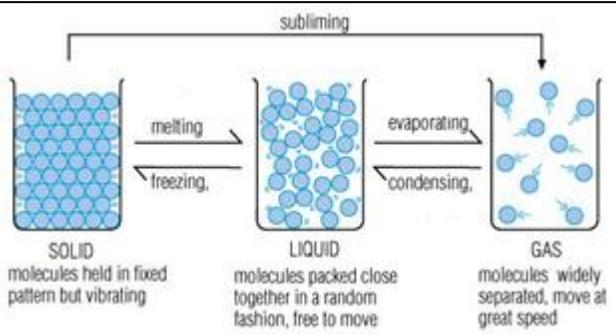
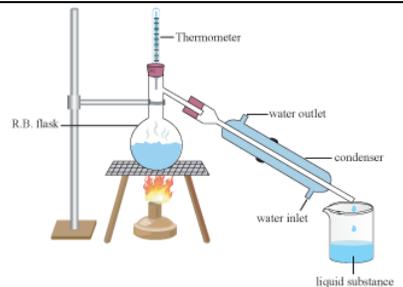
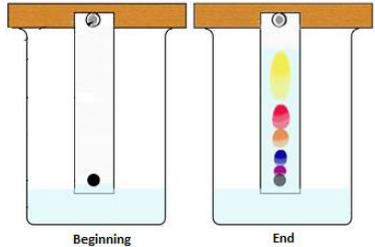
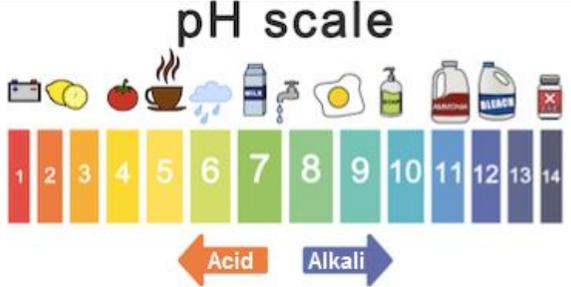
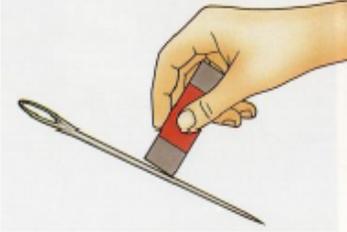
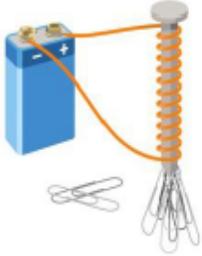


Year 7 Knowledge Companion

1. States of matter and changing state	2. Dissolving	3. Distillation
<p>Key ideas</p> 	 <p style="text-align: center;">Dissolving of Sugar in Water</p>	<p>Key ideas</p>  <p>A method of purifying a mixture using evaporating and condensing. The substances to be separated need to have different boiling points.</p>
<p>Key words</p> <p>State of matter: whether something is a solid, a liquid or a gas.</p> <p>Evaporating: when a liquid is heated to form a gas.</p> <p>Melting: when a solid is heated to form a liquid.</p> <p>Freezing: when a liquid cools to form a solid.</p> <p>Condensing: when a gas cools to form a liquid.</p> <p>Sublimation: when a solid turns straight into a gas, skipping a proper liquid stage.</p> <p>Physical change: when NO chemical reaction occurs, e.g. solid water (ice) melting into liquid water is a physical change.</p>	<p>Key words</p> <p>Soluble: A substance that will dissolve in a liquid.</p> <p>Insoluble: A substance that will NOT dissolve in a liquid.</p> <p>Solvent: This is the name of the liquid that you are dissolving the solid into – e.g. water, alcohol, nail varnish remover. Some substances will dissolve in some liquids (solvents), but not in others!</p> <p>Solute: This is the name for the solid that is being dissolved into a liquid.</p> <p>Solution: We say a solution has formed when we dissolve a solid into a liquid. For example, dissolving salt in water produces a salt solution.</p> <p>Saturated solution: We say a liquid (solvent) is saturated when it cannot dissolve any more solid.</p>	<p>Key words</p> <p>Solute: substance which can be dissolved, e.g. sugar.</p> <p>Boiling point: the point at which a liquid turns into a gas.</p> <p>Condenser: a piece of equipment that is used to cool the gas back into a liquid so it can be collected.</p> <p>Mixture: a mixture is made from different substances that are not chemically joined. They can be separated from each other without a chemical reaction.</p> <p>Solution: a solvent that has has a solute dissolved into it. For example, sugar water is a solution, water is the solvent and sugar is the solute.</p>
<p>Action required: Revise this and the relevant pages (p31-34) in your KS3 science guide for a quiz test in class.</p>	<p>Action required: Revise this and the relevant page (p39) in your KS3 science guide for a quiz test in class.</p>	<p>Action required: Revise this and the relevant page (p41) in your KS3 science guide for a quiz test in class.</p>

