Science Overview and Progression of Skills

	Reception	Year 1	Year 2	Year 3/4	Year 5	Year 6
CYCLE A						
Aut 1	Roar	Everyday Materials	Exploring Materials	Light and shadows	Earth and space	Healthy Bodies
Aut 2	Roar	Everyday Materials	Exploring Materials	Light and shadows	Forces in action	Electricity
Spr1	Shine	Identifying animals including humans	Growth and survival	Forces and magnets	Properties and changes in materials	Seeing Light
Spr 2	Dig	Identifying animals including humans	Living in habitats	Animals including humans -Health and Movement	Living things and habitats	Evolution and Inheritance
Sum 1	Whoosh	Seasonal Changes	Growing plants	Living things and their habitats	Animals including humans	Classifying Organisms
Sum 2	Splash	Identifying plants	Growing Plants	Sound	Animals and including humans	Classifying Organisms
CYCLE B						
Aut 1		Living in habitats	Living in habitats	Fossils, rocks and soil		
Aut 2		Animals and humans Growth and survival	Animals and humans Growth and survival	Animals including humans		
Spr 1		Exploring our senses	Exploring our senses	Electricity		
Spr 2		Materials	Materials	Plants		
Sum 1		Plants	Plants	States of matter		
Sum 2		Plants	Plants	States of Matter		

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Autumn 1 - ROAR	SHINE	DIG	WHOOSH	SPLASH
Hook: Outdoor Cave Possible themes: Dinosaur/Jungle animals Memorable Moment: Animal Visit Autumn 2 - BANG Hook: Giant tin foil rocket in class Possible themes: Space/travel/fireworks Memorable Moment: Fire-pit, toasted marshmallows and songs	Hook: Coloured items everywhere! Organised by colour, colour hanging from ceilings Possible themes: Rainbow/weather/butterflies Memorable Moment: Buckfastleigh Butterfly trip	Hook: Garden centre role-play/big Travis Perkins delivery/ ride-on diggers Possible themes: Planting/minibeasts/construction/ healthy eating/butterflies or stick insects Memorable Moment: Grow and take home a Sunflower	Hook: Big walk on track (taped road-track) Possible themes: Transport/speed Memorable Moment: Wheelie Day (fundraiser)	Hook: Giant Pirate Ship frame, treasure maps Possible themes: Pirates/under the sea/sea animals/pollution Memorable Moment: Beach and Splash Week

Understanding the World:

-Explore the natural world around them.
-Describe what they see, hear and feel outside.
-Recognise some environments that are different to the one in which they live.
-Understand the effect of changing seasons on the natural world around them.

ELG:

-Explore the natural world around them, making observations and drawing pictures of animals and plants.
-Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.

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-Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. **Children cover all of these skills regularly through the different topics taught at various times throughout the academic year.**

CYCLE A

	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum2
1	**Everyday Materials** **Pupils should be taught to:** -To distinguish between and object and the material from which it is made. -To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. -To describe the simple physical properties of a variety of everyday materials. -To compare and group together materials on the basis of their simple physical properties. **WS:** -Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying		**Animals, including Humans** **Pupils should be taught to:** -Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. -Identify and name a variety of common animals that are carnivores, herbivores and omnivores. -Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). **WS:** -Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying and classifying) and using a key to identify and name a variety of common UK mammals; a variety of common UK birds and reptiles; a variety of		**Seasonal Changes** **Pupils should be taught to:** -Observe changes across the 4 seasons. -Observe and describe weather associated with the seasons and how day length varies. **WS:** -Explore the world around them and raise their own simple questions when finding out about	**Plants** **Pupils should be taught to:** -Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. -Identify and describe the basic structure of a variety of common flowering plants, including trees. **WS:** -Use simple features to compare objects,

