Summary – "Chemicals in Action"

Acids and Alkalis

- You can tell the difference between acids and alkalis using an **indicator** such as **universal indicator**
- **Acids** turn universal indicator **red, orange or yellow**, **alkalis** turn it **blue or purple** and **neutral** solutions turn it **green**.
- We can say how **acidic or alkaline** something is by giving it a number called the **pH** (small "p", capital "H").
- **Acids** have a pH of **6 or less** (even negative!), **alkalis** have a pH of **8 or more** and **neutral** solutions have a pH of **7**.
- When you "**cancel out**" an acid with an alkali (or the other way round) it is called "**neutralisation**"
- **Everyday examples** of **neutralisation** are...
    - Farmers treating acid soil with lime (calcium carbonate)
    - Neutralising bee stings with baking soda
    - Talking indigestion tables to increase the pH of stomach acid

Rates of Reactions

- The **speed** of a chemical reaction is also called the **rate**
- **Increasing the temperature** of most chemical reactions **increases the rate**
- **Increasing the concentrations of the chemicals** in most chemical reactions **increases the rate**
- **Decreasing the particle size of the chemicals** in most chemical reactions **increases the rate**
- A **catalyst** is a substance which **increases the rate** of a chemical reaction but **does not get used** in the reaction
- An **enzyme** is a **biological catalyst** (such as the enzymes used in digestion)

Metals

- A **property** of something is the way it **behaves**
- The **properties of most metals** is that they are **strong, hard, shiny, malleable (bendy) and ductile (stretchable)**
- When a **metal** reacts with **water or acid**, **hydrogen gas** is produced
- An order of reactivity of metals from most to least reactive is
    - Caesium, Rubidium, Potassium, Sodium, Lithium, Magensium, Calsium, Zinc, Iron, Copper
- **Iron rusts** because it **reacts with oxygen**
- For **iron to rust**, **oxygen and water** need to be present
- You can **increase the rate** of rusting by adding an **acid, alkali or salt** solution
- You can **prevent rusting** by **painting** the iron