







## Malpas Alport Primary School – Science Curriculum

<b>Purpose of Study</b>	A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.					
<b>Aims</b>	<p>The national curriculum for science aims to ensure that all pupils:</p> <ul style="list-style-type: none"> <li>• develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics</li> <li>• develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them</li> <li>• are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.</li> </ul>					
<b>Curriculum Design</b>	<p>The Malpas Alport Science Curriculum explicitly sets out the substantive and disciplinary knowledge children will learn in each lesson to ensure there is clear interplay between the types of knowledge. To support schema development, lessons are sequenced to build on prior learning with each lesson having clearly defined knowledge to revisit.</p> <p>The Malpas Alport Science curriculum is sequenced following the topics as they are set out in the National Curriculum for KS1 and KS2. At Malpas Alport, we prioritise the STEM subjects. All year groups have a STEM based topic that is covered for a full term each year. These topics make explicit links between the Design and Technology, Science and Computing curriculums.</p>					
<b>Personal Development Links</b>						
	RESPECT	SMSC	Rights Respecting	British Values	Jigsaw	Trips and Visits


### Topic Overview Year 2












	HT1	HT2	HT3	HT4	HT5	HT6
Year 2	Animals including humans		STEM - Materials		Living things and their habitat	Plants


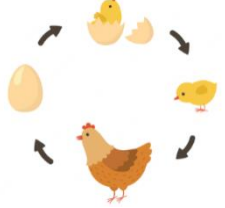
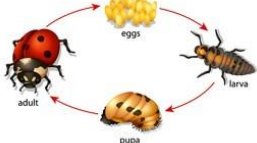




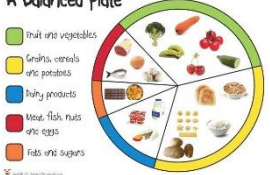
## HT1 and HT2 - Animals including humans

	Week 1 & 2	Week 3 & 4	Week 5 & 6	Week 7 & 8	Week 9 & 10	Week 11 & 12
Revisit of prior learning	Review common types of animals including fish, amphibians, reptiles, birds and mammals Review how animals change e.g. chick to hen.	Review how animals including humans have offspring that turn into adults.	Review basic parts of the human body and the senses associated. Review how animals have offspring that turn into adults.	Review the basic needs of animals including humans for survival.	Review the basic needs of animals including humans to survive. Review how we need to eat the right amount of different types of food.	Review how humans need to eat the right amount of different types of food and how important exercise is to stay healthy.
Lesson sequence	Explore how animals have offspring that turn into adults.	Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).	Understand that humans are animals and that we too have offspring that turn into adults. Explore how babies change to toddlers, to teenagers, adults, then elderly.	Understand that we need to eat the right amount of different types of food.	Investigate the importance of human exercise.	Investigate the importance of good hygiene to keep the body healthy.

## Knowledge - Animals including humans

Substantive knowledge		Disciplinary Knowledge			
Personal Development		Knowledge of methods that scientists use to answer questions <i>(Observation over time, pattern seeking, identify/classify, comparative/fair test, research using secondary sources)</i>	Knowledge of apparatus and techniques, including measurement	Knowledge of data analysis	Knowledge of how science uses evidence to develop explanations.
<b>1</b>	 <p>All living things <b>reproduce</b> and have <b>offspring</b>. Some animals give birth to live young and they look like them when they are born e.g. cats, dog, and humans.</p> <ul style="list-style-type: none"> <li>- Some animals have offspring that doesn't look like them e.g. fish, frogs.</li> <li>- Some animals lay eggs which hatch into live young e.g. birds, snakes.</li> </ul>	<p><b>Identifying and classifying</b> Classifying is when you sort items into groups based on similarities and differences.</p> <p>To help classify objects, it is good to observe them.</p> <p>Observing means to look closely.</p> <p>Identify that humans, dogs and cats' offspring look like</p>			

