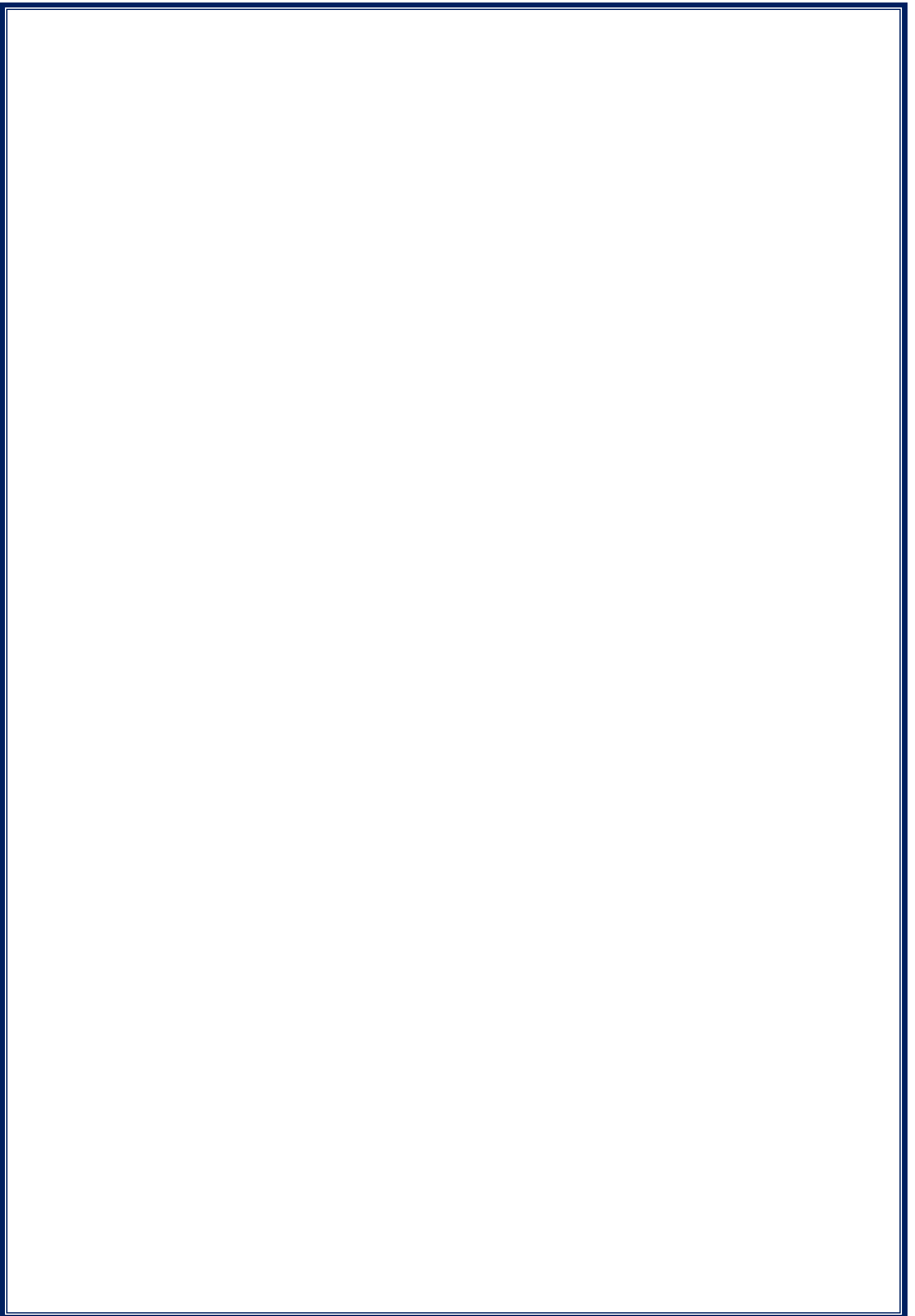










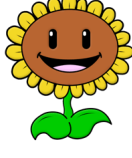




















# ARK Franklin Primary Academy



Science Curriculum



# Science Overview

	Autumn Term		Spring Term		Summer Term	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Year 1</b>	<b>Everyday Materials</b> 		<b>Animals, including humans</b> 		<b>Plants</b> 	<b>Seasons*</b> 
<b>Year 2</b>	<b>Uses of Everyday Materials</b> 		<b>Animals, including humans</b> 		<b>Plants</b> 	<b>Living Things and their Habitats</b> 
<b>Year 3</b>	<b>Rocks</b> 	<b>Animals, including humans</b> 	<b>Light</b> 		<b>Plants</b> 	<b>Forces and Magnets</b> 
<b>Year 4</b>	<b>Electricity</b> 	<b>Sound</b> 	<b>Animals, including humans</b> 		<b>States of Matter</b> 	<b>Living Things and their Habitats</b> 
<b>Year 5</b>	<b>Earth and Space</b> 	<b>Forces</b> 	<b>Properties and Changes of Materials</b> 		<b>Life Cycles and Reproduction</b> 	
<b>Year 6</b>	<b>Evolution and Inheritance</b> 	<b>Animals, including humans</b> 	<b>Electricity</b> 	<b>Light</b> 	<b>Living Things and their Habitats</b> 	





