Science Curriculum Across the School

	Autumn		Spring		Summer	
EYFS	**The World Around Me**	**Wish You Were Here**	**Above and Below**	**Ready, Steady, Grow!**	**Big, Scary, Wild & Hairy!**	**Off We Go!**
	Learning outcomes at the end of this unit. The children will:					
	- Name different types of materials and their properties - Explore the natural world around them. -Talk about things they have observed.	- Know some trees change in the four seasons - Recognise some signs of each season - Understand some animals hibernate or store food in winter - Know that the weather changes throughout the year - Compare weather types	- Name animals found under the sea - Understand what 'space' is - Explore the concept of gravity - Recognise and name planets - Understand the effect of changing seasons on the natural world around them	- Name and label the parts of a plant - Understand what plants need to grow and survive - Understand the life cycle of a plant - Investigate what happens to plants in different conditions	- Name different animal habitats - Sort animals according to their habitat - Classifying animals - Animal lifecycles – frog, chicken - Names for matching adult and baby animals	- Floating and sinking - Forces - Materials – which materials are waterproof?

	Autumn		Spring		Summer	
Year 1 / 2 A	**Introduction to Plants**	**Seasonal Changes**	**Habitats**	**Lifecycles and Health**	**Plant Growth**	**Making Connections – Ocean protectors**
Units of work	1. What is a plant? 2. Parts of a plant? 3. Wild and garden plants 4. Deciduous and evergreen trees 5. Sorting seeds 6. Which plant parts can you eat?	1. Wonderful Weather 2. Seasonal Activities 3. How do trees change? 4. Daylight hours 5. Observing over time 6. Weather reports	1. Life processes 2. It feels good to be alive 3. Introduction to habitats 4. Woodland habitats 5. Rainforest and ocean habitats 6. Food chains	1. The human life cycle 2. Life cycles 3. Growth 4. Survival 5. Exercise and hygiene 6. Balanced diet	1. What do seeds need to grow? 2. Seeds and bulbs 3. Germination 4. Light and plant growth 5. Plant life cycle 6. Plant care	1. Rockpooling 2. Life cycles of ocean animals 3. Ocean litter 4. Ocean food chains 5. Being a marine biologist

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	Learning outcomes at the end of this unit. The children will:					
	- Identify plants and their features. - Recall some of the roles that flowering plant parts have. - Name some trees and their parts. - Identify similarities and differences between deciduous and evergreen leaves. - Recall that seeds and bulbs come from plants. - Recognise that seeds need water for growth.	- Name the four seasons in order and describe the typical weather in each. - Name some activities and events in the four seasons. - Describe the appearance of a tree's leaves in each season. - Recall that summer has the most daylight hours and winter has the least daylight hours. - Record data about the temperature across the four seasons. - Label a map of the UK with capital cities and seasonal weather symbols.	- Recall some life processes, giving examples of how they apply to plants and animals. - Match different plants and animals to their habitats. - Give examples of how animals use their habitat for food and shelter. - Recall that plants produce their own food for energy. - Name living things that are producers and place a producer at the beginning of a food chain. - Use arrows to show the order in a food chain.	- Identify stages in the life cycles of different animals, including humans. - Describe the basic survival needs of animals. - Explain how to take care of personal hygiene. - Describe some positive effects of exercise. - Identify foods in different food groups.	- Recall that seeds have all the necessary parts inside for plants to grow. - Recall that seeds need water and warmth to germinate. - Recognise that light is required for healthy plant growth. - Sequence the stages of a plant's life cycle. - Recognise the importance of healthy plant growth. - Describe the influences humans have on plants in the environment.	- Describe how some living things in a rock pool have their needs met and how the conditions change. - Order the stages of different animal life cycles. - Identify similarities and differences between different animal life cycles. - Recall different types of litter that affect ocean habitats and describe some of the problems linked with ocean litter. - Suggest ways to reduce how human litter affects the ocean. - Recall how to write a food chain and produce an example of an ocean food chain. - Describe how litter affects a food chain.
	When working scientifically, pupils who are secure will be able to:					
	- Raise questions about plants and respond to suggestions on how to set up an investigation to answer a question. - Use a magnifying glass to observe the different parts of flowering plants.	- Complete a pictogram and use it to answer simple questions. - Record data about the temperature across the four seasons.	- Classify objects into alive, never been alive and was once alive, giving reasons for their choices. - Carry out research to find answers to questions.	- Measure using simple equipment. - Record results in a table. - Use data to answer a simple question. - Research using secondary sources.	- Set up comparative tests. - Plan observations and measurements. - Use rulers to measure and record stem height. - Record plant growth data in a table.	- Complete a tally chart to record the living things in rock pools and summarise observations. - Make careful observations and pose questions about ocean animals and their life cycles.