2		 	<p>their parents. Frog offspring doesn't look like its parent.</p> <p><b>Research using secondary sources</b>        Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>You can carry out research to answer simple questions.</p> <p>You can use secondary sources of information to investigate which animals lay eggs and which give birth to live young.</p>	
3		<p>To survive, animals (including humans) need <b>water, food, shelter, warmth and oxygen.</b></p>	<p><b>Research using secondary sources</b>        Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>You can carry out research to answer simple questions.</p> <p>Secondary sources of information can be used to research what animals need to survive and what will happen if any of these are missing.</p> <p>Secondary sources of information can be used to identify the basic needs of an animal.</p>	
4	     			
5		<p>Offspring must receive the <b>basic needs</b> of an animal to grow into an adult. When they are fully grown, they can also reproduce.</p>	<p><b>Research using secondary sources</b>        Research is an investigation or study to find out facts in order to reach a conclusion.</p>	
6		<p>- Egg &gt; chick &gt; chicken</p>		
				<p>A pictogram is a chart that has images that represent the value of data.</p> <p>Know how to read the data on a pictogram to answer questions.</p>
				<p>A conclusion is when you answer a question using what you have found out from scientific enquiry.</p>

		<ul style="list-style-type: none"> <li>- Spawn &gt; tadpole &gt; frog</li> <li>- Eggs &gt; larva &gt; pupa &gt; ladybird</li> </ul> <p>Baby &gt; toddler &gt; child &gt; teenager &gt; adult</p>  <p>Coccinellidae (ladybug) Life Cycle</p> 	<p>You can carry out research to answer simple questions.</p> <p>Children use secondary sources and information to research what animals need to survive and what will happen if any of these are missing.</p> <p>You can use secondary sources of information to research the life cycles of chickens, frogs, ladybirds and humans.</p>		
7	   	<p>To grow into a healthy adult we must eat the right types of <b>food</b>.</p> <p>A healthy diet includes the right balance of <b>fruit and vegetables, carbohydrates, dairy, proteins and fats</b>.</p> <p><b>A Balanced Plate</b></p> <ul style="list-style-type: none"> <li>Multi-use vegetables</li> <li>Grains, cereals and potatoes</li> <li>Dairy products</li> <li>Meat, fish, nuts and eggs</li> <li>Fats and sugars</li> </ul> 	<p><b>Research using secondary sources</b></p> <p>Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>You can carry out research to answer simple questions.</p> <p>Secondary sources of information can be used to investigate how much of each food group you should eat to stay healthy.</p> <p>Secondary sources of information can be used to investigate the impact of sugar on teeth and the human body.</p>		<p>Know that from using secondary sources, a conclusion is when you answer a question using what you have found out from scientific enquiry.</p> <p>Conclude that if you only eat sugary foods your teeth would fall out and you would become over weight.</p> <p>Conclude that if you only eat fruit and vegetables your bones won't be strong, you won't get protein or healthy fats.</p>
8			<p><b>Identify and classify</b></p> <p>Classifying is when you sort items into groups based on similarities and differences.</p>		<p>Conclude that:</p> <p>An apple- fruit.  A carrot- vegetables  Pasta- carbohydrate  Cheese- dairy</p>

	  		<p>You can classify different foods as fruit, vegetable, carbohydrate, dairy, protein or fat.</p> <p><b><u>Research using secondary resources</u></b>        Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>You can carry out research to answer simple questions.</p> <p>Secondary sources can be used to research what it means to be healthy/unhealthy.</p>		<p>Fish-protein        Chocolate- fats.        A healthy diet includes a balance of all the food groups.</p> <p>Conclude that too much of one food groups can make people sick. Heathy means you are in a good physical and mental condition. Unhealthy means you are in a poor physical or mental condition.</p>	
9	  	<p>To grow into a healthy adult we must do regular <b>exercise</b>.</p> <p>Children should be active for 60 minutes every day.</p>	<p><b><u>Research using secondary resources.</u></b>        Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>You can carry out research to answer simple questions.</p> <p>Secondary sources of information can be used to research the impact of exercise on the human body.</p>		<p>Know that a conclusion is when you answer a question using what you have found out from scientific enquiry.</p> <p>Conclude that exercise is when you increase your heart rate, which pumps blood around our bodies keeping our organs healthy.</p>	
10	 		<p><b><u>Observation over time.</u></b>        Observing over time is when you watch or measure something over a period of time to see how it changes.</p> <p>You can observe your heart rate over time to see how it changes when completing different exercises.</p>	<p>We use stopwatches to measure time.</p>  <p>A second is a measure of time.</p>	<p>Results from an observation over time can be recorded in a table.</p> <p>A table is a clear way to present information.</p>	<p>Conclude that when we exercise, our heart rate increases, we breathe deeply and our faces go red.</p>