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	and classifying) when identifying a variety of common materials and describing why some materials suit certain objects better than others. - Begin to recognise different ways in which they might answer scientific questions by distinguishing between an object and the material from which it is made. - Experience different types of science enquiries, including practical Activities when describing material according to their properties. - Carry out simple tests and with guidance, they should begin to notice patterns and relationships, use their observations and ideas to suggest answers to questions and talk about what they have found out and how they found it out when carrying out an experiment to find out which materials are waterproof. - With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language when showing what they know about everyday materials.	Common UK fish and amphibians and identifying and sorting carnivores, herbivores and omnivores. - Ask people questions and use simple secondary sources to find answers about a variety of UK birds and reptiles. - Record simple data about carnivores, herbivores and omnivores in a Venn Diagram and using tables, tally charts and block graphs to collect data about animals. - Talk about what they have found out and how they found it out about animals. - Use their observations and ideas to suggest answers to questions when explaining how to take care of animals.	different seasons and how to describe them. - Experience different types of science enquiries, including practical activities by going on a seasonal walk. -Begin to recognise different ways in which they might answer scientific questions about the seasons. -Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying and classifying) when finding out how animals and humans are affected by the seasons. - Ask people questions and use simple secondary sources to find answers about how animals are affected by the seasons. -With guidance, they should begin to notice patterns and relationships about day length and the seasons. -Carry out simple tests, observe closely using	materials and living things and, with help, decide how to sort and group them (identifying and classifying) when identifying plants and their similarities and differences, as well as wild plants. They will also compare deciduous and evergreen trees. - Use their observations and ideas to suggest answers to questions when identifying the different parts of a plant. - With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language when showing what they know about the different parts of a plant. - With help, observe changes over time by identifying ways in which plants change over time.

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				simple equipment, with help, observe changes over time, use simple measurements and equipment (e.g. hand lenses, egg timers) to gather data, record simple data and use their observations and ideas to suggest answers to questions when making and using a rain gauge. -Talk about what they have found out and how they found it out and with help, they should record and communicate their findings in a range of ways and begin to use simple scientific language when making and using a rain gauge.	
2	**Exploring Materials** **Pupils should be taught to:** -Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. -Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. **WS:** -Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying	**Growth & Survival** **Pupils should be taught to:** -Notice that animals including humans have offspring that grow into adults. -Find out and describe the basic needs of animals, including humans, for survival (water, food and air), describe the importance for humans of	**Living in Habitats** **Pupils should be taught to:** -Explore and compare the differences between things that are living, dead, and things that have never been alive. -Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the	**Plants** **Pupils should be taught to:** -Observe and describe how seeds and bulbs grow into mature plants. -Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. **WS:** - With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language when understanding that different seeds grow into different plants and to describe them and when investigating the conditions that affect germination.	

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	and classifying) when identifying a variety of materials and sorting them according to a variety of criteria; identifying natural and man-made materials and identifying the suitability of metal and plastic for a variety of purposes. -Experience different types of science enquiries, including practical activities; carry out simple tests; use their observations and ideas to suggest answers to questions; talk about what they have found out and how they found it out; with help, they should record and communicate their findings in a range of ways and begin to use simple scientific language when investigating that some materials can change shape by squashing, bending, stretching and twisting, and others can't. -Ask people questions and use simple secondary sources to find answers when identifying different products that can be made from wood and their features and purposes. -Experience different types of science enquiries, including practical activities when learning about some man-made materials, their uses and their inventors.	exercise, eating the right amounts of food and hygiene. **WS:** -Explore the world around them and raise their own simple questions when finding out about the offspring of a variety of different animals. -Ask people questions and use simple secondary sources to find answers when finding out about the different ways in which animals reproduce; when finding out what animals, including humans, need to Survive and when exploring the environment as a factor of survival for animals, including humans. -Carry out simple tests and Use simple measurements and equipment (e.g. hand lenses, egg timers) to gather data when exploring how humans grow as they get older. -Begin to recognise different ways in which they might answer scientific questions when finding out what animals, including humans, need to survive.	basic needs of different kinds of animals and plants, and how they depend on each other. -Identify and name a variety of plants and animals in their habitats, including microhabitats. -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. **WS:** -Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying and classifying) when identifying things that are living, things that are dead and things that have never been alive. -Begin to recognise different ways in which they might answer scientific questions when understanding that living things need to live in suitable habitats.	- Begin to recognise different ways in which they might answer scientific questions when explaining why and how seeds are dispersed and investigating the conditions that affect germination. - Carry out simple tests, observe closely using simple equipment and with help, observe changes over time when planning, carrying out and evaluating an investigation into the conditions that affect germination.

