

Year 6

Autumn 1

| Electricity                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                      |                                                                                                                                                                                                     |
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| Lesson Sequence                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                      |                                                                                                                                                                                                     |
| Review insulators and conductors.<br>Explore what electricity is and how it is generated.                                                                                                                                                                                                                                                                                                                                                                   | Use recognised symbols when representing a simple circuit in a diagram.                                                                                                                                                                               | Explore what a cell is and how it works.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Introduce term voltage. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Investigate variations in components functions changing the brightness of bulbs and loudness of buzzers.                                                                                                                                                                   | Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers. Investigate the impact of changing the position of the on/off switch | Use knowledge of how to change the function of components by changing the position of a switch and voltage/number of cells to design and make their own product e.g. burglar alarm, traffic lights. |
| Substantive Knowledge                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                      |                                                                                                                                                                                                     |
| <p><b>Electricity</b> is a form of energy resulting from charged particles.</p> <p><b>Electrical conductor</b> – a material that allows electricity to pass through it e.g. copper, iron, steel, silver gold.</p> <p><b>Electrical insulator</b> – does not allow electricity to pass through e.g. rubber, wood, plastic, paper.</p> <p>In order for electricity to flow, a circuit needs: a source of electricity, no gaps in the circuit, conductors.</p> | <p><b>Circuit symbols</b> can be used to draw a simple series circuit including:</p> <ul style="list-style-type: none"> <li>• Battery (cell)</li> <li>• Wire</li> <li>• Bulb</li> <li>• Buzzer</li> <li>• Motor</li> <li>• Switch (on/off)</li> </ul> | <p>A <b>cell</b> is a device containing electrodes that is used for generating current.</p> <p>A <b>battery</b> is a collection of cells. It stores energy until it is needed.</p> <p><b>Voltage</b> is the force that makes the electric current move through the wires. The greater the voltage, the more current will flow.</p> <p>Mains electricity has a voltage of 210-240 volts. A typical cell in school has 1.5 volts.</p> <p><b>Current</b> is a flow of electricity which results from the ordered,</p> | <p>The brightness of a bulb is associated with the voltage.</p> <p>More batteries (or a higher voltage) creates more power to flow through the circuit a bulb would therefore be brighter.</p> <p>More buzzers/bulbs in a circuit means that power is shared by more components in the circuit. Increasing the number of buzzers/bulbs/motors would therefore decrease the power in each (the bulbs would be dimmer).</p> | <p><b>Switch</b> – an electrical component that can make/break an electrical circuit. When a switch is open there is a gap in the circuit and electricity cannot flow around the circuit.</p>        |                                                                                                                                                                                                     |