11		<p>To stop illness and infections, we need to maintain good <b>hygiene</b> and keep ourselves clean.</p> <p>Bad bacteria spreads through poor hygiene and contact.</p> <p>If you do not wash your hands, you will spread germs to others.</p> <p>Good hygiene means washing your hands, body and teeth. It also means if you are poorly, you take extra care with your hygiene to stop germs spreading.</p> <p>Bad bacteria makes us poorly, but good bacteria keeps our immune systems healthy.</p>	<p><b>Pattern seeking</b> Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results.</p> <p>You can use the results from pattern seeking enquiries to suggest answers to questions.</p> <p>You can make predictions about what patterns you might find before carrying out a pattern seeking enquiry.</p> <p>A prediction is when you use your existing knowledge to say what might happen.</p>	<p>There are 60 seconds in a minute and 60 minutes in an hour.</p>	<p>Ask questions about the importance of keeping clean and hygienic and what that looks like.</p> <p>You can use the results from pattern seeking enquiries to suggest answers to questions.</p>

### HT3 and HT4 - Materials

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Revisit of prior learning	Review materials that were waterproof and describe their common uses.	Review names of everyday materials including wood, plastic, glass, metal, water, and rock. Review the properties of everyday materials by comparing and grouping.	Review the uses of everyday materials.	Review materials that were absorbent and explain their common uses.	Review materials that were absorbent and explain their common uses.	Review how the shapes of solid objects can be changed.	Review the properties of everyday materials.

Lesson sequence	Investigate how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Children are given a set of materials and predict if they will float or sink and explain why.  Children test out the objects to see if they float or sink.	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses - focus on <i>absorbency</i> .	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses - <i>waterproof</i> .	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses - <i>waterproof</i> .	Find out about people who have developed new materials. <i>E.g. John Dunlop, John McAdam, Charles Macintosh.</i>	Investigate common items looking at the materials they are made from and why they are suitable for the purpose
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**Knowledge – Uses of everyday materials (STEM topic – Pirate ships)**

Substantive knowledge		Disciplinary Knowledge				
Personal Development		Knowledge of methods that scientists use to answer questions <i>(Observation over time, pattern seeking, identify/classify, comparative/fair test, research using secondary sources)</i>	Knowledge of apparatus and techniques, including measurement	Knowledge of data analysis	Knowledge of how science uses evidence to develop explanations.	
1		<p>Shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p> <p><b>Squashing:</b> pushing an object together in your hands  <b>Bending:</b> holding both ends of the object and bring it towards yourself  <b>Twisting:</b> holding an object and turn the object in opposite directions  <b>Stretching:</b> Slowly pulling the object in opposite directions</p> <div style="display: flex; justify-content: space-around; align-items: center;">     </div> <p style="text-align: center; font-size: small;">bend      twist      stretch      squash</p>	<p><b>Pattern seeking</b> Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results.</p> <p>A pattern seeking enquiry can be carried out to investigate how to change different materials.</p> <p><b>Identify/classify</b> Classifying is when you sort items into groups based on similarities and differences.</p> <p>To help classify objects, it is good to observe them.</p> <p>Observing means to look closely.</p>		<p>When you collect data it needs to be presented in a way that is clear and easy to understand.</p> <p>A table is a simple way to present data.</p>	

