

Year 5

Autumn 1

Space					
Lesson Sequence					
Describe the Earth and sun as spherical bodies. Use the idea of the Earth's rotation to explain night and day.	Use the idea of the Earth's rotation to explain night and day and the apparent movement of the sun across the sky - shadow investigation.	Describe the movement of the Earth relative to the sun.	Look at the planets in our solar system and how they orbit around the sun.	Describe the moon as a spherical body. Describe the movement of the moon relevant to the Earth.	Look at the phases of the moon. Understand that the moon is not a source of light and that we can see it because it reflects light from the sun.
Substantive Knowledge					
<p><b><u>Planet Earth</u></b> Earth is a spherical body.</p> <p>It takes 24 hours for Earth to complete one full rotation on its axis.</p>	<p><b><u>Day and night</u></b> It is daytime on the side of the earth that is facing the sun and night time on the side of the earth that is facing away from the sun. As the earth rotates on its axis, shadows that are formed change in size and direction</p>	<p><b><u>The Sun</u></b> The Sun is a star at the centre of our solar system.</p> <p>The Earth takes 364¼ days to orbit the sun.</p> <p>An <b>orbit</b> is the path taken by a body circling around another body.</p> <p><b><u>Seasons</u></b></p> <ul style="list-style-type: none"> <li>• Earth rotates on an axis.</li> <li>• During the winter, the North Pole is tilted away from the Sun's rays.</li> <li>• As Earth travels around the Sun,</li> </ul>	<p><b><u>Planets</u></b> There are 8 planets in our solar system: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. The solar system consists of the sun and everything that orbits around it.</p>	<p><b><u>The Moon</u></b> The Moon is a spherical body.</p> <p>The Moon orbits the Earth. It orbits in an anti-clockwise direction and takes 28 days to complete it.</p>	<p><b><u>The Moon</u></b> The Moon has different phases depending on where it is in its orbit.</p> <p>The phases of the moon are: New Moon, waxing crescent, half moon, waxing gibbous, full Moon, waning gibbous, half moon, and waning crescent.</p>

		<p>the tilt of Earth changes.</p> <ul style="list-style-type: none"> <li>By June, the North Pole is tilted towards the Sun and the days become very long.</li> </ul> <p>Earth takes a year to orbit the Sun and it is the tilt which creates the seasons.</p>			
Disciplinary Knowledge					
<p><b>Methods: Research</b> 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>Evidence to develop explanations:</b> Know that scientific evidence has been used to prove that the Earth and sun are spherical bodies.</p>	<p><b>Methods: Observations over time</b> Observing over time is when make systematic and careful observation to identify and measure changes in materials over a period of time.</p> <p>Regular observations/ measurements need to be made at set intervals.</p> <p><b>Apparatus &amp; techniques:</b> A ruler is a tool used to measure length and centimeters (cm) and millimeters (mm) are units of measure.</p> <p>1cm = 10mm</p> <p><b>Data analysis:</b> Know that results from an observation over time can be collected and presented in a table.</p>	<p><b>Methods: Research</b> 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>Evidence to develop explanations:</b> To answer a scientific question, you should include evidence from your research.</p>	<p><b>Methods: Research</b> 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>Identifying and classifying</b> To identify and classify, you make observations and measurements to find similarities and differences. This help to organise things into</p>	<p><b>Methods: Research</b> 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>Evidence to develop explanations:</b> Know that scientific evidence has been used to prove that the moon is a spherical bodies.</p>	<p><b>Methods: Research</b> 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>Identifying and classifying</b> 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>A line graph is a graph that shows changes over time.</p> <p>Scientific language is used when presenting your results</p> <p><b>Evidence to develop explanations:</b> To draw a scientific conclusion you need to look at your results and identify patterns.</p> <p>To answer a scientific questions you should include evidence from your scientific enquiry.</p>		<p>groups and make connections.</p> <p><b>Data analysis:</b> Results from identifying and classifying can be collected and presented in a database.</p> <p><b>Evidence to develop explanations:</b> To answer a scientific question, you should include evidence from your research</p>		<p><b>Data analysis:</b> Results from identifying and classifying can be collected and presented in a table.</p> <p><b>Evidence to develop explanations:</b> Know that scientific evidence has been used to prove that the moon has different phases.</p>
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## Year 5