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| Disciplinary Knowledge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <p><b>Methods:</b><br/><b><u>Classifying</u></b><br/>Classifying is when something is grouped or ordered into categories based on properties or criteria.</p> <p>Know that these materials can be classified as conductors or insulators:</p> <ul style="list-style-type: none"> <li>- Copper tape</li> <li>- Metal paperclip</li> <li>- Plastic paperclip</li> <li>- Rubber</li> </ul> <p><b>Apparatus &amp; techniques:</b><br/>Wires, batteries, bulbs, buzzers and motors are electrical components that make up a circuit. Outputs are achieved when there is a complete circuit.</p> <p><b>Evidence to develop explanations:</b><br/>Know that results from a scientific enquiry can be used to answer a scientific question.</p> <p>To answer a scientific question, you should include evidence from your scientific enquiry.</p> | <p><b>Methods:</b><br/><b><u>Pattern seeking</u></b><br/>Pattern seeking is when you observe variables that cannot be controlled to notice patterns.</p> <p>Variables are anything that can change or be changed.</p> <p><b>Data analysis:</b><br/>Circuits can be represented as diagrams using symbols for each component</p> <p>Know how to draw a circuit diagram:</p> <ul style="list-style-type: none"> <li>• Wires are drawn with a straight line using a ruler</li> <li>• Circuit diagrams are drawn as a birds-eye-view</li> <li>• Circuit diagrams are drawn rectangular</li> <li>• Components of the circuit must touch the wire lines to show the circuit has no breaks</li> </ul> | <p><b>Methods:</b><br/><b><u>Pattern seeking</u></b><br/>Pattern seeking is when you observe variables that cannot be controlled to notice patterns.</p> <p>Variables are anything that can change or be changed.</p> <p>Know that a pattern seeking enquiry can be carried out to investigate how increasing the number of cells, increases the voltage.</p> <p><b>Apparatus &amp; techniques:</b><br/>Wires, batteries, bulbs, buzzers and motors are electrical components that make up a circuit.</p> <p>We measure the amount of electrical energy (voltage) in Volts.</p> <p>A volt metre is used to measure voltage.</p> <p>To attach a voltmeter to a circuit, use wires that touch the circuit. Do not touch the metal parts of wires- use the plastic coating to manoeuvre</p> | <p><b>Methods:</b><br/><b><u>Fair test</u></b><br/>A fair test is when one variable is changed and the others remain constant.</p> <p>A variable is a factor that can change.</p> <p><b>Apparatus &amp; techniques:</b><br/>A light meter can be used to measure the brightness of a bulb.</p> <p>The light meter must be held against the bulb.</p> <p>The brightness of a bulb is measure in amps.</p> <p><b>Data analysis:</b><br/>Know that different types of graphs are best suited to presenting different types of information.</p> <p>Know how to select the most appropriate type of graph to display the data you have.</p> | <p><b>Methods:</b><br/><b><u>Pattern seeking</u></b><br/>Pattern seeking is when you observe variables that cannot be controlled to notice patterns.</p> <p>Variables are anything that can change or be changed.</p> <p>A pattern seeking enquiry can be carried out to identify that different components can be used within a circuit for different purposes.</p> <p><b>Data analysis:</b><br/>Know that scientific diagrams e.g. circuit diagrams can aid scientific explanations.</p> <p><b>Evidence to develop explanations:</b><br/>Conclude that a complete circuit creates an output, which can be used for a specific purpose.</p> |

## Autumn 2

| Light                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                     |                                                                                                                                        |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                     |
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| Lesson Sequence                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                     |                                                                                                                                        |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                     |
| Recognise that light appears to travel in straight lines                                                                                                                                                                                                                     | Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.                                                                                                                             | Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. | Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.                                                                                                                                 | Understand that light can be bent when it is slowed down. (Refraction).                                                                                                                                                                                             | Recognise the white light can be split into 7 rainbow colours - the colours of the spectrum merge to make visible light.                                                                                                            |
| Substantive Knowledge                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                     |                                                                                                                                        |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                     |
| Light travels in straight lines.                                                                                                                                                                                                                                             | Objects are seen because they give out or reflect light into the eye.                                                                                                                                                                                               | We see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes               | Shadows have the same shape as the objects that cast them. This is because light travels in straight lines and shadows are formed when an object blocks the light.<br>Shadows get smaller as the object is moved towards the opaque surface.                | When light passes through a denser material (such as water) it slows down and therefore appears to 'bend'. This is called <b>refraction</b> .<br><br>The light changes direction as it has been slowed.                                                             | White light can be split into 7 rainbow colours - the colours of the spectrum merge to make visible light.                                                                                                                          |
| Disciplinary Knowledge                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                     |                                                                                                                                        |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                     |
| <b>Methods:</b><br><b><u>Pattern seeking</u></b><br>Pattern seeking is when you observe variables that cannot be controlled to notice patterns.<br><br>Variables are anything that can change or be changed.<br><br>In order to prove that light travels in a straight line, | <b>Methods:</b><br><b><u>Pattern seeking</u></b><br>Pattern seeking is when you observe variables that cannot be controlled to notice patterns.<br><br>Variables are anything that can change or be changed.<br><br>A pattern seeking enquiry can be carried out to |                                                                                                                                        | <b>Methods:</b><br><b><u>Fair Testing</u></b><br>A fair test is when one variable is changed and the others remain constant.<br><br>A variable is a factor that can change.<br><br>An independent variable is a variable that the experimenter can control. | <b>Methods:</b><br><b><u>Pattern seeking</u></b><br>Pattern seeking is when you observe variables that cannot be controlled to notice patterns.<br><br>Variables are anything that can change or be changed.<br><br>A pattern seeking enquiry can be carried out to | <b>Apparatus &amp; techniques:</b><br>A torch is a light source.<br><br>Prisms can be used to refract light.<br><br><b>Evidence to develop explanations:</b><br>To answer a scientific question, you need to identify evidence from |

