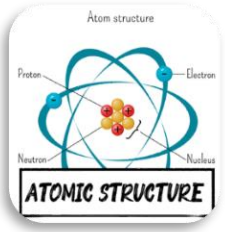
# CORE KNOWLEDGE

**What I must revise for my Year 10 AP1 chemistry assessment.**




## The Atom

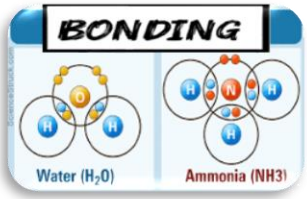
**Mass Number**

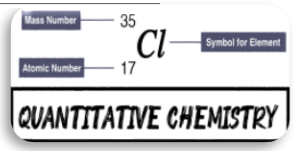
**Atomic Number**

$^{12}_{6}C$

| Name of particle | Relative charge | Relative mass |
|---|---|---|
| Proton | +1 | 1 |
| Neutron | 0 | 1 |
| Electron | –1 | Very small |

| Acids must contain | Bases must contain |
|---|---|
| H+ ions | OH- ions |

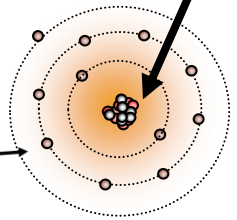



The mass number tells us the number of protons + neutrons.

The number of protons in an atom is known as its atomic number, this is also the number of electrons

**The Nucleus**
a dense core of protons and neutrons containing nearly all the mass of the atom



**'Shells' of electrons**
electrons are really very very tiny so the atom is mostly empty space.

$$\text{MOLES} = \frac{\text{MASS}}{\text{Mr}}$$

PiXL
partners in excellence

## Chemical bonds

There are three types of strong chemical bonds:

- Ionic
- Covalent
- Metallic

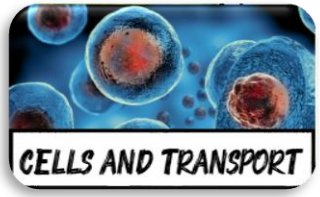
| Ionic | Covalent | Metallic |
|---|---|---|
| Particles are oppositely charged ions | Particles are atoms which share pairs of electrons | Particles are atoms which share delocalised electrons |
| Between metals and non-metals | Most non-metallic elements<br>Between non-metals and non-metals | In metallic elements and alloys |

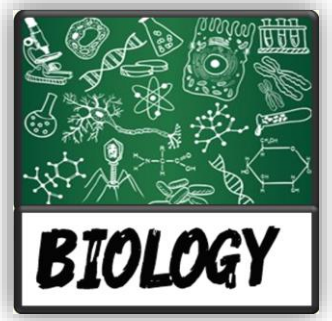
You need to be able to explain chemical bonding in terms of **electrostatic forces** and the **transfer of electrons**.

| Plum Pudding Model | Nuclear Model |
|---|---|
| Plum pudding model has a single ball of positive charge | Nuclear model has positive charges in the centre / nucleus |
| Plum pudding model has electrons in random positions | Nuclear model has electrons in fixed positions |
| Plum pudding model has no nucleus | Nuclear model has a nucleus |
| Plum pudding model has no neutrons | Nuclear model has neutrons in the nucleus |