## Autumn 2

Animals Including Humans					
Lesson Sequence					
Identify the components of blood and describe their functions. Name and describe the different blood vessels and their functions.	Explore the structure and function of the human heart.	Identify and name the main parts of the human circulatory system	Describe the ways in which nutrients and water are transported within animals, including humans.	Recognise the impact of diet, exercise and lifestyle on the way our bodies function.	Identify how drugs and alcohol impact on the way the human body functions
Substantive Knowledge					
<p><b><u>Blood</u></b></p> <p>Blood is made up of liquid and solids.</p> <p>The liquid part is water and protein (plasma). The solid part includes white blood cells, red blood cells and platelets.</p> <p>Plasma carries the solid parts of the blood through the body.</p> <p>Red blood cells carry oxygen through the body.</p> <p>White blood cells fight infection.</p> <p>Platelets help you to stop bleeding when you get hurt.</p> <p>The main vessels are arteries, veins and capillaries.</p> <p><u>Arteries take blood away from the heart and veins take blood in.</u></p>	<p><b><u>The Heart &amp; Circulatory System</u></b></p> <p>The circulatory system includes the heart, lungs, veins, capillaries and arteries that run through the body.</p> <p>Children can name:</p> <ul style="list-style-type: none"> <li>- Left and right ventricles</li> <li>- Left and right atrium</li> <li>- Valves</li> <li>- Aorta</li> <li>- Pulmonary artery</li> </ul>	<p><b><u>Animals</u></b></p> <p>Some animals have different circulatory systems to humans.</p> <ul style="list-style-type: none"> <li>· A human has a four chamber heart.</li> <li>· A fish has a two chamber heart.</li> <li>· Reptiles and amphibians have three chamber hearts.</li> </ul>	<p><b><u>Exercise</u></b></p> <p>Exercise is very important to maintain a healthy heart. The average resting heart beat per minute is 60 (bpm). Some athletes have resting heart beats between 30—40 bpm.</p> <p><b><u>Diet</u></b></p> <p>Healthy diets can look different for different types of people depending on their individual needs; weight lifters and ballerinas have very different diets.</p> <p>Pulse can be used to measure heart rate because every time the heart contracts, a surge of blood is sent through all arteries.</p>	<p><b><u>Drugs</u></b></p> <p>Drugs are substances that have an effect on the body when it enters the system. There are legal and illegal drugs. Drugs, alcohol and smoking can impede the body's ability to focus and function normally.</p>	

Disciplinary Knowledge					
<p><b>Methods:</b>  <u><b>Research using secondary sources</b></u>            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 the make-up of blood.</p>					<p><b>Methods:</b>  <u><b>Observation over time</b></u>            Observing over time is when make systematic and careful observation to identify and measure changes over a period of time.</p> <p>Regular observations/ measurements need to be made at set intervals.</p> <p>External factors may affect results.</p> <p>You need to control the variables to limit the impact of external factors.</p> <p>Stopwatches can be used to accurately measure time.</p> <p>Time can be measured in minutes/seconds.</p> <p>1 minute = 60 seconds.</p> <p><b>Apparatus &amp; techniques:</b>            To measure your heart rate/ pulse, place your index and third fingers on your neck to the side of your windpipe. To check your pulse at your wrist, place two fingers between the bone and the tendon over your radial artery — which is</p>

					<p>located on the thumb side of your wrist.</p> <p><b>Data analysis:</b> Line graphs can be used to plot data collection over time.</p> <p>The x axis shows the time</p> <p>The y axis represents what is being measured.</p> <p>Plotted points on a line graph need to be joined by straight lines.</p> <p>Know how to draw a line graph.</p> <p><b>Evidence to develop explanations:</b> 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 results from scientific enquires might have different degrees of trust as external factors may impact on results.</p>
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Year 5

Spring 1

Forces						
Lesson Sequence						
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						