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| <p>children conduct an investigation into how they can get a light beam to reach a target.</p> <p><b>Apparatus &amp; techniques:</b><br/>A torch is a source of light.</p> <p>Mirrors can be used to reflect light.</p> <p><b>Evidence to develop explanations:</b><br/>Know that a conclusion is when you answer a question using what you have found out in your scientific enquiry.</p> | <p>investigate how light reflects</p> <p><b>Apparatus &amp; techniques:</b><br/>A torch is a source of light.</p> <p>Mirrors can be used to reflect light.</p> <p><b>Data analysis:</b><br/>A diagram can be used to show scientific concepts.</p> <p>A diagram is a picture that is labelled.</p> <p>Know how to draw a diagram to show how we see.</p> <p><b>Evidence to develop explanations:</b><br/>To answer a scientific question, you need to identify evidence from your scientific enquiry that supports your conclusion.</p> <p>Know that scientific language should be used when explaining findings.</p> <p>To answer a scientific question, you need to identify evidence from your scientific enquiry that supports your conclusion.</p> |  | <p>A dependent variable is the variable being tested and measured in the experiment.</p> <p>A fair test can be carried out to investigate how changing the distance of a light source from an opaque object affects the size of the shadow.</p> <p><b>Apparatus &amp; techniques:</b><br/>A torch is a source of light.</p> <p>Distance between a light source and an object can be measured using rulers in m/cm/mm.</p> <p>1m = 100cm<br/>1cm = 10mm</p> <p><b>Data analysis:</b><br/>Recording results in a table<br/>To answer a scientific question, you need to identify evidence from your scientific enquiry that supports your conclusion.</p> <p><b>Evidence to develop explanations:</b><br/>Know that scientific language should be used when explaining findings.</p> <p>Know that test results can be used to make</p> | <p>investigate how objects appear to change when placed in water due to light refraction.</p> <p><b>Evidence to develop explanations:</b><br/>To answer a scientific question, you need to identify evidence from your scientific enquiry that supports your conclusion.</p> <p>Know that scientific language should be used when explaining findings.</p> <p>Know that scientific evidence is used to support ideas.</p> | <p>your scientific enquiry that supports your conclusion.</p> <p>Know that scientific language should be used when explaining findings.</p> <p>Know that scientific evidence is used to support ideas.</p> |
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|  | <p>Know that scientific language should be used when explaining findings.</p> <p>Know that test results can be used to make predictions to set up further fair tests</p> |  | <p>predictions to set up further fair tests.</p> |  |  |
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# Spring