# Scientific Enquiry

	Observing over time	Pattern seeking	Research	Identifying & classifying	Comparative tests	Fair Tests
<b>Year 1</b>						
<b>Everyday Materials</b>	What happens to shaving foam over time? <sup>(1)</sup>		Which materials can be recycled? <sup>(3)</sup>	Can we group materials based on their properties? <sup>(4)</sup>	Which materials are the most absorbent? <sup>(5)</sup>	
<b>Animals and Humans</b>	How does my height change over the year? <sup>(1)</sup>	Do the largest animals only eat meat? <sup>(2)</sup>		How can we organise all the zoo animals? <sup>(4)</sup>	Is our sense of smell better when we can't see? <sup>(5)</sup>	
<b>Plants</b>	How does my sunflower change each week? <sup>(1)</sup>	Is there a pattern in where we find weeds growing in the school grounds? <sup>(2)</sup>		How can we sort the leaves that we collected on our walk? <sup>(4)</sup>	Which type of compost grows the tallest sunflower? <sup>(5)</sup>	
<b>Seasons and Changes</b>	How does the colour of a UV bead change over the day? <sup>(1)</sup>	Does the day length change in different seasons? <sup>(2)</sup>		How would you group these things based on which season you are most likely to see them in? <sup>(4)</sup>	In which season does it rain the most? <sup>(5)</sup>	
<b>Year 2</b>						
<b>Everyday Materials</b>	Would a paper boat float forever? <sup>(1)</sup>		How are plastics made? <sup>(3)</sup>	Which materials will let electricity go through them, and which will not? <sup>(4)</sup>	Which material would be best for the roof of the little pig's house? <sup>(5)</sup>	
<b>Animals and Humans</b>	How does a tadpole change over time? <sup>(1)</sup>	Is there a pattern of what makes a healthy meal? <sup>(2)</sup>		Which offspring belongs to which animal? <sup>(4)</sup>	Do bananas make us run faster? <sup>(5)</sup>	
<b>Living things and their habitats</b>	What conditions do woodlice prefer to live in? <sup>(1)</sup>	Which habitat do worms prefer – where can we find the most worms? <sup>(2)</sup>	How does the habitat of the artic compare to the habitat of the rainforest? <sup>(3)</sup>	How would you group things to show which are living, dead or have never been alive? <sup>(4)</sup>		
<b>Plants</b>	What happens to my bean after I have planted it? <sup>(1)</sup>	Do bigger seeds grow into bigger plants? <sup>(2)</sup>	How are seeds and bulbs different? <sup>(3)</sup>		How does amount of water affect how well cress grows? <sup>(5)</sup>	
<b>Year 3</b>						
<b>Rocks</b>	How does tumbling change a rock over time? <sup>(1)</sup>		Who was Mary Anning and what did she discover? <sup>(3)</sup>		Which soil absorbs the most water? <sup>(5)</sup>	How does adding different amounts of sand to soil affect how quickly water drains through it? <sup>(6)</sup>
<b>Animals including Humans</b>		Do male humans have larger skulls than female humans? <sup>(2)</sup>		How do skeletons of different animals compare? <sup>(4)</sup>		How does the angle that your elbow is bent affect the circumference of your upper arm? <sup>(6)</sup>
<b>Light</b>	When is our classroom the darkest? <sup>(1a)</sup> Is the Sun the same brightness all day? <sup>(1b)</sup>	Are you more likely to have bad eyesight and to wear glasses if you are older? <sup>(2)</sup>	How does the Sun make light? <sup>(3)</sup>			How does the distance between the shadow puppet and the screen affect the size of the shadow? <sup>(6)</sup>
<b>Plants</b>	What happens to celery when it is left in a glass of coloured water? <sup>(1)</sup>		What are all the different ways that seeds disperse? <sup>(3)</sup>		Which conditions help seeds germinate faster? <sup>(5)</sup>	How does the length of the carnation stem affect how long it takes for the food colouring to dye the petals? <sup>(6)</sup>
<b>Forces and Magnets</b>	If we magnetise a pin, how long does it stay magnetised for? <sup>(1)</sup>	Does the size and shape of a magnet affect how strong it is? <sup>(2)</sup>		Which materials are magnetic? <sup>(4)</sup>	Which magnet is the strongest? <sup>(5)</sup>	