2		<p>Properties of everyday materials</p> <ul style="list-style-type: none"> <li>• Wood - strong, sturdy, floats, opaque</li> <li>• Plastic – transparent, common material</li> <li>• Glass – transparent, strong</li> <li>• Metal – strong, opaque, will sink</li> <li>• Brick – heavy, opaque</li> <li>• Rock – heavy, will sink</li> <li>• Paper –light weight, opaque</li> <li>• Cardboard – light weight, opaque</li> <li>• Polystyrene- light weight, opaque</li> </ul> 	<p>Materials can be classified into materials that will squash/bend/twist/stretch.</p> <p><b>Identify/classify</b> Classifying is when you sort items into groups based on similarities and differences.</p> <p>To help classify objects, it is good to observe them closely.</p> <p>Observing means to look closely.</p> <p>Objects can be classified by the materials they are made from.</p>			<p>Know that you can answer questions using knowledge from what you have observed.</p> <p>Conclude that we choose the material that objects are made from based on the material's properties.</p>
3		<p>An absorbent material allows water to enter or pass through it.</p> <ul style="list-style-type: none"> <li>• Cotton wool – absorbs water</li> <li>• Sponge – absorbs water</li> <li>• Fabric – absorbs water</li> <li>• Paper – absorbs water</li> <li>• Wood – absorbs water</li> <li>• Plastic – does not absorb water</li> <li>• Glass – does not absorb water</li> <li>• Polystyrene – does not absorb water</li> </ul>	<p><b>Pattern seeking</b> Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results.</p> <p>You can ask questions to help you look for patterns.</p> <p>You can use the results from pattern seeking enquiries to suggest answers to questions.</p> <p>You can make predictions about what patterns you</p>	<p>We measure weight in grams. We can use block weights in to measure weight</p>  <p>We measure time in minutes using stopwatches.</p>		



			<p>might find before carrying out a pattern seeking enquiry.</p> <p>A prediction is when you use your existing knowledge to say what might happen.</p> <p>A pattern seeking enquiry can be carried out to observe whether a floatable device can hold a weight over a period of time.</p> <p>Know that using the same weight on each boat will make it easier to see patterns.</p>		
4	 	<p>A waterproof material is designed to prevent water from entering or passing through.</p> <ul style="list-style-type: none"> <li>• Wood – not waterproof</li> <li>• Plastic –waterproof</li> <li>• Glass –water proof</li> <li>• Metal – waterproof Brick – waterproof</li> </ul>	<p><b>Pattern Seeking</b>  Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results.</p> <p>You can ask questions to help you look for patterns.</p>		<p>Know that a conclusion is when you answer a question using what you have found out in your scientific enquiry.</p> <p>Conclude that plastic, glass, metal, rock and polystyrene are waterproof.</p>
5			<p>You can use the results from pattern seeking enquiries to suggest answers to questions.</p> <p>You can make predictions about what patterns you might find before carrying out a pattern seeking enquiry</p> <p>A prediction is when you use your existing knowledge to say what might happen.</p> <p>A pattern seeking enquiry can be carried out to observe whether a box made from</p>		<p>Conclude that the best materials to make a boat from would be plastic or polystyrene as they are waterproof, can hold a weight but are not too heavy.</p>


			different materials can keep an object dry when in water.	
6		<p>Charles Macintosh</p> <ul style="list-style-type: none"> <li>• Born in 1766 in Scotland</li> <li>• Got rubber from trees</li> <li>• He was 20 years old when he started a factory</li> <li>• His dad was a merchant He put two pieces of cloth together and found that water did not sink through</li> <li>• He made the first waterproof fabric</li> <li>• He wanted to be a scientist</li> <li>• He made coats and waterproof clothes</li> </ul> 		
7	 	<p>A suitable material is a material with the appropriate properties for the purpose it is being used for.</p> <ul style="list-style-type: none"> <li>• Life jackets are made out of plastic because they need to be waterproof, light, and expandable and be able to float. Cash boxes are made out of metal because they are strong, waterproof and the metal is easy to shape when made.</li> </ul>	<p><b>Pattern seeking</b>  Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results.</p> <p>A pattern seeking enquiry can be carried out to look at which materials have been chosen to make certain objects.</p>	<p>Know that a conclusion is when you answer a question using what you have found out in your scientific enquiry.</p> <p>Conclude that materials have been chosen to make different objects based on their properties.</p>

Some different materials are used for the **same thing**- spoons can be made from plastic, wood, metal, but not normally from glass

## HT5 - Living things and their habitat

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Revisit of prior learning		Review that animals live in a home that is near their food.	Review that animals live in a home that is near their food.	Review the names of plants and animals that live in microhabitats.	Review the names of plants and animals that live in different habitats and microhabitats.	Review the basic needs of animals including humans for survival.
Lesson sequence	Explore the differences between things that are living and things that are dead.	Study local area and identifying and naming the plants and animals and the habitat they live in.	Look at microhabitats and identify and name the plants and animals that live in them.	Explore larger habitats from around the world looking at the plants and animals that live in them.	Describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other by considering the adaptations of animals, and how living things in a habitat depend on each other.	Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