| Forces                                                                                                                                                                                                                                                |                                                                                                                                               |                                                                                                                                                                                                                                  |                                                                                                                                                                                                                             |                                                                                                                                                                                  |                                                                                                               |                                                                                    |
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| Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object                                                                                                               | Identify the effects of water resistance between moving surfaces.                                                                             | Identify the effects of air resistance between moving surfaces.                                                                                                                                                                  | Identify the effect of friction between moving surfaces                                                                                                                                                                     | Investigate levers and pulleys and understand that they allow a smaller force to have a greater effect.                                                                          | Investigate how gears work and how they too allow a smaller force to have a greater effect.                   |                                                                                    |
| Substantive Knowledge                                                                                                                                                                                                                                 |                                                                                                                                               |                                                                                                                                                                                                                                  |                                                                                                                                                                                                                             |                                                                                                                                                                                  |                                                                                                               |                                                                                    |
| <p>A <b>force</b> is a push or a pull that causes an object to move faster or slower, stop, change direction or change size or shape.</p> <p><b>Gravity</b> is the name of the force which pulls everything down towards the centre of the Earth.</p> | <p><b>Mass</b> is the amount of matter or substance that makes up an object.</p> <p><b>Weight</b> is the measure of the force of gravity.</p> | <p><b>Water resistance</b> is a type of friction between water and another material. E.g. when a boat sails through a body of water, water particles hit the boat making it more difficult for it to move through the water.</p> | <p><b>Air resistance</b> is a type of friction between air and another material. E.g. when an aeroplane flies through the air, air particles hit the aeroplane making it more difficult for it to move through the air.</p> | <p><b>Friction</b> is the action of one surface rubbing against another which slows or speeds up movement. E.g. a smooth surface creates less friction than a rough surface.</p> | <p><b>Levers</b> are machines used to increase force. They allow a smaller force to have a greater effect</p> | <p><b>Gears</b> can be used to allow a smaller force to have a greater effect.</p> |
| Disciplinary Knowledge                                                                                                                                                                                                                                |                                                                                                                                               |                                                                                                                                                                                                                                  |                                                                                                                                                                                                                             |                                                                                                                                                                                  |                                                                                                               |                                                                                    |

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| <p><b>Methods: Researching using secondary sources</b></p> <p>Research is an investigation or study to find out</p> | <p><b>Methods: Pattern seeking</b></p> <p>Pattern seeking is when you observe variables that cannot be</p> | <p><b>Methods: Comparative testing</b></p> <p>A comparative test is when you test and compare</p> | <p><b>Methods: Comparative testing</b></p> <p>A comparative test is when you test and compare</p> | <p><b>Methods: Comparative testing</b></p> <p>A comparative test is when you test and compare different cases and situations.</p> | <p><b>Methods: Pattern seeking</b></p> <p>Pattern seeking is when you observe variables that cannot be controlled to notice patterns.</p> | <p><b>Methods: Pattern seeking</b></p> <p>Pattern seeking is when you observe variables that cannot be controlled to notice patterns.</p> |
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| <p>should include evidence from your scientific enquiry.</p> <p>Know that scientific evidence has been used to prove the theory of gravity.</p> | <p><b>Evidence to develop explanations:</b><br/>Know that results from a scientific enquiry can be used to answer a scientific question.</p> <p>Know that findings from enquires can be reported in different ways e.g. orally, written, results presentation or as a conclusion.</p> <p>A causal relationship is when one thing is responsible for causing the occurrence of another thing.</p> <p>Know that results from scientific enquires might have different degrees of trust as external factors may impact on results.</p> | <p>rectangles of different sizes to represent values. This is a way to visually compare data.</p> <p>Know how to draw a bar chart to compare data.</p> <p><b>Evidence to develop explanations:</b><br/>A causal relationship is when one thing is responsible for causing the occurrence of another thing.</p> <p>Know that results from scientific enquires might have different degrees of trust as external factors may impact on results.</p> | <p>used to explain a scientific concept.</p> <p>A diagram is a picture that is usually labelled.</p> <p><b>Evidence to develop explanations:</b><br/>A causal relationship is when one thing is responsible for causing the occurrence of another thing.</p> <p>Know that results from scientific enquires might have different degrees of trust as external factors may impact on results.</p> |  | <p>_____effect the force needed to move the object.</p> <p>To answer a scientific question, you should include evidence from your scientific enquiry.</p> | <p>include evidence from your scientific enquiry.</p> |
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## Year 6