# Scientific Enquiry

	Observing over time	Pattern seeking	Research	Identifying & classifying	Comparative tests	Fair Tests
<b>Year 4</b>						
<b>Electricity</b>	How long does a battery light a torch for? <sup>(1)</sup>			How would you group these electrical devices based on where the electricity comes from? <sup>(4)</sup>	Which material is the best conductor of electricity? <sup>(5)</sup>	How does the thickness of a conducting material affect how bright the lamp is? <sup>(6)</sup>
<b>Sound</b>	When is our classroom the quietest? <sup>(1)</sup>				Which material is best to use for muffling sound in ear defenders? <sup>(5)</sup>	How does the volume of a drum change as you move further away from it? <sup>(6a)</sup> How does the length of a guitar string/tuning fork affect the pitch of the sound? <sup>(6b)</sup>
<b>Animals inc. humans</b>	How does an egg shell change when it is left in cola? <sup>(1)</sup>		How do dentists fix broken teeth? <sup>(3)</sup>	What are the names for all the organs involved in the digestive system? <sup>(4a)</sup> How can we organise our teeth into groups? <sup>(4b)</sup>		
<b>States of matter</b>	How does the level of water in a glass change when left on the windowsill? <sup>(1)</sup>	Is there a pattern in how long it takes different sized ice lollies to melt? <sup>(2)</sup>			Do all liquids freeze at the same temperature? <sup>(5)</sup>	How does the surface area of a container of water affect how long it takes to evaporate? <sup>(6)</sup>
<b>Living things and their habitats</b>		Where in our school is the most polluted? <sup>(2)</sup>	Can we find other animals to add complexity to our classification key? <sup>(3)</sup>	Can we use the classification keys to identify all the animals that we caught pond dipping? <sup>(4)</sup>		Does the amount of light affect how many woodlice move around? <sup>(6)</sup>
<b>Year 5</b>						
<b>Earth and Space</b>	How does shadow length change over the day? <sup>(1)</sup>	Is there a pattern between the size of a planet and the time it takes to travel around the sun? <sup>(2)</sup>	What unusual objects did Jocelyn Bell Burnell discover? <sup>(3)</sup>	Can you observe and identify all the phases in the cycle of the moon? <sup>(4)</sup>		
<b>Forces</b>		Do all objects fall through water in the same way? <sup>(2)</sup>		Can you label and name all the forces acting on the objects in each of these situations? <sup>(4)</sup>	Which shape parachute takes the longest to fall? <sup>(5)</sup>	How does the surface area of a container affect the time it takes to sink? <sup>(6)</sup>
<b>Properties &amp; Changes of materials</b>	How does a container of salt water change over time? <sup>(1a)</sup> How does a nail in salt water change over time? <sup>(1b)</sup>				Which type of sugar dissolves the fastest? <sup>(5)</sup>	How does the temperature of tea affect how long it takes for a sugar cube to dissolve? <sup>(6)</sup>
<b>Life cycles and reproduction</b>	How does a spring onion cutting grow over time? <sup>(1)</sup>	<i>What are the similarities and differences between mammal life cycles compared to other animals?</i> <sup>(2)</sup>	Is there a pattern in the weight of a mammal and its gestation period? <sup>(3a)</sup>	Can you identify the stages of the life cycle of different frogs? <sup>(4)</sup>	How does the amount of water affect how tubers and corms grow? <sup>(5a)</sup>	
			Is there a link between the life span of a mammal and its gestation period? <sup>(3b)</sup>		How does age affect a human's reaction time? <sup>(5b)</sup>	
<b>Year 6</b>						
<b>Evolution and Inheritance</b>		Is there a pattern between the size and shape of a bird's beak and the food it will eat? <sup>(2a)</sup> <i>Do offspring always inherit the same physical traits as their parents?</i> <sup>(2b)</sup>	What happened when Charles Darwin visited the Galapagos islands? <sup>(3)</sup>	Compare the skeletons of apes, humans and Neanderthals <sup>(4a)</sup> How are certain animals adapted to their environments? <sup>(4b)</sup>		
<b>Animals and Humans</b>	How does my heart rate change over the day? <sup>(1)</sup>			Which organs of the body make up the circulatory system? <sup>(4)</sup>	Which types of exercise has the greatest effect on our heart rate? <sup>(5)</sup>	Can exercising regularly affect your lung capacity? <sup>(6)</sup>
<b>Electricity</b>			How has our understanding of electricity changed over time? <sup>(3)</sup>		Which make of battery lasts the longest? <sup>(5a)</sup> Which type of fruit makes the best fruity battery? <sup>(5b)</sup>	How does the voltage of the batteries in a circuit affect the brightness of the lamp? <sup>(6)</sup>
<b>Light</b>		Is there a pattern to how bright it is in school over the day? Is it the same in every classroom? <sup>(2)</sup>			Which material is most reflective? <sup>(5)</sup>	How does the angle that a light ray hits a plane mirror affect the angle at which it reflects off the surface? <sup>(6)</sup>
<b>Living things and their habitats</b>			What do different microorganisms do? Are they always harmful? <sup>(3)</sup>	How would you make a classification key for vertebrates/invertebrates? <sup>(4)</sup>	What is the most common invertebrate in the school grounds? <sup>(5)</sup>	Where in the school contains the most bacteria? <sup>(6)</sup>