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		-With help, they should record and communicate their findings in a range of ways when finding out how to eat a healthy, balanced diet. -Experience different types of science enquiries, including practical activities when finding out why exercise is important to keep our bodies healthy.	-Use their observations and ideas to suggest answers to questions and with help, they should record and communicate their findings in a range of ways when exploring the plants and animals that live in seaside habitats and when exploring plants and animals in an unfamiliar habitat and when exploring food chains in a habitat. -Experience different types of science enquiries, including practical activities when exploring micro-habitats in the local environment.		
3/4	**Light & Shadow** **Pupils should be taught to:** -Recognise that they need light in order to see things and that dark is the absence of light. -Notice that light is reflected from surfaces. -Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. -Recognise that shadows are formed when the light from a light source is blocked by an opaque object. -Find patterns in the way that the size of shadows change. **WS:** -Talk about criteria for grouping, sorting and classifying by identifying, describing & sorting light sources.	**Forces & Magnets** **Pupils should be taught to:** -Compare how things move on different surfaces. -Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. -Observe how magnets attract or repel each other and attract some materials and not others.	**Animals, including Humans** **Pupils should be taught to:** -Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. -Identify that humans and some other animals have skeletons and muscles for	**Living Things & their Habitats** **Pupils should be taught to:** -Recognise that living things can be grouped in a variety of ways. -Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.	**Sound** **Pupils should be taught to:** -Identify how sounds are made, associating some of them with something vibrating. -Recognise that vibrations from sounds travel through a medium to the ear. -Find patterns between the pitch of a sound and features of the object that produced it.

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	-Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them by describing the differences between night & day. -Start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions by sharing their ideas how objects could be tested to determine whether or not they will make a shadow. -Help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used by either testing their ideas, or exploring the way shadows are created, using shadow puppets. -Communicate their findings in ways that are appropriate for different audiences, including oral and written explanations, displays or presentations of results and conclusions by conducting practical shadow investigations where they will predict, test and draw/ write to show their findings. - Collect and record data from their own observations and measurements in a variety of ways: notes, bar charts and tables, standard units, drawings, labelled diagrams, keys by conducting a shadow investigation and presenting their findings using bar grap	-Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. Describe magnets as having 2 poles. -Predict whether 2 magnets will attract or repel each other, depending on which poles are facing. **WS:** - Recognise how secondary sources might help them to answer questions by identifying pushing and pulling actions in photographs. - Take accurate measurements using standard units and learn how to use a range of (new) equipment, appropriately by finding out what a forcemeter is and recognising that forces are measured in newtons. They will practise reading the scales on forcemeters. - Set up simple practical enquiries, comparative and fair tests by carrying out an investigation to measure	support, protection and movement. **WS:** – Talk about criteria for grouping, sorting and classifying by identifying and grouping a variety of foods. -Raise their own relevant questions about the world around them by learning about the need for a varied, balanced diet by looking at food pyramids and examples of healthy meals (and planning their own). - Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations by using secondary sources to find out about the diets of different animals. - Use relevant simple scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences, including oral and written explanations, displays or presentations of results and conclusions by using technical vocabulary to describe	-Recognise that environments can change and that this can sometimes pose dangers to living things. **WS:** -Talk about the criteria for grouping, sorting & classifying and make systematic and careful observations by organising animals into groups according to some of their characteristics. They may then either continue to sort animals according some of their own criteria, or examine some animals and group them based on observations. - Talk about criteria for grouping, sorting and classifying; and use simple keys by using classification keys to identify and sort animals into groups. - Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations studying a range of sources to find out about a particular group of animals.	-Find patterns between the volume of a sound and the strength of the vibrations that produced it. -Recognise that sounds get fainter as the distance from the sound source increases. **WS:** - With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions by learning about how sounds are created, then exploring the way sounds are produced by a variety of instruments or resonant objects. Children will make careful observations and draw conclusions about sounds from their observations. - Set up simple practical enquiries, comparative and fair tests and recognise when a simple fair test is necessary by investigating how sounds travel through different materials. - With help, pupils should look for changes, patterns, similarities and