## Summer 1

| Living Things and their Habitats                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                      |
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| Lesson Sequence                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                      |
| Identify the key parts and function of flowering plants.<br>Plant dissection.                                                                                                                                                                                                                                                                                                                                                                              | Reproduction in plants including sexual and asexual.<br>Identify different types of reproduction in plants.                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Describe the life process of reproduction in some animals.                                                                                                                                                                                                                                                                                                                                                                                                                            | Describe the life process of reproduction in some animals.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Investigate the life cycles of common mammal and birds.                                                                                                                                                                                                                                                                                                                                       | Children to look at the work of David Attenborough and Jane Goodall.                                                                                                                                                                                                                                                 |
| Substantive Knowledge                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                      |
| <p><b>Stigma</b> – female part. It is sticky and can catch grains easily.</p> <p><b>Style</b> – female part. Pollen travels down the style to the ovary.</p> <p><b>Ovary</b> – female part. Contains the ovules.</p> <p><b>Petal</b> – brightly coloured and sweetly scented to attract insects.</p> <p><b>Pollen tube</b> – transports male gametes from the pollen down the style to the ovary.</p> <p><b>Stem</b> – transports water to the leaves.</p> | <p><b>Reproduction</b> - when living things create other living things. Animals have babies and plants have seeds which turn into new plants.</p> <p><u>Reproduction in plants</u><br/> <b>Sexual reproduction (2 parents)</b> – when the pollen from one flower joins the egg of a new flower and a seed or seeds are formed.<br/> E.g. apple tree</p> <p><b>Asexual reproduction (1 parent)</b> – when a small part of a plant breaks off and starts to grow until it is the same size as the plant it came from. Flowers are not needed.<br/> E.g. spider plant</p> | <p><u>Reproduction in animals</u><br/> For most animals that live on land, offspring are fertilised inside the mother's body. This happens in one of three ways.</p> <ol style="list-style-type: none"> <li>1. The young develop inside the female and are born alive (most mammals).</li> <li>2. Fertilised eggs are laid outside the female's body and develop in the egg getting nourishment from the yolk.</li> </ol> <p>In some animals the eggs are held within the female.</p> | <p>A <b>life cycle</b> shows how things are born, how they grow and how they reproduce.</p> <p><u>Insect life cycle</u><br/> Most insects, such as butterflies, emerge from the egg in one state and then go through metamorphosis to become an adult. Some insects hatch from the egg and grow into adults without much change.</p> <p><u>Amphibian life cycle</u><br/> Amphibians, such as frogs, are laid in eggs in the water then, once hatched, they go through many changes until they become an adult. Parents do not look after their young once the eggs have been laid.</p> | <p><u>Mammal life cycle</u><br/> Mammals, including humans, develop inside their mothers and live young are born. Young are fed milk and are dependent on their parent for some time, until they are old enough to look after themselves.</p> <p><u>Bird life cycle</u><br/> Birds are hatched from eggs and are looked after by their parents until they are able to live independently.</p> | <p><u>David Attenborough</u><br/> Famous for his commitment to the natural environment. He has spent years studying animals and living things.</p> <p><u>Jane Goodall</u><br/> British scientist famous for work with chimpanzees. She showed that chimps have individual personalities and experience emotions.</p> |