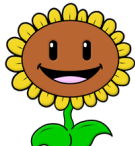

# Year 1

	Autumn Term		Spring Term		Summer Term		
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Overview	<b>Everyday Materials</b> 		<b>Animals, including humans</b> 		<b>Plants</b> 		<b>Seasons*</b> 
Enquiry by lesson	<p>What are everyday materials? x2</p> <p>What materials are objects made of?</p> <p>Can the same object be made from different materials?</p> <p>Which properties belonging to different materials?</p> <p>Can we group materials based on their properties? <sup>(4)</sup></p> <p>Which materials can be recycled?</p> <p>Which material is best for a puppy's toilet? <sup>(5)</sup></p> <p>Which material would you use for making an umbrella?</p> <p>Describe how shaving foam changes over time <sup>(1)</sup></p> <p><b>SEASONS: How do we group the months of a year? (AUT)</b></p>		<p>Can we name and identify common animals?</p> <p>How do we classify animals based on their features? <sup>(4)</sup></p> <p>Are all animals the same?</p> <p>What are the features of fish, amphibians, reptiles and birds?</p> <p>What food do animals eat?</p> <p>How can we group animals based on what they eat? <sup>(2)</sup></p> <p><b>Seasons: How does the weather change through the seasons? (SPRING) <sup>(1)</sup></b></p>		<p>How does a sunflower over time? <sup>(1)</sup></p> <p>What plants do we find in the school grounds?</p> <p>Is there a pattern of where we find weeds? <sup>(2)</sup></p> <p>Which compost grows the tallest sunflower? <sup>(5)</sup></p> <p>How can we sort leaves into specific groups? <sup>(4)</sup></p> <p>How do we identify between deciduous and evergreen trees?</p>		<p>How do the seasons affect plant growth? <sup>(5)</sup></p> <p>Do we see different animals in different seasons?</p> <p>Why do animals hibernate?</p> <p><b>*unit runs throughout the year</b></p>
Key Vocabulary	<p>object</p> <p>material</p> <p>hard</p> <p>soft</p> <p>stretchy</p> <p>stiff</p> <p>bendy</p> <p>rough</p>	<p>smooth</p> <p>waterproof</p> <p>absorbent</p> <p>everyday</p> <p>dull</p> <p>transparent</p> <p>plastic</p> <p>recycle</p>	<p>sight</p> <p>taste</p> <p>smell</p> <p>healthy</p> <p>height</p> <p>hearing</p> <p>facial</p>	<p>carnivore</p> <p>omnivore</p> <p>herbivore</p> <p>Vegetarian</p> <p>identify</p> <p>observing</p> <p>grouping</p>	<p>weeds</p> <p>evergreen</p> <p>deciduous</p> <p>bud</p> <p>leaf</p> <p>branch</p> <p>root</p> <p>stem</p>	<p>humidity</p> <p>cloudy</p> <p>pouring</p> <p>Summer</p> <p>Autumn</p> <p>Winter</p> <p>Spring</p> <p>blizzard</p> <p>Cycle</p>	
Observing over time	<p>What happens to shaving foam over time? <sup>(1)</sup></p>		<p>How does my height change over the year? <sup>(1)</sup> <small>(Runs throughout the year)</small></p>		<p>How does my sunflower change each week? <sup>(1)</sup></p>		<p>How does the weather change over time? <sup>(1)</sup></p>
Pattern seeking			<p>Do bigger animals only eat meat? <sup>(2)</sup></p>		<p>Is there a pattern in where we find weeds growing in the school grounds? <sup>(2)</sup></p>		<p>Does the day length change in different seasons? <sup>(2)</sup></p>
Research	<p>Which materials can be recycled? <sup>(3)</sup></p>						
Identifying & classifying	<p>Can we group materials based on their properties? <sup>(4)</sup></p>		<p>How can we organise all the zoo animals? <sup>(4)</sup></p>		<p>How can we sort the leaves that we collected on our walk? <sup>(4)</sup></p>		
Comparative tests	<p>Which materials are the most absorbent? <sup>(5)</sup></p>		<p>Is our sense of taste better when we can't see? <sup>(5)</sup></p>		<p>Which type of compost grows the tallest sunflower? <sup>(5)</sup></p>		<p>How does the temperature affect plant growth? <sup>(5)</sup></p>