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		whether the same objects need the same amount of force to be pulled along different surfaces. - Collect and record data from their own observations and measurements by making notes, drawings & labelled diagrams and make decisions about how to analyse this data by recording their observations of magnets. - With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions by making generalisations about what happens when magnets are put together. - Start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions and set up simple practical enquiries by testing a variety of objects to see if they are magnetic. - Make systematic and careful observations and talk about criteria for grouping, sorting &	different types of animal, and present their findings (following research about animals, their habitats and their diets) in their own words. -Raise their own relevant questions and start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions and collect and record data from their own observations and discuss results and conclusions by thinking about what questions could be asked to learn more about what pets eat. They may then either plan and conduct an investigation, or study a given set of results. In either case, children will present data using pictograms or bar graphs and present their results and conclusions. - Talk about criteria for grouping, sorting and classifying by identifying similarities and differences between the skeletons of a variety of animals. - Recognise when and how secondary sources might help them to answer	- Talk about criteria for grouping, sorting and classifying; and use simple keys by identifying a range of animals from different environments using classification keys. Optionally, they may create and test their own classification keys. - Talk about criteria for grouping, sorting and classifying; and use simple keys by starting to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions by using Venn Diagrams and Carroll diagrams to sort plants according to some of their characteristics. Some children may choose their own ways of sorting and classifying plants, too. -Raise their own relevant questions about the world around them by considering ways in which animals living in environments are affected by human behaviour, then suggest ways in which we can help.	differences in their data in order to draw simple conclusions and answer questions by exploring ways in which sounds change as you move further away from its source. They will suggest reasons for their findings. - Set up simple practical enquiries, comparative and fair tests and recognise when a simple fair test is necessary and help to decide how to set it up by investigating the soundproofing effectiveness of a range of materials by planning a test to measure how well different materials muffle sound. -They will discuss their ideas and communicate their findings by drawing conclusions about which materials muffle sound the best. - Set up simple practical enquiries by investigating ways in which pitch and volume may be altered by a variety of instruments or resonant objects. - Set up simple practical enquiries, comparative and fair tests. Recognise when a simple fair test is necessary and help to decide how to set it up by

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			classifying by making careful observations and grouping objects on the basis of whether or not they are magnetic. - Use relevant simple scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences, including oral and written explanations, displays or presentations of results and conclusions by carrying out their own research to find out about different uses of magnets and present the information they have found out in different ways.	questions that cannot be answered through practical investigations and communicate their findings by researching and describing various invertebrates and find out more about muscles, noting their findings.		suggesting ways of testing what happens to the pitch of a string when you alter the length, tightness and thickness. -They will draw simple conclusions and answer questions by drawing conclusions from their observations. -
5	**Earth and Space** **Pupils should be taught to:** -Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. -Describe the movement of the Moon relative to the Earth. -Describe the Sun, Earth and Moon as	**Forces in Action** **Pupils should be taught to:** -Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. -Identify the effects of air resistance, water resistance and friction	**Properties and Changes of Materials** **Pupils should be taught to:** -Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.	**Living things and their Habitats** **Pupils should be taught to:** -Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. -Describe the life process of reproduction in some plants and animals.	**Animals, including Humans** **Pupils should be taught to:** -Describe the changes as humans develop to old age. **WS:** -Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. -Taking measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.	