<p><b>Methods: <u>Researching using secondary sources</u></b> Research is an investigation or study to find out</p>	<p><b>Methods: <u>Pattern seeking</u></b> Pattern seeking is when you observe variables that cannot be</p>	<p><b>Methods: <u>Comparative testing</u></b> A comparative test is when you test and compare</p>	<p><b>Methods: <u>Comparative testing</u></b> A comparative test is when you test and compare</p>	<p><b>Methods: <u>Comparative testing</u></b> A comparative test is when you test and compare different cases and situations.</p>	<p><b>Methods: <u>Pattern seeking</u></b> Pattern seeking is when you observe variables that cannot be controlled to notice patterns.</p>	<p><b>Methods: <u>Pattern seeking</u></b> Pattern seeking is when you observe variables that cannot be controlled to notice patterns.</p>
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<p>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>You can use secondary sources of information to investigate why an unsupported object falls to the ground (Isaac Newton's theory).</p> <p><b>Evidence to develop explanations:</b> Know that results from a scientific enquiry can be used to answer a scientific question.</p> <p>To answer a scientific question, you</p>	<p>controlled to notice patterns.</p> <p>Variables are anything that can change or be changed.</p> <p>Pattern seeking enquiries can help explain scientific phenomena e.g. the relationship between weight and mass.</p> <p>We measure the size of a force in newtons using a newton metre.</p> <p>We measure mass in g/kg using electronic scales.</p> <p>1kg = 1000g.</p> <p>Know that a table is a simple way to present data collected in a pattern seeking investigation.</p> <p>Know how to draw a table as a simple way to present data.</p>	<p>different cases and situations.</p> <p>A variable is a factor that can change.</p> <p>A comparative test can be carried out to investigate effect of water resistance as an object moves through liquid.</p> <p><b>Apparatus &amp; techniques:</b> We measure time in s/ms using a stopwatch.</p> <p>1 minute = 60 seconds</p> <p>We measure mass in kg/g using electronic scales.</p> <p>1kg – 1000g</p> <p>It is important to repeat measurements to make sure your results are reliable.</p> <p><b>Data analysis:</b> A bar chart is a chart that has</p>	<p>different cases and situations.</p> <p>A variable is a factor that can change.</p> <p>A comparative test can be carried out to investigate the effect of air resistance on an object.</p> <p><b>Apparatus &amp; techniques:</b> We measure time in s/ms using a stopwatch.</p> <p>1 minute = 60 seconds</p> <p>It is important to repeat finding to make sure your results are reliable.</p> <p><b>Data analysis:</b> Know that a scatter graph is a way to present two sets of data to look for connections.</p> <p>Know how to draw a scatter graph.</p> <p>A scientific diagram can be</p>	<p>A variable is a factor that can change.</p> <p>A comparative test can be carried out to investigate the impact of friction on how a hovercraft moves over different surfaces.</p> <p><b>Apparatus &amp; techniques:</b> We can measure distance using a metre stick to the nearest half cm.</p> <p>1m = 100cm</p> <p><b>Data analysis:</b> 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>A scientific diagram can be 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> A causal relationship is when one thing is responsible for causing the occurrence of another thing.</p> <p>Know that results from scientific enquiries might have different degrees of trust as external factors may impact on results.</p>	<p>Variables are anything that can change or be changed.</p> <p>Pattern seeking enquiries can be carried out to find out the effects of different sized pulleys and levers.</p> <p><b>Apparatus &amp; techniques:</b> We can measure force in Newtons using force metres</p> <p><b>Data analysis:</b> Know that a table is a simple way to present data collected in a pattern seeking investigation.</p> <p>Know how to draw a table as a simple way to present data.</p> <p>A scientific diagram can be 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> Know that results from a scientific enquiry can be used to answer a scientific question e.g. 'How does size of the _____ effect the force needed to move the object.</p> <p>To answer a scientific question, you should</p>	<p>Variables are anything that can change or be changed.</p> <p>Pattern seeking enquiries can be carried out to find out the effect different sized gears have on the movement of an object</p> <p><b>Apparatus &amp; techniques:</b> We can measure force in Newtons using force metres.</p> <p><b>Data analysis:</b> Know that a table is a simple way to present data collected in a pattern seeking investigation.</p> <p>Know how to draw a table as a simple way to present data</p> <p><b>Evidence to develop explanations:</b> Know that results from a scientific enquiry can be used to answer a scientific question e.g. 'How does size of the _____ effect the force needed to move the object.</p> <p>To answer a scientific question, you should</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> 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> 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> 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 5