# Year 2






	Autumn Term		Spring Term		Summer Term		
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Overview	<b>Uses of Everyday Materials</b> 		<b>Animals, including humans</b> 		<b>Plants</b> 	<b>Living Things and their Habitats</b> 	
Enquiry by lesson	<p>Do all materials have the same properties? x2</p> <p>Why do we use different materials for different objects?</p> <p>Do all materials have the same properties?</p> <p>How can we use materials for different objects?</p> <p>Can we use materials for more than one use?</p>		<p>How do we classify foods?</p> <p>What makes a meal healthy? (2)</p> <p>How would we make a meal healthy?</p> <p>How does physical activity affect our body?</p> <p>How does eating certain foods affect our energy? (5)</p> <p>How do we maintain good hygiene?</p>		<p>How do germs spread through contact? (2)</p> <p>How do we wash our hands?</p> <p>What do animals and humans need to survive?</p> <p>Which animals have which offspring? (4)</p> <p>What is the life cycle of a frog? (1)</p> <p>What is the life cycle of a butterfly?</p>	<p>What does a bean plant need to grow? (1)</p> <p>How are bulbs and seeds different? (3)</p> <p>What do plants need to survive?</p> <p>What is the right amount of water to give cress seeds? (5)</p> <p>Do plants need light to survive and grow?</p> <p>Do bigger seeds grow into bigger plants? (2)</p>	<p>What is the difference between something that is living and somethings that is alive? (4)</p> <p>Does an object have to be living or dead?</p> <p>Do all animals like the same habitat? (2)</p> <p>What are the differences between habitats? (3)</p> <p>Do different environment house different plants and environments? (1)</p> <p>Do all animals eat the same food?</p>
Key Vocabulary	absorbent waterproof stretch man-made material metal suitable properties		exercise hygiene allergy vitamins portion balanced active perspire		reproduction frogspawn tadpole hygiene germs spread flock generation	germinate require stunted dormant shade condition Produce Seeds bulbs	suited suitable habitat micro-habitat food chain shelter feature leaf litter
Observing over time	Would a paper boat float forever? (1)		How does a tadpole change over time? (1)		What happens to my bean after I have planted it? (1)	What conditions do woodlice prefer to live in? (1)	
Pattern seeking			Is there a pattern of what makes a healthy meal? (2)		Do bigger seeds grow into bigger plants? (2)	Which habitat do worms prefer – where can we find the most worms? (2)	
Research	How are plastics made? (3)				How are seeds and bulbs different? (3)	How does the habitat of the artic compare to the habitat of the rainforest? (3)	
Identifying & classifying	Which materials will let electricity go through them, and which will not? (4)		Which offspring belongs to which animal? (4)			How would you group things to show which are living, dead or have never been alive? (4)	
Comparative tests	Which material would be best for the roof of the little pig's house? (5)		Do bananas make us run faster? (5)		How does amount of water affect how well cress grows? (5)		

# Year 3





	Autumn Term		Spring Term		Summer Term	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Overview	<p><b>Rocks</b></p> 	<p><b>Animals, including humans</b></p> 	<p><b>Light</b></p> 		<p><b>Plants</b></p> 	<p><b>Forces and Magnets</b></p> 
Enquiry by lesson	<p>What rocks are and how they can be classified?</p> <p>How do rocks change? <sup>(1)</sup></p> <p>What are fossils and who was Mary Anning <sup>(3)</sup></p> <p>How are fossils formed?</p> <p>What is soil made up of?</p> <p>Which type of soil absorbs the most water? <sup>(5)</sup></p> <p>How does adding different amount of sand to soil affect its water drainage. <sup>(6)</sup></p>	<p>What are the functions of the skeleton? <sup>(2)</sup></p> <p>What is the structure of the skeleton?</p> <p>How should we care for our bones and bodies?</p> <p>How do skeletons vary between animals? <sup>(4)</sup></p> <p>How do muscles and bones work together?</p> <p>Which muscles are the strongest? <sup>(6)</sup></p>	<p>Are all light sources the same?</p> <p>How does light allow us to see different objects?</p> <p>Can light travel through different objects?</p> <p>What are the dangers of light? <sup>(3)</sup></p> <p>How does the proximity of the light source affect a shadow? <sup>(6)</sup></p> <p>How does a mirror type affect reflected images?</p> <p>How do periscopes work?</p> <p>Do lighter surfaces reflect more light than darker surfaces? <sup>(5)</sup></p> <p>How reflective are different materials? <sup>(2)</sup></p> <p>How does people's sight changes as people get older?</p>		<p>What do plants need for growth?</p> <p>Which conditions do seeds need to germinate? <sup>(5)</sup></p> <p>What is the function of the roots?</p> <p>What is the function of the stem? <sup>(1)</sup></p> <p>What is the function of leaves?</p> <p>What is the life cycle of a plant?</p> <p>How do plants disperse their seeds? <sup>(3)</sup></p>	<p>Do smoother surfaces cause more friction? <sup>(6)</sup></p> <p>Which objects are magnetic? <sup>(4)</sup></p> <p>How do magnets react to each other?</p> <p>Are all magnets the same strength? <sup>(2) (5)</sup></p> <p>Can we create magnets? <sup>(1)</sup></p> <p>How are magnets used in real-life situations?</p>
Key Vocabulary	<p>fossil sedimentary rock metamorphic rock igneous rock amber magma preserved decay permeable erosion</p>	<p>bone x-ray tendon cartilage ligament voluntary muscle reflex joint hollow skeleton</p>	<p>proximity source shadow concave convex emit reflect transparent translucent opaque</p>		<p>stems Roots leaves dispersal expulsion photosynthesis fertilisation transpiration respiration</p>	<p>lodestone magnets attract repel maglev train expulsion magnetic needle pendulum magnetize force poles</p>
Observing over time	<p>How does tumbling change a rock over time? <sup>(1)</sup></p>				<p>What happens to celery when it is left in a glass of coloured water? <sup>(1)</sup></p>	<p>If we magnetise a pin, how long does it stay magnetised for? <sup>(1)</sup></p>
Pattern seeking		<p>Do male humans have larger skulls than female humans? <sup>(2)</sup></p>	<p>Do certain materials reflect more light? <sup>(2)</sup></p>			<p>Are larger bigger magnets more magnetic? <sup>(2)</sup></p>
Research	<p>Who was Mary Anning and what did she discover? <sup>(3)</sup></p>		<p>What are the dangers of light? <sup>(3)</sup></p>		<p>What are all the different ways that seeds disperse? <sup>(3)</sup></p>	
Identifying & classifying		<p>How do skeletons of different animals compare? <sup>(4)</sup></p>				<p>Which materials are magnetic? <sup>(4)</sup></p>
Comparative tests	<p>Which soil absorbs the most water? <sup>(5)</sup></p>		<p>Does lighter paper reflect more light than darker paper? <sup>(5)</sup></p>		<p>What happens when we do not add water to our planted seed? <sup>(5)</sup></p>	<p>Which magnet is the strongest? <sup>(5)</sup></p>
Fair Tests	<p>How does adding different amounts of sand to soil affect how quickly water drains through it? <sup>(6)</sup></p>	<p>How does the angle that your elbow is bent affect the circumference of your upper arm? <sup>(6)</sup></p>	<p>How does the distance between the shadow puppet and the screen affect the size of the shadow? <sup>(6)</sup></p>		<p>How does the length of the carnation stem affect how long it takes for the food colouring to dye the petals? <sup>(6)</sup></p>	<p>Do smoother surfaces allow a car to roll for longer? <sup>(6)</sup></p>