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	approximately spherical bodies. -Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. **WS:** -Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Chn to show data in a line graph, to demonstrate how the Earth's tilt creates seasons and when investigating the planets in the solar system. -Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas to describe the movements of the sun, earth and moon.	that act between moving surfaces. -Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. **WS:** -Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary when explaining that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object; when identifying the effects of friction acting between moving surfaces; when demonstrating air resistance, using a parachute; demonstrating water resistance and recognising that gears allow a smaller force to have a greater effect. -Taking measurements using a range of scientific equipment, with increasing accuracy and precision,	-To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. -Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. -Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. -Demonstrate that dissolving, mixing and changes of state are reversible changes. -Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. **WS:**	**WS:** -Decide how to record data and results of increasing complexity from a choice of familiar approaches: scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs by describe the process of sexual reproduction in flowering plants through labelling scientific diagrams and by using and designing Carroll diagrams and scatter graphs when describing the process of sexual reproduction in animals. -To identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment when comparing and grouping asexually reproducing plants. -Recognise which secondary sources will be most useful to research	-Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs by completing a life cycle of a human diagram and a bar chart about the gestation periods of different mammals. -Using test results to make predictions to set up further comparative and fair tests. -Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations by writing a report about the development of children and how their needs change over time and completing a mind map, summarising ideas about ways in which girls and boys can look after themselves and keep fit and healthy during puberty. -Identifying scientific evidence that has been used to support or refute ideas or arguments. -Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact by researching the stages of growth and development in humans.

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	-Make their own decisions about what observations to make, what measurements to use and how long to make them for when creating a sun dial and making observations .and explanations. -Use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment by using a key to explain the phases of the moon. -Talk about how scientific ideas have developed over time by discovering how theories about our solar system have changed. -Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact when researching information about the	taking repeat readings when appropriate when explaining that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object; when demonstrating air resistance, using a parachute; when demonstrating water resistance and when recognising that levers and pulleys allow a smaller force to have a greater effect. -Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Chn to present results in a bar graph to show the effects of friction acting between moving surfaces. Chn to represent their results in a table to demonstrate that levers and pulleys allow a smaller force to have a greater effect. -Reporting and presenting findings from enquiries, including conclusions,	-Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why when conducting a fair test to find out which substances are soluble, and which are insoluble; carrying out practical investigations involving irreversible reactions and will investigate burning a candle and explain what is happening. -Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. -To identify, classify and describe living things and materials when predicting and sorting materials according to what may happen when they are heated or cooled, or explore irreversible	their ideas and begin to separate opinion from fact when researching about the life cycles of animals and when observing and comparing the life cycles of animals in our local environment with other animals around the world. -Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas, use oral and written forms such as displays and other presentations to report conclusions, causal relationships and explanations of degree of trust in results by producing a picture book showing the comparison of how different animals reproduce and grow. -Talk about how scientific ideas have developed over time by find out about the work of naturalists.	

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	planets in our solar system.	causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations when explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object and when demonstrating water resistance. -Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact when researching the lives and work of Galileo Galilei and Isaac Newton, with particular reference to their contribution to our understanding of gravity. -Use their results to make predictions and identify when further observations, comparative and fair tests might be needed by improving models that use pulleys or levers.	reactions by cooking and identify and discuss several different properties of a range of materials (conductive, magnetic, soluble, flexible, transparent etc.), then either sort and group given sets of materials, or use their scientific enquiry skills to explore the properties of some materials.		

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6	Animals including Humans	Electricity	Seeing Light	Evolution and Inheritance	Living things and Habitats
	Pupils should be taught to: -Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. -Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. -Describe the ways in which nutrients and water are transported within animals, including humans. **WS:** -Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary when planning an experiment to help them find out about the effects that different foods have on their bodies and investigating what happens to the heart when we exercise and why.	**Pupils should be taught to:** -Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. -Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. -Use recognised symbols when representing a simple circuit in a diagram. **WS:** -Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary when investigating ways in which the brightness of a bulb or speed of a motor is changed and when planning, carrying out and evaluating an experiment to see how changing the wire in a circuit affects the brightness of a bulb.	**Pupils should be taught to:** -Recognise that light appears to travel in straight lines. -Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. -Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. -Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. **WS:**	**Pupils should be taught to:** -Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. -Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. -Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. **WS:** -Recording data and results of increasing	**Pupils should be taught to:** -Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. -Give reasons for classifying plants and animals based on specific characteristics. **WS:** -Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. -Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. -Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations when performing a yeast experiment. -Identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment when grouping organisms according to their characteristics; distinguishing between organisms that have similar characteristics; classifying plants according to their