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	- Draw and label a diagram of a flowering plant. - Use an identification chart to name flowering plants. - Sort plants into groups based on specific criteria. - Use non-standard units to measure leaf length. - Recognise similarities and differences in seeds and bulbs. - Recognise that predictions do not always match observations. - Identify which plant parts can be eaten. - Recognise that scientific research into plants leads to important discoveries.				- Compare plant growth in different test conditions. - Use a magnifying glass to observe and compare plants. - Draw diagrams to represent stages of a plant's life cycle.	- Begin to plan an experiment and predict changes to materials in ocean water over time. - Observe and make comparisons to materials soaked in water and summarise the results from the ocean litter investigation. - Use the results to explain which litter is worst for the oceans and advise people about their material choices. - Describe the role of a marine biologist. - Record the number of living things found in the ocean as a tally chart and as a pictogram. - Compare two sets of data and summarise findings.
	Autumn		**Spring**		**Summer**	
Y1/ 2 B	**Sensitive Bodies**	**Everyday Materials**	**Comparing Animals**	**Uses of Everyday Materials**	**Microhabitats**	**Making Connections**
Units of work						
	Learning outcomes at the end of this unit. The children will:					

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	When working scientifically, pupils who are secure will be able to:					
	Autumn		**Spring**		**Summer**	
Y3 /4 A	**Movement and Nutrition**	**Light and Shadows**	**Rocks and Soil**	**Digestion and Food**	**Electricity and Circuits**	**Making Connections - How does food affect muscle fatigue?**
Units of work	1. Skeletons 2. The bones in our body 3. Muscles and movement 4. Eating for survival 5. Nutrient groups 6. Balanced diets	1. Sources of light 2. What is reflection? 3. Where do shadows come from? 4. Shadows throughout the day 5. Investigating shadows 6. Using light and shadows	1. Rocks: appearance 2. Rocks: physical properties 3. Fossil formation 4. Fossils and palaeontology 5. Soil formation 6. Soil layers and earthworms	1. The human digestive system 2. Human teeth 3. Investigating dental hygiene 4. Teeth of carnivores, herbivores and omnivores 5. Producers, predators and prey in food chains 6. Poo clues	1. Using electricity 2. Building circuits 3. Switching on and off 4. Investigating electrical conductors and insulators 5. Investigating bulb brightness 6. Electrical safety	1. Investigating muscle fatigue – Planning 2. Investigating muscle fatigue – Gathering data 3. Investigating muscle fatigue – Analysing, concluding and evaluating 4. Investigating muscle fatigue – Extending 5. Investigating muscle fatigue – Presenting
	Learning outcomes at the end of this unit. The children will:					
	- Recall the three key functions of the skeleton (movement, support and protection).	- Recall examples of light sources, objects that do not give out light and that	- Define the term **rock**. - Describe the appearance of different	- Label key organs found in the digestive system and describe each of their functions.	- Recall a range of electrical appliances, classify them as mains	- Recall key knowledge from previous units. - Apply knowledge in new contexts.

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	- Describe a vertebrate, invertebrate, endoskeleton and exoskeleton. - Identify and name the skull, spine, ribs and pelvis on a diagram. - Recall that muscles cause movements in the body, some of which we control by choice and that they cause a movement by shortening and pulling on a bone. - Recall that animals, including humans, need to eat food to survive. - Describe some examples of how energy is used by the body and make comparisons about the energy demands between people. - List some of the seven nutrient groups, name foods that are good sources of them and describe what they are needed for in the body. - Compare two different meals and explain which is more balanced by naming the nutrient groups and commenting	darkness is the absence of light. - Describe ways to protect eyes from harm. - Describe what happens when light reflects, give examples of reflective surfaces or materials and describe factors that may affect the quality of a reflected image. - Describe how shadows form and identify patterns between groups of materials and the shadows produced. - Recall factors that affect the way a shadow appears, including what causes shadows to change throughout the day and factors that change the size of a shadow - Describe the pattern of changing shadows throughout the day. - Describe how the light source's distance affects the shadow's size. - Explain why a particular material is appropriate for making a shadow puppet and use knowledge of shadows to animate it.	rocks, identifying both crystals and grains. - Group rocks by their absorbency, hardness and reaction to acid rain (vinegar). - List the different factors that break down rocks. - Describe fossil formation and identify fossils in rocks. - Describe the work of a palaeontologist. - Name, describe and compare some different categories of soil. - List some of the benefits of earthworms to the soil. - Identify and describe the comparative size and weight of the layers in a sedimentation jar.	- Describe the functions of the four different types of adult human teeth using key vocabulary. - Know that good dental care involves brushing their teeth twice a day with toothpaste and a soft toothbrush. - Produce a food chain that begins with a plant and has arrows that move up the food chain. - Define a producer, predator and prey and identify examples in food chains. - Describe digestion, teeth and diets when talking about the observed poo clues. - Write a letter that uses a range of scientific vocabulary from the unit.	or battery-powered and explain why. - Explain how to test if a circuit works and identify when simple electric circuits will work. - Identify symbols for open and closed switches and give examples of how switches are useful. - Predict whether a circuit will work based on whether the switch is open or closed and explain that it works by breaking and completing a circuit. - Describe that a material is a good electrical conductor when it is added to an electric circuit and the bulb lights and that a material is a good electrical insulator when it is added to an electric circuit and the bulb does not light. - Recall that metals, for example, are good electrical conductors and plastics, for	