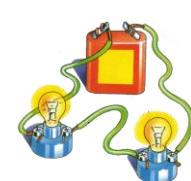


# Year 4

	Autumn Term		Spring Term		Summer Term	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Overview	<p><b>Electricity</b></p> 	<p><b>Sound</b></p> 	<p><b>Animals, including humans</b></p> 		<p><b>States of Matter</b></p> 	<p><b>Living Things and their Habitats</b></p> 
Enquiry by lesson	<p>Which groups of appliances run on electricity? <sup>(4)</sup></p> <p>How are circuits made and how do they pass electricity?</p> <p>Will a lamp light up in a circuit? Do more cells equal a brighter light?</p> <p>Which materials are conductors or insulators or electricity? <sup>(5)</sup></p> <p>How does the thickness of a conductor affect a circuit? <sup>(6)</sup></p> <p>What is the role of the switch in a circuit?</p>	<p>How does the volume of sound change throughout the day? <sup>(1)</sup></p> <p>How are sounds made by vibrations?</p> <p>How does sounds travel through different objects? <sup>(5)</sup></p> <p>What is pitch and how can it be changed? <sup>(6b)</sup></p> <p>How do sounds change with distance from the source? <sup>(6a)</sup></p> <p>Find patterns between the volume of a sound and the strength of the vibrations it produces?</p>	<p>Which types of teeth do humans have? <sup>(4a)</sup></p> <p>What are the functions of different tooth types?</p> <p>How do the teeth of carnivores and herbivores differ?</p> <p>How do teeth decay? <sup>(1)</sup></p> <p>How do dentists care for and fix teeth? <sup>(3)</sup></p> <p>What is the purpose of the digestive system?</p> <p>What are the functions of the parts of the digestive system? <sup>(4b)</sup></p> <p>How can we keep our digestive system healthy?</p> <p>What is a food chain?</p> <p>How can we build food chains?</p>		<p>What are the three states of matter?</p> <p>Can all objects be classified?</p> <p>What affects how quickly solids melt? <sup>(2)</sup></p> <p>Do all liquids freeze at the same temperature? <sup>(5)</sup></p> <p>How can the rate of evaporation increase? <sup>(6) (1)</sup></p> <p>Can gases change to a liquid?</p> <p>How does water change its state in nature?</p>	<p>How can animals be classified?</p> <p>How do warm blooded animals regulate their temperature?</p> <p>How do we use classification keys? <sup>(4)</sup></p> <p>What is the effect of pollution on habitats? <sup>(2)</sup></p> <p>Have humans had a positive or negative impact on different environments? <sup>(3)</sup></p>
Key Vocabulary	<p>electricity electron battery motor bulb circuit switch insulator conductor national grid</p>	<p>eardrum sound waves decibel frequency distorted muffle vibration insulation vocal chords pitch</p>	<p>decay enamel plaque digestion stomach Intestine oesophagus producers predator prey</p>		<p>solid liquid gas Water cycle melting freezing evaporation condensation transpiration precipitation</p>	<p>habitat ecology Classification temperature emission pollution impact woodland ecosystem interdependent</p>
Observing over time <sup>(1)</sup>		When is our classroom the quietest? <sup>(1)</sup>	How does an eggshell change when it is left in cola? <sup>(1)</sup>		How does the level of water in a glass change when left on the windowsill? <sup>(1)</sup>	
Pattern seeking					Is there a pattern in how long it takes different sized ice lollies to melt? <sup>(2)</sup>	Where in our school is the most polluted? <sup>(2)</sup>
Research			How do dentists fix broken teeth? <sup>(3)</sup>		Represent data in a graph and answer questions <sup>(3)</sup>	What positive and negative impact have humans had on the environment? <sup>(3)</sup>
Identifying & classifying	How would you group these electrical devices based on where the electricity comes from? <sup>(4)</sup>		How can we organise our teeth into groups? <sup>(4a)</sup> What are the names for all the organs involved in the digestive system? <sup>(4b)</sup>			Identify and classify animals based on the classification key. <sup>(4)</sup>
Comparative tests	Which material is the best conductor of electricity? <sup>(5)</sup>	Which material is best to use for muffling sound in ear defenders? <sup>(5)</sup>			Do all liquids freeze at the same temperature? <sup>(5)</sup>	
Fair Tests	How does the thickness of a conducting material affect how bright the lamp is? <sup>(6)</sup>	How does the volume of a drum change as you move further away from it? <sup>(6a)</sup> How does the length of a guitar string/tuning fork affect the pitch of the sound? <sup>(6b)</sup>			How does the surface area of a container of water affect how long it takes to evaporate? <sup>(6)</sup>	