| Disciplinary Knowledge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <p><b>Methods:</b><br/><b><u>Identifying and classifying</u></b><br/>To identify and classify, you make observations and measurements to find similarities and differences. This help to organise things into groups and make connections.</p> <p><b><u>Research using secondary sources</u></b><br/>Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>Secondary sources are works such as textbooks, encyclopaedia and scientific books. They describe, discuss and evaluate primary sources.</p> <p>Know that information texts use scientific language.</p> <p>Secondary sources can be used to identify the parts of a flowering plant.</p> <p><b>Apparatus &amp; techniques:</b><br/>You can use a magnifying glass to observe closely.</p> | <p><b>Methods:</b><br/><b><u>Identifying and classifying</u></b><br/>To identify and classify, you make observations and measurements to find similarities and differences. This help to organise things into groups and make connections</p> <p><b><u>Research using secondary sources</u></b><br/>Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>Secondary sources are works such as textbooks, encyclopaedia and scientific books. They describe, discuss and evaluate primary sources.</p> <p>Know that information texts use scientific language.</p> <p>Secondary sources can be used to identify plant types.</p> <p><b><u>Observation over time</u></b><br/>Observing over time is when make systematic and careful observation to identify and measure changes in</p> | <p><b>Methods:</b><br/><b><u>Identifying and classifying</u></b><br/>To identify and classify, you make observations and measurements to find similarities and differences. This help to organise things into groups and make connections</p> <p>You can classify animals as viviparous and oviparous.</p> <p><b><u>Researching using secondary sources</u></b><br/>Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>Secondary sources are works such as textbooks, encyclopaedia and scientific books. They describe, discuss and evaluate primary sources.</p> <p>Know that information texts use scientific language.</p> <p>Secondary sources can be used to investigate gestation periods of different animals</p> <p><b>Data analysis:</b></p> | <p><b>Methods:</b><br/><b><u>Pattern-seeking</u></b><br/>Pattern seeking is when you observe variables that cannot be controlled to notice patterns.</p> <p>Variables are anything that can change or be changed.</p> <p>A pattern seeking investigation can be carried out to compare and contrast life cycles.</p> <p><b><u>Researching using secondary sources</u></b><br/>Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>Secondary sources are works such as textbooks, encyclopaedia and scientific books. They describe, discuss and evaluate primary sources.</p> <p>Know that information texts use scientific language.</p> <p>Secondary sources of information can be used to research animal life cycles.</p> <p><b>Data analysis:</b></p> | <p><b>Methods:</b><br/><b><u>Pattern-seeking</u></b><br/>Pattern seeking is when you observe variables that cannot be controlled to notice patterns.</p> <p>Variables are anything that can change or be changed.</p> <p>Compare and contrast life cycles.</p> <p><b><u>Researching using secondary sources</u></b><br/>Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>Secondary sources are works such as textbooks, encyclopaedia and scientific books. They describe, discuss and evaluate primary sources.</p> <p>Know that information texts use scientific language.</p> <p><b>Data analysis:</b><br/>A Venn diagram uses circles to show the relationship between things.</p> <p>Know how to draw a Venn diagram.</p> | <p><b>Methods:</b><br/><b><u>Researching using secondary sources</u></b><br/>Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>Secondary sources are works such as textbooks, encyclopaedia and scientific books. They describe, discuss and evaluate primary sources.</p> <p>Know that information texts use scientific language.</p> <p>Research into the life of these biologists and the impact of their findings and teachings.</p> |

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| <p>You can use scissors and tweezers to help you dissect something.</p> <p><b>Data analysis:</b><br/>A diagram is a picture that is usually labelled.</p> <p>A scientific diagram might not be to scale e.g. a diagram of a flower might be a different size to the real flowers.</p> <p><b>Evidence to develop explanations:</b><br/>Know that results from a scientific enquiry can be used to answer a scientific question.</p> <p>To answer a scientific question, you should include evidence from your scientific enquiry.</p> <p>Know that scientific language should be used when explaining findings.</p> | <p><b>Apparatus &amp; techniques:</b><br/>You can use an iPad to take photographs to record changes.</p> <p><b>Evidence to develop explanations:</b><br/>Know that findings from enquires can be reported in different ways e.g. orally, written, results presentation or as a conclusion.</p> <p>Know that scientific language should be used when explaining findings.</p> <p>Know that results from scientific enquires might have different degrees of trust as external factors may impact on results.</p> | <p>When you collect data it needs to be presented in a way that is clear and easy to understand.</p> <p>A data base is a collection of data that is stored in a logical and structured manner.</p> | <p>A Venn diagram uses circles to show the relationship between things.</p> <p>Know how to draw a Venn diagram.</p> <p>A diagram is a picture that is usually labelled.</p> | <p>A diagram is a picture that is usually labelled.</p> |  |
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Year 6