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	-Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs by drawing a diagram to show how nutrients and water are transported in the human body and create bar graphs and lines graphs to show what happens to the heart when we exercise and why. -Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations when communicating the effects of tobacco, alcohol and other drugs and to show how we can keep our bodies healthy. -Talk about how scientific ideas have developed over time when finding out how scientific ideas about food and diet were tested in the past and how this has contributed to our	-Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations when investigating how changing the wire in a circuit affects the brightness of a bulb. -Use their science experiences to explore ideas and raise different kinds of questions when showing what they know about electricity and circuits and when using symbols for circuits. -Use their results to make predictions and identify when further observations, comparative and fair tests might be needed when investigating how changing the wire in a circuit affects the brightness of a bulb.	-Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. -Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. -Decide how to record data and results of increasing complexity from a choice of familiar approaches. Chn to use scientific diagrams to show how we see objects. -Identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment when looking at different shadows and also when comparing reflecting and refracting.	complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. -Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations when understanding that adaptation of plants and animals to suit their environment may lead to evolution and recognising that living things have changed over time and that a number of factors can affect a species' evolution. -Identifying scientific evidence that has been used to support or refute ideas or arguments when discussing how humans have evolved over time, and how human behaviour	characteristics and exploring what micro-organisms are and how they can be grouped. -Use and develop keys when distinguishing between the different types of plants by creating a classification key to identify each one; finding out about Carl Linnaeus and his classification system and creating their own classification key about organisms in the local area. -Recognise which secondary sources will be most useful to research their ideas when researching plants and exploring micro-organisms.

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	knowledge of a balanced diet.		-Recognise when and how to set up comparative and fair tests by conducting their own investigation into the relationship between the size of the shadow being cast and the position of the light source and object casting the shadow. -Use their science experiences to explore ideas and raise different kinds of questions by understanding how our eyes allow us to see. -Make their own decisions about what observations to make, what measurements to use and how long to make them for when investigating reflection and also when investigating the colours in white light. -Talk about how scientific ideas have developed over time when looking at periscopes.	can affect change in species over time. -Use their science experiences to explore ideas and raise different kinds of questions by recognising that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. -Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact by researching online about inherited characteristics, researching how animals and plants are adapted to suit their environment in different ways and understanding that adaptation of plants and animals to suit their	

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				environment may lead to evolution. -Identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment when understanding that adaptation of plants and animals to suit their environment may lead to evolution. -Talk about how scientific ideas have developed over time and recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact when finding out about how the work of scientists has helped develop our understanding of the process of evolution.	

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CYCLE B

	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2
1	**Living in Habitats** **Pupils should be taught to:** -Explore and compare the differences between things that are living, dead, and things that have never been alive. -Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. -Identify and name a variety of plants and animals in their habitats, including microhabitats. -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. **WS:**	**Growth & Survival** **Pupils should be taught to:** -Notice that animals including humans have offspring that grow into adults. -Find out and describe the basic needs of animals, including humans, for survival (water, food and air), describe the importance for humans of exercise, eating the right amounts of food and hygiene. **WS:** -Explore the world around them and raise their own simple questions when finding out about the offspring of a variety of different animals. -Ask people questions and use simple secondary sources to find answers when finding out about the different ways in which animals reproduce; when finding out what	**Animals, including Humans – My Body** **Pupils should be taught to:** -Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. **WS:** -Begin to recognise different ways in which they might answer scientific questions when identifying, naming and labelling body parts and finding out about the five senses, in particular the sense of sight. - Carry out simple tests when exploring the 5 senses.	**Everyday Materials** **Pupils should be taught to:** -To distinguish between and object and the material from which it is made. -To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. -To describe the simple physical properties of a variety of everyday materials. -To compare and group together materials on the basis of their simple physical properties. **WS:** -Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying	**Plants** **Pupils should be taught to:** -Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. -Identify and describe the basic structure of a variety of common flowering plants, including trees. **WS:** -Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying and classifying) when identifying plants and their similarities and differences, as well as wild plants. They will also compare deciduous and evergreen trees. - Use their observations and ideas to suggest answers to questions when identifying the different parts of a plant. - With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language when showing what they know about the different parts of a plant. - With help, observe changes over time by identifying ways in which plants change over time.	