# Year 5

	Autumn Term		Spring Term		Summer Term	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Overview	<p><b>Earth and Space</b></p> 	<p><b>Forces</b></p> 	<p><b>Properties and Changes of Materials</b></p> 		<p><b>Life Cycles and Reproduction</b></p> 	
Enquiry by lesson	<p>How do planets move in the solar system?</p> <p>How are the planets in our solar system different? <sup>(2)</sup></p> <p>What has been discovered in the night sky? <sup>(3)</sup></p> <p>Why do day and night occur?</p> <p>How do shadows change throughout the day? <sup>(1)</sup></p> <p>What are the phases of the moon? <sup>(4)</sup></p>	<p>How gravity affect us on earth?</p> <p>How does friction act on moving objects?</p> <p>What are the effects of air resistance?</p> <p>How can we limit the effects of air resistance? <sup>(5)</sup></p> <p>Do all objects fall through water in the same way? <sup>(2)</sup></p> <p>How does the surface area of a container affect the time it takes to sink? <sup>(6)</sup></p> <p>What impact do levers and pulleys have on the effect of a force?</p>	<p>What are the states of matter and how do they change?</p> <p>Which solids can dissolve in water?</p> <p>How does the temperature of water affect how much sugar can be dissolved? <sup>(6)</sup></p> <p>Which type of sugar dissolves the fastest? <sup>(5)</sup></p> <p>How does a nail in saltwater changes over time <sup>(1)</sup></p> <p>Which materials are conductive to electricity?</p> <p>Which materials are conductive to heat?</p> <p>How can we separate soluble materials?</p> <p>How can we separate insoluble materials?</p> <p>Can all changes in states of matter be reversed?</p> <p>Which new materials have scientists made? <sup>(3)</sup></p>		<p>How do conifer plants reproduce?</p> <p>How do flowering plants reproduce?</p> <p>How do plants asexually reproduce above the ground? <sup>(1)</sup></p> <p>How do plants asexually reproduce below the ground? <sup>(5)</sup></p> <p>How do life cycles in birds differ by species?</p> <p>How does the life cycle of a frog compare to that of a bird?</p> <p>Do all types of insect have the same life cycle?</p> <p>Are there patterns in mammals gestation periods? <sup>(3a) (3b)</sup></p> <p>How does age affect a human's reaction time? <sup>(5b)</sup></p> <p>What are the similarities and differences between mammal life cycles compared to other animals?</p>	
Key Vocabulary	<p>universe</p> <p>orbit</p> <p>solar system</p> <p>axis</p> <p>spherical</p> <p>revolve</p> <p>rotate</p> <p>gravitational pull</p> <p>solar eclipse</p> <p>lunar eclipse</p>	<p>air resistance</p> <p>water resistance</p> <p>upthrust</p> <p>friction</p> <p>newton</p> <p>mass</p> <p>lever</p> <p>fulcrum</p> <p>pulley</p> <p>equilibrium</p>	<p>chemical change</p> <p>physical change</p> <p>particle</p> <p>solution</p> <p>substance</p> <p>sieve</p> <p>filter</p> <p>evaporate</p> <p>Dissolve</p> <p>melt</p> <p>reversible/irreversible</p>			
Observing over time	<p>How does shadow length change over the day? <sup>(1)</sup></p>		<p>How does a nail in saltwater change over time? <sup>(1)</sup></p>		<p>How does a spring onion cutting grow over time? <sup>(1)</sup></p>	
Pattern seeking	<p>Is there a pattern between the size of a planet and the time it takes to travel around the sun? <sup>(2)</sup></p>	<p>Do all objects fall through water in the same way? <sup>(2)</sup></p>			<p>What are the similarities and differences between mammal life cycles compared to other animals? <sup>(2)</sup></p>	
Research	<p>What unusual objects did Jocelyn Bell Burnell discover? <sup>(3)</sup></p>		<p>What new materials did Spencer Silver and Ruth Benerito invent?</p>		<p>Is there a pattern in the weight of a mammal and its gestation period? <sup>(3a)</sup></p> <p>Is there a link between the life span of a mammal and its gestation period? <sup>(3b)</sup></p>	
Identifying & classifying	<p>Can you observe and identify all the phases in the cycle of the moon? <sup>(4)</sup></p>	<p>Can you label and name all the forces acting on the objects in each of these situations? <sup>(4)</sup></p>			<p>Can you identify the stages of the life cycle of different frogs? <sup>(4)</sup></p>	
Comparative tests		<p>Which shape parachute takes the longest to fall? <sup>(5)</sup></p>	<p>Which type of sugar dissolves the fastest? <sup>(5)</sup></p>		<p>How does the amount of water affect how tubers and corms grow? <sup>(5a)</sup></p> <p>How does age affect a human's reaction time? <sup>(5b)</sup></p>	
Fair Tests		<p>How does the surface area of a container affect the time it takes to sink? <sup>(6)</sup></p>	<p>How does the temperature of water affect how long it takes for a sugar cube to dissolve? <sup>(6)</sup></p>			