	on the relevant proportions.				example, are good electrical insulators. - Describe that the more bulbs added to a series circuit, the dimmer the bulbs will be and explain that they will be dimmer when more are added to a circuit, as less energy is transferred to each of them. - Describe precautions for working safely with electricity and explain some precautions using knowledge of circuit diagrams, electrical components, conductors or insulators.	
	When working scientifically, pupils who are secure will be able to:					
	- Use information about skeletons to group animals. - Record measurements of different bones and use the data to sort them into size order. - Describe some ways scientific research has improved the field of bionics/prosthetics,	- Recall what information needs recording to decide the number of columns in a results table and suggest suitable headings for the results table. - Record information in the correct columns. - Identify if a question is testable, explain why and	- Use a magnifying glass correctly to observe the appearance of a rock in detail. - Use results to choose the appropriate rock type for a specific use, suggest a better choice of rock for a specific use and predict how a rock	- Evaluate a strength or weakness of the digestive system model. - Describe an example of evidence that can be used to study teeth. - Evaluate a method by considering its limitations. - Recall that scientific research needs repeated	- Draw a results table and record a range of appliances under the correct headings 'Mains' or 'Batteries'. - Identify and draw simplified electric circuit symbols and use these to draw a simplified circuit diagram.	- Carry out a full scientific enquiry

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	such as the choice of materials or linking their movement to muscles in the arm. - Find relevant data on food packaging and make numerical comparisons. - Summarise key information using secondary sources. - Describe some changes to scientific knowledge and jobs that require this information.	plan ways to answer a testable question. - Select which variables will be changed, measured and controlled in the experiment. - I can describe patterns in data and quote values as evidence of patterns in data. - I can identify odd results that do not fit the pattern. - I can use patterns to make predictions for missing data.	will be affected by the weather. - Research and present information on fossil formation using a single source. - Use a model of the fossil record to determine the relative age of a fossil, to suggest how a living thing has changed over time and to suggest what living things were around in a certain era. - Draw and label the bars on a bar chart. - Accurately draw and label the layers of sediment in a sedimentation jar.	results before being used in society. - Identify trends in predators and prey. - Draw a results table that has space for observations about different poo samples.	- Write a method for the investigation that considers appropriate equipment, orders clearly written steps and considers safety. - Pose questions relating to bulbs in an electrical circuit. - Explain why a selected question is testable. - Suggest that new inventions will change safety advice.	
	Autumn		**Spring**		**Summer**	
Y3/4 B	**Forces and Magnets**	**States of Matter**	**Sound and Vibrations**	**Classification and Changing Habitats**	**Plant Reproduction**	**Making Connections**
Units of work						
	Learning outcomes at the end of this unit. The children will:					

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	When working scientifically, pupils who are secure will be able to:					
	Autumn		**Spring**		**Summer**	
Y5 / 6 A	**Mixtures and Separation**	**Properties and Changes**	**Earth and Space**	**Circulation and Health**	**Light and Reflection**	**Making Connections - How reflective are space blankets?**
Units of work	1. Mixtures 2. Sieving 3. Filtering 4. Solutions 5. Dissolving 6. Evaporating	1. Hardness 2. Transparency 3. Conductivity 4. Reversible changes 5. Irreversible changes: burning and rusting 6. Irreversible changes: mixing	1. Models of our Solar System 2. Our Solar System 3. The Moon 4. Day and Night 5. Time 6. Satellites and space junk	1. Factors affecting health 2. The heart and circulatory system 3. Blood 4. Heart rate 5. Investigating exercise and heart rate 6. Heart rate and fitness	1. The pathway of light 2. See the light 3. Measuring shadows 4. Reflecting light 5. Making a periscope 6. Using mirrors	1. Investigating space blankets – Planning 2. Investigating space blankets – Gathering data 3. Investigating space blankets – Analysing, concluding and evaluating 4. Investigating space blankets – Extending 5. Investigating space blankets - Presenting
	Learning outcomes at the end of this unit. The children will:					