Summer 2

| Animals Including Humans                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| Lesson Sequence                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Describe the changes as humans develop to old age - find out and compare gestation periods of a range of animals including humans.                                                                                                                                                                  | Humans develop to old age - Investigate foetal development in humans                                                                                                                                                                                                                                                                               | Describe the changes as humans develop to old age - Recognise and explore key milestones in baby and child development.                                                                               | Describe the changes as humans develop to old age - Identify and understand the key changes that happen in the human body during puberty. Recognise those changes that are gender specific.                                                                                                                                                                                                                                            | Describe the changes as humans develop to old age - Identify physical and mental changes that happen from adulthood to old age.                                                                                                                                                                                                                                                  | Describe the changes as humans develop to old age - Identify, order and explain the 6 stages in a human life cycle.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Substantive Knowledge                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p><b>Human life cycle</b><br/>Newborn &gt; Childhood &gt; Adolescence &gt; Early adulthood &gt; middle adulthood &gt; Late adulthood.</p> <p><b>Gestation</b> – the process in which babies grow inside their mother's body before they are born. This period of time differs between species.</p> | <p><b>Foetus</b> - After eight weeks, the group of cells in the mother's womb develops more human-like features, becoming a foetus. The foetus grows inside its mother's womb for nine months. A foetus is completely reliant on its mother and cannot breathe, eat or drink for itself. It receives its nutrition through the umbilical cord.</p> | <p><b>New-born</b> – baby that has just been born<br/> <b>Infancy</b> – a period of rapid change. Toddlers learn to walk and talk.<br/> <b>Childhood</b> – children learn new things as they grow</p> | <p><b>Adolescence</b> – the body starts to change as it prepares for adulthood. Hormonal changes take place over a few years. This is called <b>puberty</b>.</p> <p><b>Puberty</b> is when the body starts to change because of hormones. These changes include: growth in height, more sweat, and hair growth on arms, legs, under arms and on genitals. There is growth in parts of the body including male genitals and breasts</p> | <p><b>Early adulthood</b> – this is when humans are at their fittest and strongest. This is when reproduction usually happens.<br/> <b>Middle adulthood</b> – changes such as hair loss happen. There are hormonal changes again and the ability to reproduce ceases. This is called the menopause.<br/> <b>Late adulthood</b> – there is a decline in fitness and strength.</p> | <p><b>Human life cycle</b><br/> <b>Newborn</b> – baby that has just been born<br/> <b>Infancy</b> – a period of rapid change. Toddlers learn to walk and talk.<br/> <b>Childhood</b> – children learn new things as they grow.<br/> <b>Adolescence</b> – the body starts to change as it prepares for adulthood. Hormonal changes take place over a few years. This is called <b>puberty</b>.<br/> <b>Early adulthood</b> – this is when humans are at their fittest and strongest. This is when reproduction usually happens.<br/> <b>Middle adulthood</b> – changes such as hair loss happen. There are hormonal changes again and the ability to</p> |