## Knowledge – Living things and their habitat

Substantive knowledge		Disciplinary Knowledge			
		Knowledge of methods that scientists use to answer questions <i>(Observation over time, pattern seeking, identify/classify, comparative/fair test, research using secondary sources)</i>	Knowledge of apparatus and techniques, including measurement	Knowledge of data analysis	Knowledge of how science uses evidence to develop explanations.
Personal Development					
1	 <p>Animals and plants are living things. Dead things are animals and plants that have died. Parts of living things that are no longer attached, such as</p>	<p><b>Identify and classify</b> Classifying is when you sort items into groups based on similarities and differences.</p>		When you collect data it needs to be presented in a way that is clear and easy to understand.	Know that you can answer questions using knowledge from what you have observed.

		<p>empty shells or fallen leaves are also dead.</p> <p>Objects made from rock, metal or plastic have never lived.</p> <p>Things that are alive move, respire, excrete, reproduce, grow, are sensitive and need nutrition.</p> 	<p>To help classify objects, it is good to observe them.</p> <p>Observing means to look closely.</p> <p>Know that you can classify things into those that are living, things that are dead and things that have never lived.</p>		<p>A table is a simple way to present data from a classification enquiry.</p>	<p>Conclude that objects made from rock, metal or plastic have never lived.</p>
2	 	<p>A habitat is somewhere that animals and plants live.</p>  <p>Animals can find food, water and shelter in a habitat.</p> <p>Plants can grow in a habitat.</p> <p>Plants grow in areas that provide them with food, water and sunlight.</p>	<p><b><u>Research using secondary sources</u></b></p> <p>Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>You can carry out research to answer simple questions.</p> <p>Secondary sources can be used to find out what a habitat is and what animals get from a habitat.</p>			<p>Know that you can use information gathered from secondary sources to answer questions.</p>
3		<p>A microhabitat is a very small habitat where mini beasts live. E.g. under a stone, under fallen leaves.</p> 	<p><b><u>Identifying</u></b></p> <p>Identifying means that you find out what something is.</p> <p>You can observe a habitat to identify the different creatures that can be found in different habitats in the school grounds.</p> <p>Observing means to look closely.</p>		<p>You can use a magnifying glass to observe closely and look at things that are small.</p> 	



Desert habitat: dry with very little water  
- accacia tree, camel, ghecko,  
scorpion



Ocean habitat – fish, seaweed (algae),  
plankton, whale



Coastal habitat: wet and  
windy - limpets, star fish,  
crab,



Polar: cold, windy, snowy/ice, not  
many plants – polar bear, arctic fox,  
snowy owl, lichens, seal, penguin



### Classifying

Classifying is when you sort  
items into groups based on  
similarities and differences.

To help classify objects, it is  
good to observe them  
closely.

Observing means to look  
closely.

### Research using secondary sources

Research is an investigation  
or study to find out facts in  
order to reach a conclusion.

You can carry out research  
to answer simple questions.

Secondary sources can be  
used to find out about the  
animals, plants and their  
habitats.

Research from secondary  
sources can help with class


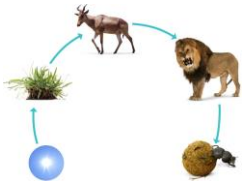
Know that you can ask  
questions to help you look for  
patterns.

E.g.