# Year 6

	Autumn Term		Spring Term		Summer Term	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Overview	<p><b>Evolution and Inheritance</b></p> 	<p><b>Animals, including humans</b></p> 	<p><b>Electricity</b></p> 	<p><b>Light</b></p> 	<p><b>Living things and their habitats</b></p> 	
Enquiry by lesson	<p>How do animals adapt to survive in their environments? <sup>(4b)</sup></p> <p>How does a changing environment cause adaptation over time? <sup>(2a)</sup></p> <p>What happened when Charles Darwin visited the Galapagos Islands? <sup>(3)</sup></p> <p>What are fossils and how do they support the evidence for evolution?</p> <p>What types of fossils exist?</p> <p>Do offspring always inherit the same physical traits as their parents? <sup>(2b)</sup></p>	<p>What structure are involved in our breathing? <sup>(6)</sup></p> <p>How does smoking affect respiration?</p> <p>How and why does blood pump around the body? <sup>(4)</sup></p> <p>Why does the heart have two parts? <sup>(1)</sup></p> <p>What impact does exercise have on the pulse? <sup>(5)</sup></p> <p>How does diet affect the circulatory system?</p>	<p>How is static electricity created?</p> <p>What affects how much static electricity is created? <sup>(5a)</sup></p> <p>How has our understanding of electricity developed? <sup>(3)</sup></p> <p>What affects resistance in bulbs? <sup>(6)</sup></p> <p>How does the amplitude from different energy sources vary? <sup>(5b)</sup></p> <p>What is an electromagnet?</p>	<p>Is there a pattern to how bright it is in school over the day? Is it the same in every classroom? <sup>(2)</sup></p> <p>Which materials are the most reflective? <sup>(4)</sup></p> <p>How does light travel?</p> <p>How can mirrors change how light travels? <sup>(6)</sup></p> <p>Investigate shadow length and understand how shadow size can be altered</p> <p>Experiment with light refraction <sup>(4)</sup></p>	<p>What is the structure of bacteria and are they all bad? <sup>(3)</sup></p> <p>Where in the school contains the most bacteria? <sup>(6)</sup></p> <p>What can we learn from our bacteria experiment? <sup>(6)</sup></p> <p>What is the most common invertebrate in our school grounds? <sup>(5)</sup></p> <p>How would you make a classification key for these vertebrates/invertebrates? <sup>(4)</sup></p>	
Key Vocabulary	<p>variation offspring, ancestor natural selection fossilisation decompose sediment dissolve inherit offspring</p>	<p>respiration displace trachea cilia circulation blood vessels pulse BPM oxygen debt heart attack</p>	<p>static electricity charge electron insulator conductor short circuit fuse electromagnet detector synchronise</p>	<p>light rays haze distort primary colour secondary colour variance obstruct alteration refraction fluorescent</p>		
Observing over time		How does my heart rate change over the day? <sup>(1)</sup>				
Pattern seeking	<p>Is there a pattern between the size and shape of a bird's beak and the food it will eat? <sup>(2a)</sup></p> <p>Do offspring always inherit the same physical traits as their parents? <sup>(2b)</sup></p>			Is there a pattern to how bright it is in school over the day? Is it the same in every classroom? <sup>(2)</sup>		
Research	What happened when Charles Darwin visited the Galapagos islands? <sup>(3)</sup>		How has our understanding of electricity changed over time? <sup>(3)</sup>		What do different microorganisms do? Are they always harmful? <sup>(3)</sup>	
Identifying & classifying	<p>Compare the skeletons of apes, humans and Neanderthals <sup>(4a)</sup></p> <p>How are certain animals adapted to their environments? <sup>(4b)</sup></p>	Which organs of the body make up the circulatory system? <sup>(4)</sup>			How would you make a classification key for vertebrates/invertebrates? <sup>(4)</sup>	
Comparative tests		Which types of exercise has the greatest effect on our heart rate? <sup>(5)</sup>	<p>What affects how much static electricity is created? <sup>(5b)</sup></p> <p>Which type of fruit makes the best fruity battery? <sup>(5b)</sup></p>	Which material is most reflective? <sup>(5)</sup>	What is the most common invertebrate in the school grounds? <sup>(5)</sup>	
Fair Tests		Can exercising regularly affect your lung capacity? <sup>(6)</sup>	How does the voltage of the batteries in a circuit affect the brightness of the lamp? <sup>(6)</sup>	How does the angle that a light ray hits a plane mirror affect the angle at which it reflects off the surface? <sup>(6)</sup>	Where in the school contains the most bacteria? <sup>(6)</sup>	