Spring 2

Materials					
Lesson Sequence					
Compare and group together everyday materials on the basis of their properties, including their hardness, transparency, conductivity (electrical and thermal), and response to magnets.	Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic	Know that some materials will <b>dissolve</b> in liquid to form a solution. Investigate how to recover a substance from a solution using sieving, filtering or evaporation.	Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.	Demonstrate that dissolving and mixing are changes of state and are reversible changes.	Investigate /observe how some changes result in the formation of new materials, and that this kind of change irreversible, including changes associated with burning and the action of acid on bicarbonate of soda.
Substantive Knowledge					
<p><b>Hardness</b> – how hard or soft a material is.</p> <p><b>Permeable</b> – a material that allows liquids or gasses to pass through.</p> <p>Transparent – a material that allows light to pass through.</p> <p><b>Opaque</b> – a material you cannot see through</p> <p><b>Translucent</b> – a material that allows light but not detailed shapes to pass through.</p> <p><b>Electrical conductor</b> – allows electricity to pass through easily.</p> <p><b>Electrical insulator</b> – does not allow electricity to pass through easily.</p>	<p><b>Thermal conductor</b> – allows heat to travel through it easily.</p> <p><b>Thermal insulator</b> – does not allow heat to travel through easily.</p>	<p><b>Dissolve</b> – when a solid mixes with a liquid and a solution is formed.</p> <p><b>Soluble</b> – a substance that will dissolve in a liquid.</p> <p><b>Insoluble</b> – a substance that will not dissolve in a liquid.</p> <p><b>Mixture</b> - is a substance made by combining two or more different materials.</p>	<p><b>Sieving</b> – you can separate smaller particles from larger particles using a sieve. Smaller particles will fall through the holes.</p> <p><b>Filtering</b> – insoluble/undissolved particles can be removed from a liquid by passing it through filter paper.</p> <p><b>Evaporation</b> – when a liquid changes to a gas after being heated.</p>	<p><b>Reversible</b> - changes that are not permanent. Dissolving, mixing, melting, freezing are reversible changes. E.g. water turning to ice or steam, chocolate melting and cooling.</p> <p><b>Irreversible</b> - Changes that are permanent and cannot be undone. Result in the making of a new material. E.g. baking a cake, toasting bread. Some changes result in the formation of new material and this kind of change is usually irreversible. E.g. wood burning, vinegar mixed with bicarbonate of soda</p>	

<p><b>Magnetic</b> – a material that is attracted to a magnet. Uses of everyday materials:</p> <p>Windows – made from glass because it is hard and transparent. Oven gloves – made from a thermal insulator to keep heat from burning our hands. Plugs – have a plastic case because plastic is an electrical insulator so stops electricity from passing through to our bodies.</p>				(produces carbon dioxide bubbles).
Disciplinary Knowledge				
<p><b>Methods:</b> <u>Identifying and classifying</u> Classifying is when something is grouped or ordered into categories based on properties or criteria.</p> <p><b>Apparatus &amp; techniques:</b> A magnet is an object that has a magnetic field. A magnet attracts and repels other items.</p> <p><b>Data analysis:</b> Know that a table is a simple way to present data collected in an investigation.</p>	<p><b>Methods:</b> <u>Observation over time</u> Observing over time is making systematic and careful observation to identify and measure changes in materials over a period of time.</p> <p>Regular observations/measurements need to be made at set intervals.</p> <p>External factors may affect results.</p> <p>Variables are anything that can change or be changed.</p>	<p><b>Methods:</b> <u>Identifying and classifying</u> 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>Data analysis:</b> Know that a table is a simple way to present data collected in an investigation.</p> <p><b>Evidence to develop explanations:</b></p>	<p><b>Methods:</b> <u>Identifying and classifying</u> Classifying is when something is grouped or ordered into categories based on properties or criteria.</p> <p><b>Apparatus &amp; techniques:</b> A sieve has a wire mesh that can be used to separate larger particles from smaller particles.</p> <p>Filter paper is a permeable paper that allows liquid to pass through. It can be used to separate fine solid particles from liquids. To use filter paper you fold it and put it inside a funnel.</p> <p>A funnel has a wide opening at the top and a tube at the bottom. It is used to guide liquid into a small opening.</p> <p><b>Data analysis:</b> A diagram is a picture that is usually labelled.</p>	<p><b>Data analysis:</b> A diagram is a picture that is usually labelled.</p> <p>A diagram is a picture that is usually labelled.</p> <p><b>Evidence to develop explanations:</b> Know that results from a scientific enquiry can be used to answer a scientific question. Know that scientific language should be used when explaining findings</p>