# CORE KNOWLEDGE

**What I must revise for my Year 10 AP1 biology assessment.**




**Cell Membrane**
Controls what goes in and out the cell

**Mitochondria**
Respiration

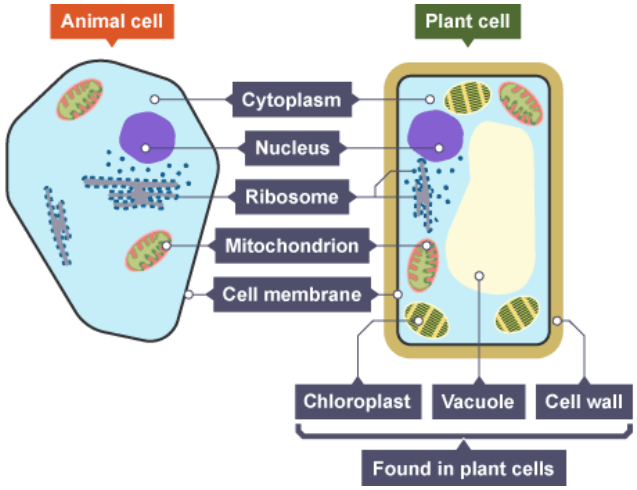
**Chloroplast**
Photosynthesis

**Cytoplasm**
Where chemical reactions occur

## Cells

**Nucleus**
Controls cell

**Ribosomes**
Protein synthesis





## Aerobic respiration:

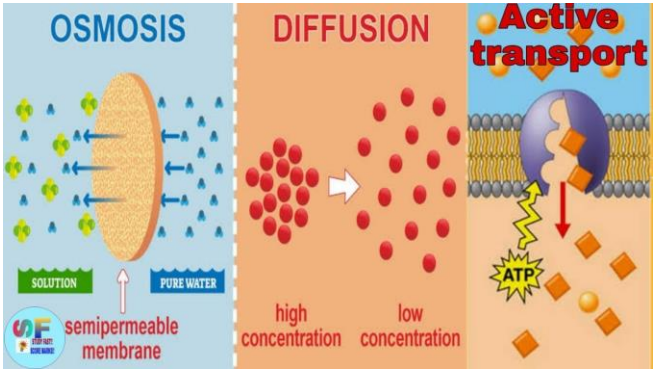
- Occurs in mitochondria
  **Glucose + Oxygen → Carbon Dioxide + Water**

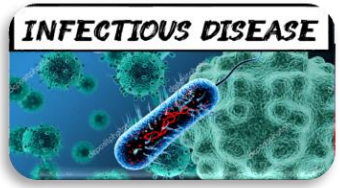
**Photosynthesis** occurs in the chloroplast.

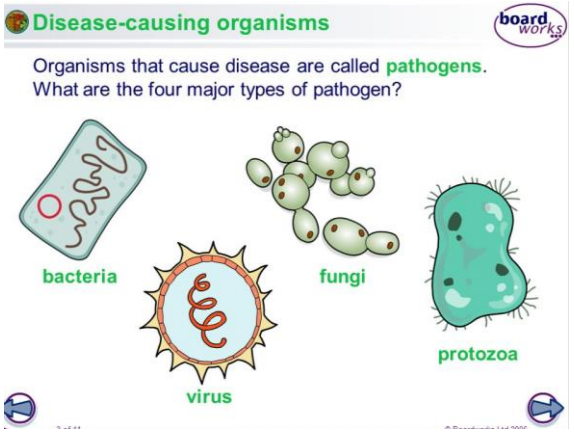
**Carbon + Water → Glucose + Oxygen Dioxide**

The formula to calculate magnification is:

$$magnification = \frac{size\ of\ image}{real\ size\ of\ image}$$



# CORE KNOWLEDGE

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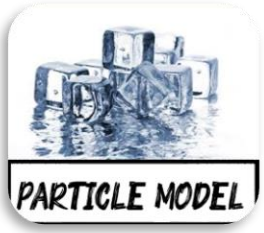
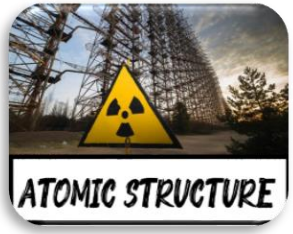
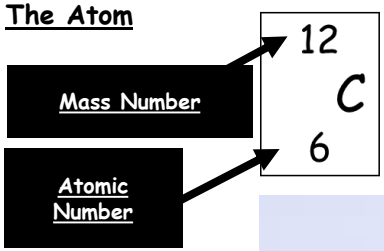


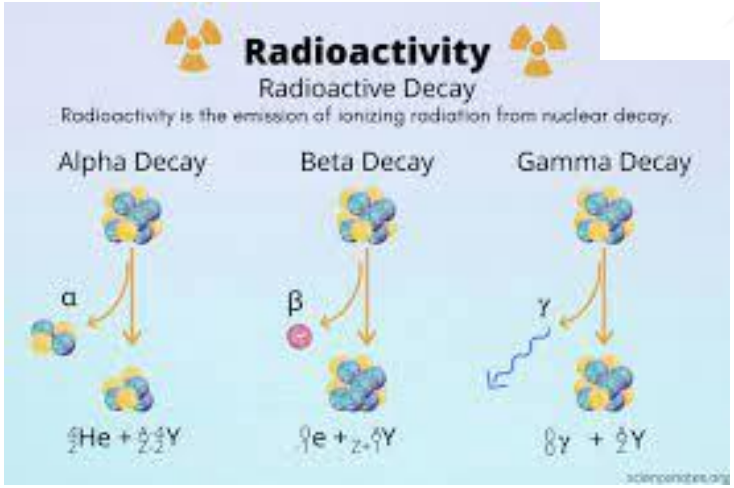

## The Atom




| Name of particle | Relative charge | Relative mass |
|---|---|---|
| Proton | +1 | 1 |
| Neutron | 0 | 1 |
| Electron | –1 | Very small |

$$\text{DENSITY} = \frac{\text{MASS}}{\text{VOLUME}}$$

$$\rho = \frac{m}{V}$$

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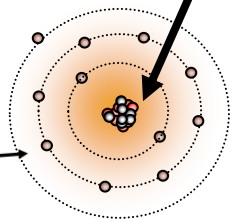

**'Shells' of electrons**
electrons are really very very tiny so the atom is mostly empty space.

**Isotopes are forms of an element that have the same number of protons but different numbers of neutrons.**