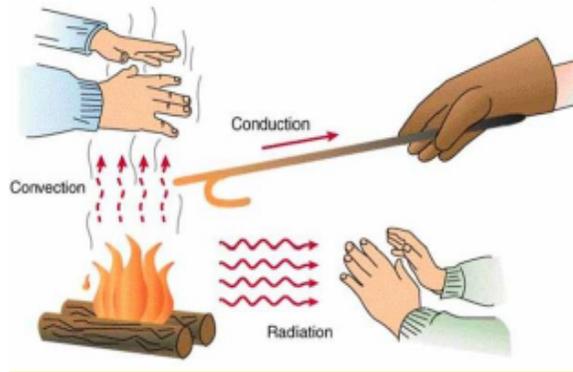
4. Chromatography	5. Hazard symbols and lab safety	6. Acids and Alkalis
<p>Key ideas</p>  <p>Chromatography is the physical separation of a mixture of substances. Different substances in the mixture will dissolve and move up the paper at different rates.</p>	<p>Key ideas:</p> <p>Hazard symbols are recognisable symbols designed to warn about dangerous substances. It is important that we work sensibly in a lab to keep the risk low and avoid any accidents.</p> 	<p>Key ideas:</p> 
<p>Key words</p>	<p>Key words</p>	<p>Key words</p>
<p>Baseline: drawn with a ruler and pencil, 1cm from the base of your paper. This is where you will dot your substances to be tested.</p> <p>Solvent: the liquid that you use to run your chromatography. This may be water or an alcohol.</p> <p>Solvent front: this is the height that the solvent reaches on the paper.</p> <p>Dissolve: when a substance is added to a liquid to form a solution.</p> <p>Solubility: how much of a substance will dissolve in a liquid.</p>	<p>Safety Glasses: always worn to protect our eyes during class practical work <u>and</u> when we are clearing up.</p> <p>Hazard: something which could be dangerous.</p> <p>Control: steps we can put in place to lower the risk of a hazard happening.</p> <p>Irritant: something which causes mild discomfort and should be washed off skin immediately.</p> <p>Flammable: something which catches fire easily.</p>	<p>Acid: pH six and lower. Range in colour from yellow to red when using universal indicator. Hydrochloric and sulfuric acid are both common examples.</p> <p>Alkali: pH eight and higher. Range in colour from blue to dark purple. Often cleaning products or substances which contain hydroxide, e.g. sodium hydroxide.</p> <p>Indicator: a substance that will change colour to tell us whether something is an acid or an alkali.</p> <p>Neutralisation: a chemical reaction between an acid and an alkali, which forms a neutral solution.</p>
<p>Action required:</p>	<p>Action required</p>	<p>Action required</p>
<p>Revise this and the relevant page (p40) in your KS3 science guide for a quiz test in class.</p>	<p>Revise this content for a quiz in class. You may be asked to identify the hazard symbols.</p>	<p>Revise this and the relevant pages (p52-53) in your KS3 science guide for a quiz test in class.</p>

<p>3. Magnets</p> <p>Key ideas:</p> <p>Magnets are surrounded by fields. A magnetic field is an area where magnetic materials experience a force. Materials that are magnetic are iron, steel, cobalt and nickel. These materials will be attracted to a magnet.</p> 	<p>4. Making magnets</p> <p>Key ideas</p> <p>Magnets can be made in a number of ways. When this happens the magnets that are made can be temporary or permanent.</p> 	<p>5. Electromagnets</p> <p>Key ideas</p> <p>A wire with a current passing through it has a magnetic field around it. This magnetism is temporary, and disappears when the electrical current is turned off. The magnet can be made stronger by adding more coils of the wire, increasing the voltage of the electricity or adding an iron core to it.</p> 
<p>Key words</p> <p>Magnet: a material or object that produces a magnetic field.</p> <p>Poles: The ends of a magnet where the magnetic fields are most intense.</p> <p>Magnetic field lines: The region around a magnet where a magnetic material would experience a force.</p> <p>Attract: North and south poles of a magnet are attracted to each other. They will move closer together.</p> <p>Repel: Two of the same poles of a magnet (north- north or south-south) will be repelled from each other. They will push each other apart.</p>	<p>Key words</p> <p>Dipoles: A tiny pair of equal and opposite magnetic poles.</p> <p>Temporary magnetism: Something that has been magnetised but won't stay magnetised for long.</p> <p>Permanent magnet: A material that will remain magnetized for a very long time.</p> <p>Loadstone: A natural material that was discovered to be magnetic.</p>	<p>Key words</p> <p>Electromagnet: A magnet created by passing an electrical current through a wire.</p> <p>Iron core: A piece of iron (often a nail), added to an electromagnet to increase its strength.</p> <p>Coils: The loops of a wire wound around to create an electromagnet.</p> <p>Solenoid: A long coil of wire.</p>
<p>Action required Revise this information to prepare for a quiz test in your science lesson. Your teacher will tell you the date of the test.</p>	<p>Action required Revise this information to prepare for a quiz test in your science lesson. Your teacher will tell you the date of the test.</p>	<p>Action required Revise this information to prepare for a quiz test in your science lesson. Your teacher will tell you the date of the test.</p>

4. Heat Transfer

Key ideas

Heat energy can be transferred from hotter objects to cooler ones. This can happen in 3 different ways.



Key words

Conduction: The movement of heat through a solid. The **energy** is passed from particle to particle as particles vibrate and knock into each other.

Convection: The movement of heat **energy** through liquids and gasses. Groups of particles are heated and they move from one place to another. The movement is called a **convection current**.

Radiation: The transfer of heat **energy** which does not require particles. The **energy** is transferred as waves.

Conductor: A material that allows **energy** to be transferred through it easily.

Insulator: A material that does not allow heat energy to be transferred through it.

Watch the video in the link below. Write a paragraph explaining what temperature and heat are, make sure you explain why they are not the same thing.

<https://www.youtube.com/watch?v=9FwC1hzUMYE>