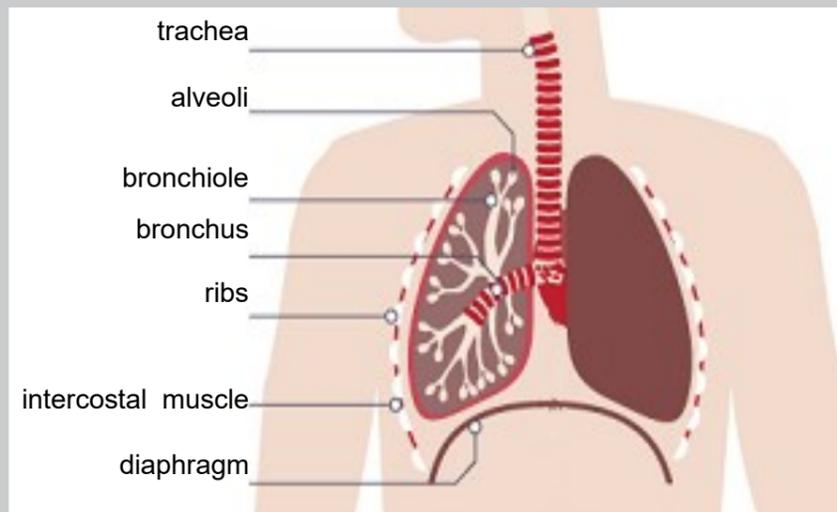
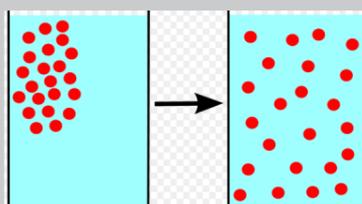


## Biology

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



| Inhalation  | Exhalation  |
|---|---|
| Diaphragm contracts, moves downwards.               | Diaphragm relaxes, moves upwards.                 |
| 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.                      |

|                     |   |
|---------------------|---|
| <b>Gas Exchange</b> | 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. |
| <b>Stomata</b>      | Tiny holes on the underside of a leaf.  |

## Chemistry

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

### Effects of smoking:

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

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

## 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 |

## Physics

|                           |  |
|---------------------------|--|
| <b>Contact Forces</b>     | Friction, air resistance, water resistance, normal contact |
| <b>Non-contact Forces</b> | Magnetism, weight, electrostatic                           |
| <b>Mass</b>               | Mass is the amount of <u>matter</u> in an object (g or kg) |
| <b>Weight</b>             | 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