*'Do animals only physically  
adapt to their habitat?'*

*'What familiar characteristics  
can you find in these  
animals?'*



			<p><i>'What adaptation would a polar bear need to make to live in the desert?'</i></p> <p><i>'How has a polar bear adapted to climate change?'</i></p>	
5		<p>Animals and plants depend on each other to survive.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>- Worms depend on plants because they feed on dead leaves, but plants depend on worms who make the soil healthy by digging holes and allowing air in.</li> <li>- Birds also need worms because they eat them.</li> <li>- Worms are a source of food for birds.</li> <li>- If there were no worms, there would be less birds as there would be more competition for food. The soil would not be as healthy without worms.</li> </ul> 	<p><b><u>Pattern seeking</u></b>          Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results.</p> <p>You can make predictions about what patterns you might find before carrying out a pattern seeking enquiry</p> <p>A prediction is when you use your existing knowledge to say what might happen.</p> <p>You can pattern seek to investigate how animals and plants rely on each other.</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>You can carry out research to answer simple questions.</p> <p>Information collected from secondary sources can be used to answer questions and prove/disprove predictions.</p>	

<b>6</b>		<p>Food chains show where plants and animals get their food from.</p> <p>All living things have their part to play in food chains. Without them, other plants and animals may not be able to survive.</p> <p>Sun &gt; grass &gt; rabbit &gt; fox</p> <p>Sun &gt; leaves &gt; worm &gt; bird</p> <p>Energy is fuel for living things so they can move, respire, excrete, reproduce, grow, are sensitive and need gain nutrition.</p>	<p><b>Observation over time</b> Observing over time is when you watch or measure something over a period of time to see how it changes.</p> <p>You can observe over time how energy travels through a food chain and how this is needed for animals and plants to survive.</p>	<p>You can use a magnifying glass to observe closely.</p> <p>You can use time-lapse on an iPad to observe changes over time.</p>	<p>When you collect data it needs to be presented in a way that is clear and easy to understand.</p> <p>A table is a simple way to present data.</p>	<p>Know that you can answer questions using knowledge from what you have observed.</p> <p>Know that a conclusion is when you answer a question using what you have found out in your scientific enquiry.</p>
						

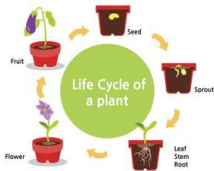
## HT6 - Plants




		Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
<b>Revisit of prior learning</b>	Review common structure of a plant	Review common structure of a plant	Review common structure of a plant	Review how seeds and bulbs grow into mature plants.	Review how seeds and bulbs grow into mature plants.	Review how plants need light and water in order to grow and stay healthy.	Review the common structure of a plant. Review how seeds and bulbs grow into mature plants.
<b>Lesson sequence</b>	Set up investigation to observe how seeds and bulbs grow into mature plants.	Observe and describe how seeds and bulbs grow into mature plants.	Set up investigation to find out that plants need water in order to grow.	Observe/describe how plants need water in order to grow. Set up investigation to show that plants need light in order to grow and stay healthy.	Investigate the impact of temperature on plants growth and health.	Describe and explain what plants need in order to grow and stay healthy.	

## Knowledge – Plants

Substantive knowledge		Disciplinary Knowledge			
Personal Development		Knowledge of methods that scientists use to answer questions <i>(Observation over time, pattern seeking, identify/classify, comparative/fair test, research using secondary sources)</i>	Knowledge of apparatus and techniques, including measurement	Knowledge of data analysis	Knowledge of how science uses evidence to develop explanations.
1	 <p><b>Growth from seeds to mature plants</b> Every seed has the beginnings of a new plant inside it, along with a store of food to help it grow.</p> <p>When the conditions are right, the seed soaks up water and swells, and the new plant bursts out of its shell. This is called germination.</p>	<p><b>Research using secondary sources.</b> Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>You can carry out research to answer simple questions.</p>	<p>We can measure temperature using a thermometer.</p> <p>Degrees Celsius is the measure we use for temperature.</p> <p>To take the temperature using a thermometer, you need to hold the top and place the opposite end where you want to measure. You need to read the scale to see what the temperature is</p> <p>We can use a ruler/tape measure to measure height.</p> <p>Centimetres and millimetres are units of measure we use for length.</p> <p>1cm = 10mm.</p>	<p>Analyse data collected from rainforest rainfall and how this impacted plant growth.</p> <p>Analyse results to discuss how the investigation shows changing in variables in plant growth.</p>	<p>Know that a conclusion is when you answer a question using what you have found out in your scientific enquiry.</p> <p>Conclude that:</p> <ul style="list-style-type: none"> <li>- Plants change and grow over time.</li> <li>- Plants need water, sunlight and nutrients to grow.</li> <li>- Plants who do not have one of these elements, will differ from the plants that have all 3.</li> <li>- Plants live, reproduce and die.</li> </ul>
2	 <p><b>Life cycle of a plant</b> Like all living things, plants have a life cycle. They live, reproduce and then die.</p> <p><b>Germination</b> – if the conditions are right, a seed begins to grow. It puts out roots and shoots to turn into a young plant.</p> <p><b>Growth</b> – the young plant produces leaves in order to get energy from the sun.</p> <p><b>Flowering</b> – the plant creates flowers to help it reproduce. The flower needs pollen from another flower to do this.</p>				