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| Disciplinary Knowledge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                        |
| <p><b>Methods:</b><br/><u><b>Pattern-seeking</b></u><br/>Pattern seeking is when you observe variables that cannot be controlled to notice patterns.</p> <p>Variables are anything that can change or be changed.</p> <p>A pattern seeking enquiry can be carried out to investigate the relationship between animals size/life-span and gestation period.</p> <p><u><b>Research using secondary sources</b></u><br/>Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>Secondary sources are works such as textbooks, encyclopaedia and scientific books. They describe, discuss and evaluate primary sources.</p> <p>Know that information texts use scientific language.</p> | <p><b>Methods:</b><br/><u><b>Research using secondary sources</b></u><br/>Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>Secondary sources are works such as textbooks, encyclopaedia and scientific books. They describe, discuss and evaluate primary sources.</p> <p>Know that information texts use scientific language.</p> <p>Secondary sources of information can be used to investigate foetal development.</p> <p><u><b>Pattern-seeking</b></u><br/>Pattern seeking is when you observe variables that cannot be controlled to notice patterns.</p> <p>Variables are anything that can change or be changed.</p> | <p><b>Methods:</b><br/><u><b>Pattern-seeking</b></u><br/>Pattern seeking is when you observe variables that cannot be controlled to notice patterns.</p> <p>Variables are anything that can change or be changed.</p> <p>A pattern seeking investigation can be carried out to make generalisations about changes between birth, infancy and a toddler</p> <p><u><b>Identify/classify</b></u><br/>To identify and classify, you make observations and measurements to find similarities and differences. This help to organise things into groups and make connections.</p> <p>You can identify similarities and differences between the features of a baby, infant and a toddler.</p> <p><b>Data analysis:</b></p> | <p><b>Methods:</b><br/><u><b>Research using secondary sources</b></u><br/>Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>Secondary sources are works such as textbooks, encyclopaedia and scientific books. They describe, discuss and evaluate primary sources.</p> <p>Know that information texts use scientific language.</p> <p>Secondary sources of information can be used to research what happens to the body during puberty.</p> <p><u><b>Identify/classify</b></u><br/>To identify and classify, you make observations and measurements to find similarities and differences. This help to organise things into groups and make connections.</p> | <p><b>Methods:</b><br/><u><b>Research using secondary sources</b></u><br/>Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>Secondary sources are works such as textbooks, encyclopaedia and scientific books. They describe, discuss and evaluate primary sources.</p> <p>Know that information texts use scientific language.</p> <p>Secondary sources of information can be used to research changes through adulthood.</p> <p><b>Data analysis:</b><br/>A flow chart is a diagram that shows the sequence of movements or actions involved in a system.</p> |                                                                                                                        |



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| <p>Secondary sources of information can be used to research animal gestation periods.</p> <p><b>Data analysis:</b><br/>Know that a table is a simple way to present data collected in an investigation.</p> <p>Know how to draw a table as a simple way to present data</p> <p><b>Evidence to develop explanations:</b><br/>Know that results from a scientific enquiry can be used to answer a scientific question.</p> <p>To answer a scientific question, you should include evidence from your scientific enquiry.</p> <p>A causal relationship is when one thing is responsible for causing the occurrence of another thing.</p> | <p>A pattern seeking investigation can be carried out to make generalisations about the pattern of foetal growth.</p> <p><b>Data analysis:</b><br/>A line graph is a graph that is used to display change over time. A series of data points are connected by a straight line.</p> <p>Know how to draw a line graph to show foetal growth.</p> <p><b>Evidence to develop explanations:</b><br/>Understand that information about foetal development is taken from an average and that many babies may be above or below this.</p> | <p>A Venn diagram uses circles to show the relationship between things.</p> <p>Know how to draw a Venn diagram to show the similarities and differences between babies, infants and toddlers.</p> <p><b>Evidence to develop explanations:</b><br/>To answer a scientific question, you should include evidence from your scientific enquiry.</p> <p>Conclude that a baby can move but can't walk or talk, in infancy they begin to crawl and say some words and a toddler learns to walk and talk.</p> | <p>You can identify the similarities and differences between males and females.</p> <p>Know that a table is a simple way to present data collected in an investigation.</p> <p>Know how to draw a table as a simple way to present data</p> <p><b>Evidence to develop explanations:</b><br/>Know that results from a scientific enquiry can be used to answer a scientific question.</p> <p>To answer a scientific question, you should include evidence from your scientific enquiry.</p> <p>Conclude that:</p> <ul style="list-style-type: none"> <li>- Both males and females get pubic hair and spots.</li> <li>- Males develop testicles, Adams apple and a penis.</li> </ul> <p>Females develop breasts.</p> |  |  |
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