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	- Define the term **mixture** and name some common examples. - Define the term **sieving** and explain how sieving separates mixtures. - Define the term **filtering** and explain how filtering separates mixtures. - Define the terms **solution** and **dissol ve** and name some common examples of solutions. - Recall some factors that affect the time taken to dissolve. - Describe the effect of temperature on the time taken to dissolve. - Define the term **evaporating** and explain how evaporating separates solutions. - Identify when sieving, filtering and evaporating should be used.	- Determine the hardness of different materials and link this to their uses. - Determine the transparency of different materials and link this to their uses. - Determine the thermal and electrical conductivity of different materials and link this to their uses. - Demonstrate, identify and describe reversible and irreversible changes.	- Describe the geocentric and heliocentric models. - Name and describe the shape of celestial bodies. - Describe the orbits of celestial bodies in the Solar System and name the force that keeps them in their orbits. - Describe the orbit of the Moon around the Earth and its phases. - Explain how day and night occur. - Explain how the seasons occur. - Explain how a sundial works. - List some of the uses of satellites and explain why space junk poses a problem to them.	- Recall factors that improve someone's health and those that impact health negatively and suggest improvements to someone's health. - Describe the circulatory system as the heart and blood vessels transporting blood around the body and recall that the heart is a pump that pushes blood through the circulatory system. - Describe the pathway of blood through the circulatory system, including passing through the heart twice in a complete circuit through the body. - Describe some of the functions of blood, including transporting substances like oxygen, water and nutrients around the body. - Recall what is meant by heart rate and research using multiple websites to find reliable animal masses. - Identify the pattern between animals' size and	- Compare sources of light and explain how the eye is protected from light. - Describe how light travels and how we see luminous and non-luminous objects. - Recall factors that affect the size of a shadow and describe how the distance between an object and the surface its shadow is cast on affects the size of the shadow. - Use ray diagrams to explain why shadows change size and why the shape of a shadow matches the object that was cast. - Recall what happens to light when it reaches a smooth mirror surface. - Identify the incoming and reflected rays and describe the relationship between their angles. - Use mirrors to make a working periscope and explain how a periscope	- Recall key knowledge from previous units. - Apply knowledge in new contexts.

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				heart rate and quote values as evidence. - Describe how different exercises affect heart rate and explain why heart rate changes during exercise. - Describe what happens to heart rate during and after exercise and compare two sets of heart data to identify a link between heart rate and fitness.	works using ray diagrams. - Recall a range of uses of mirrors and reflection, describe how a mirror reflects light in different situations and explain how light is reflected using knowledge of light and reflection.	
	When working scientifically, pupils who are secure will be able to:					
	- Research a mixture to find out what substances it is made from. - Draw and annotate a diagram to explain how sieving separates a solid-solid mixture. - Identify and justify which type of enquiry to use to answer my testable question. - Identify solutions by observing and describing their appearance. - Suggest which variables to change, measure and control	- Evaluate the hardness test to determine the degree of trust in the results. - Plan and draw a table of results. - Write a detailed, organised and easy to follow method. - Write a prediction using prior knowledge of the states of matter. - Analyse observations about rusting and use them to support a conclusion. - Measure accurately in centimetres.	- Pose and identify testable questions about the movement of the celestial bodies in our Solar System. - Use a model to represent the Solar System. - Design and draw a table to record data on moons. - Accurately draw day and night and seasons diagrams. - Calibrate a sundial using a compass and torch and use it to measure time. - Analyse patterns in temperature data for the	- Evaluate the trustworthiness of secondary sources that provide health advice. - Evaluate the model blood by considering a strength and a weakness when representing blood and suggesting improvements. - Compare class values and recognise when they do not match. - Use identified patterns to predict new values. - Write a method for an enquiry with consideration of equipment, the different versions of the	- Make observations about the properties of light. - Use my observations as evidence to support conclusions about light. - Draw ray diagrams. - Pose testable questions in response to observations. - Record my measurements as a line graph. - Use my line graph to extrapolate data and make predictions about missing values.	- Carry out a full scientific enquiry

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	when investigating how temperature affects the time taken to dissolve. - Choose which measurements to take and how long to take them for.		Earth and use them to predict temperature values for the Earth in the future.	changed variable and how to complete the measured variable. - Choose a suitable title and axis labels with units for the line graph and plot points on the line graph.	- Recall various jobs or inventions that use mirrors and reflection.		
	Autumn		**Spring**		**Summer**		
Y5 / 6 B	**Lifecycles and Reproduction**	**Unbalanced Forces**	**Classifying Big and Small**	**Circuits, Batteries and Switches**	**Evolution and Inheritance**	**Human Timeline**	**Making Connections**
Units of work							
	Learning outcomes at the end of this unit. The children will:						
	When working scientifically, pupils who are secure will be able to:						

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