3	 <p><b>What plants need to grow</b></p> <p><b>Water</b> – they get water from the soil through their roots. They also catch water on their leaves.</p> <p><b>Nutrients</b> – Plants take nutrients from the soil.</p>	<p><b>Fair test</b> A fair test is when one variable is changed and the other remain constant.</p> <p>A variable is a factor that can change.</p> <p><b>Research using secondary sources.</b> Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>You can carry out research to answer simple questions.</p> <p>Secondary sources of information can be used to research the variables that plants need to grow, and how the growth of a plant is affected if removed.</p>	<p>We can measure the amount of liquid in millilitres.</p> <p>We can measure millilitres using a pipette.</p> <p>We can use a ruler/tape measure to measure height.</p> <p>Centimetres and millimetres are units of measure we use for length. 1cm = 10mm.</p>	<p>Monitoring a fair test, supervising the fair test.</p> <p>Monitoring change, measuring the plant in mm/cm.</p> <p>Recording the findings.</p>	<p>Plants change and grow over time.</p> <p>Plants need water, sunlight and nutrients to grow.</p> <p>Plants who do not have one of these elements, will differ from the plants that have all 3.</p>
4	<p><b>Sunlight</b> – plants do not eat food, instead they use sunlight to make their own food. If plants get too little light, they will be weak.</p> 				
5	 <p><b>Temperature</b> – plants need the right temperature to grow properly. If it is too hot they may burn/wilt. If it is too cold they may freeze and die.</p> <p><b>Space</b> – plants need room for their roots and stem to grow. Without space, they may not grow large enough.</p>	<p><b>Research using secondary sources</b> Research is an investigation or study to find out facts in order to reach a conclusion.</p> <p>You can carry out research to answer simple questions.</p> <p>Find out the variables that plants need to grow, and how</p>	<p>We can measure the amount of liquid in millilitres.</p> <p>We can measure millilitres using a pipette.</p> <p>We can use a ruler/tape measure to measure height.</p> <p>Centimetres and millimetres are units of measure we use for length. 1cm = 10mm.</p>	<p>Monitoring a fair test, supervising the fair test.</p> <p>Monitoring change, measuring the plant in mm/cm.</p> <p>Recording the findings.</p>	<p>Plants change and grow over time.</p> <p>Plants need water, sunlight and nutrients to grow.</p> <p>Plants who do not have one of these elements, will differ from the plants that have all 3.</p>

				<p>the growth of a plant is affected if removed.</p> <p><b>Fair test</b> A fair test is when one variable is changed and the other remain constant.</p> <p>A variable is a factor that can change.</p>	<p>We can measure temperature using a thermometer.</p> <p>Degrees Celsius is the measure we use for temperature.</p> <p>To take the temperature using a thermometer, you need to hold the top and place the opposite end where you want to measure. You need to read the scale to see what the temperature is</p>		
6		<p>To grow plants need: Water, nutrients, light, space and the right temperature.</p>		<p><b>Fair test</b> A fair test is when one variable is changed and the other remain constant.</p> <p>A variable is a factor that can change</p>		<p>When you collect data it needs to be presented in a way that is clear and easy to understand.</p> <p>A table is a simple way to present data.</p>	<p>Know that you can answer questions using knowledge from what you have observed.</p> <p>Know that you can use data you have collected to help answer questions.</p> <p>Know that a conclusion is when you answer a question using what you have found out in your scientific enquiry.</p> <p>Conclude that:</p> <ul style="list-style-type: none"> <li>- Plants change and grow over time.</li> <li>- Plants need water, sunlight and nutrients to grow.</li> <li>- Plants who do not have one of these elements, will differ from the plants that have all 3.</li> </ul>