<p><b>Evidence to develop explanations:</b> Know that scientific language should be used when explaining findings.</p>	<p>You need to control the variables to limit the impact of external factors.</p> <p><b>Apparatus &amp; techniques:</b> A thermometer is an instrument that measures temperature.</p> <p>Degree Celsius is a unit of measure for temperature.</p> <p>You need to read the scale to see what the temperature is.</p> <p><b>Data analysis:</b> Know how to draw a table as a simple way to present data collected in an investigation.</p> <p><b>Evidence to develop explanations:</b> 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 a conclusion is when you answer a question using what you have found out in your scientific enquiry.</p>	<p>Know that results from a scientific enquiry can be used to answer a scientific question.</p>	<p>You can use an iPad to take photographs to record changes.</p> <p><b>Evidence to develop explanations:</b> 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>	
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	<p>To draw a scientific conclusion you need to look at your results and identify patterns</p> <p>Know that conclusions drawn from scientific enquires can be used to make recommendations.</p>			
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## Year 5

## Summer 1

Living Things and their Habitats					
Lesson Sequence					
Identify the key parts and function of flowering plants. Plant dissection.	Reproduction in plants including sexual and asexual. 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></p> <p><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. 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. E.g. spider plant</p>	<p><u>Reproduction in animals</u></p> <p>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></p> <p>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></p> <p>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></p> <p>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></p> <p>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></p> <p>Famous for his commitment to the natural environment. He has spent years studying animals and living things.</p> <p><u>Jane Goodall</u></p> <p>British scientist famous for work with chimpanzees. She showed that chimps have individual personalities and experience emotions.</p>

Disciplinary Knowledge					
<p><b>Methods:</b> <b><u>Identifying and classifying</u></b> 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> 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> You can use a magnifying glass to observe closely.</p>	<p><b>Methods:</b> <b><u>Identifying and classifying</u></b> 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> 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> Observing over time is when make systematic and careful observation to identify and measure changes in</p>	<p><b>Methods:</b> <b><u>Identifying and classifying</u></b> 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> 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> <b><u>Pattern-seeking</u></b> 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> 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> <b><u>Pattern-seeking</u></b> 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> 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> 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> <b><u>Researching using secondary sources</u></b> 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>

<p>You can use scissors and tweezers to help you dissect something.</p> <p><b>Data analysis:</b> 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> 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> You can use an iPad to take photographs to record changes.</p> <p><b>Evidence to develop explanations:</b> 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 5

## Summer 2

Animals Including Humans					
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> 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 Infancy – a period of rapid change. Toddlers learn to walk and talk. <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. <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. <b>Late adulthood</b> – there is a decline in fitness and strength.</p>	<p><b>Human life cycle</b> <b>Newborn</b> – baby that has just been born Infancy – a period of rapid change. Toddlers learn to walk and talk. <b>Childhood</b> – children learn new things as they grow. <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>. <b>Early adulthood</b> – this is when humans are at their fittest and strongest. This is when reproduction usually happens. <b>Middle adulthood</b> – changes such as hair loss happen. There are hormonal changes again and the ability to</p>



					reproduce ceases. This is called the menopause. <b>Late adulthood</b> – there is a decline in fitness and strength.
Disciplinary Knowledge					
<p><b>Methods:</b> <b><u>Pattern-seeking</u></b> 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><b><u>Research using secondary sources</u></b> 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> <b><u>Research using secondary sources</u></b> 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><b><u>Pattern-seeking</u></b> 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> <b><u>Pattern-seeking</u></b> 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><b><u>Identify/classify</u></b> 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> <b><u>Research using secondary sources</u></b> 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><b><u>Identify/classify</u></b> 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> <b><u>Research using secondary sources</u></b> 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> A flow chart is a diagram that shows the sequence of movements or actions involved in a system.</p>	



<p>Secondary sources of information can be used to research animal gestation periods.</p> <p><b>Data analysis:</b> 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> 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> 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> 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> 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> 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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