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	-Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying and classifying) when identifying things that are living, things that are dead and things that have never been alive. -Begin to recognise different ways in which they might answer scientific questions when understanding that living things need to live in suitable habitats. -Use their observations and ideas to suggest answers to questions and with help, they should record and communicate their findings in a range of ways when exploring the plants and animals that live in seaside habitats and when exploring plants and animals in an unfamiliar habitat and when exploring food chains in a habitat. -Experience different types of science enquiries, including practical activities when exploring	animals, including humans, need to Survive and when exploring the environment as a factor of survival for animals, including humans. -Carry out simple tests and Use simple measurements and equipment (e.g. hand lenses, egg timers) to gather data when exploring how humans grow as they get older. -Begin to recognise different ways in which they might answer scientific questions when finding out what animals, including humans, need to survive. -With help, they should record and communicate their findings in a range of ways when finding out how to eat a healthy, balanced diet. -Experience different types of science enquiries, including practical activities when finding out why exercise is important to keep our bodies healthy.	- With guidance, they should begin to notice patterns and relationships when exploring the 5 senses. -Begin to recognise different ways in which they might answer scientific questions when exploring the 5 senses. - Talk about what they have found out and how they found it out when exploring the 5 senses. - With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language about the 5 senses.	and classifying) when identifying a variety of common materials and describing why some materials suit certain objects better than others. - Begin to recognise different ways in which they might answer scientific questions by distinguishing between an object and the material from which it is made. - Experience different types of science enquiries, including practical Activities when describing material according to their properties. - Carry out simple tests and with guidance, they should begin to notice patterns and relationships, use their observations and ideas to suggest answers to questions and talk about what they have found out and how they found it out when carrying out an experiment to find out which materials are waterproof. - With help, they should record and communicate	

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	micro-habitats in the local environment.			their findings in a range of ways and begin to use simple scientific language when showing what they know about everyday materials.	
2	**Living in Habitats** **Pupils should be taught to:** -Explore and compare the differences between things that are living, dead, and things that have never been alive. -Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. -Identify and name a variety of plants and animals in their habitats, including microhabitats.	**Growth & Survival** **Pupils should be taught to:** -Notice that animals including humans have offspring that grow into adults. -Find out and describe the basic needs of animals, including humans, for survival (water, food and air), describe the importance for humans of exercise, eating the right amounts of food and hygiene. **WS:** -Explore the world around them and raise their own simple questions when finding out about the offspring of a variety of different animals.	**Animals, including Humans – My Body** **Pupils should be taught to:** -Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. **WS:** -Begin to recognise different ways in which they might answer scientific questions when identifying, naming and labelling body parts and finding out about the five senses, in particular the	**Exploring Materials** **Pupils should be taught to:** -Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. -Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. **WS:** -Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying	**Plants** **Pupils should be taught to:** -Observe and describe how seeds and bulbs grow into mature plants. -Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. **WS:** - With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language when understanding that different seeds grow into different plants and to describe them and when investigating the conditions that affect germination. - Begin to recognise different ways in which they might answer scientific questions when explaining why and how seeds are dispersed and investigating the conditions that affect germination. - Carry out simple tests, observe closely using simple equipment and with help, observe changes over time when planning, carrying out and evaluating an investigation into the conditions that affect germination.

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	-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. **WS:** -Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying and classifying) when identifying things that are living, things that are dead and things that have never been alive. -Begin to recognise different ways in which they might answer scientific questions when understanding that living things need to live in suitable habitats. -Use their observations and ideas to suggest answers to questions and with help, they should record and communicate their findings in a range of ways when exploring the plants and animals that live in seaside	-Ask people questions and use simple secondary sources to find answers when finding out about the different ways in which animals reproduce; when finding out what animals, including humans, need to Survive and when exploring the environment as a factor of survival for animals, including humans. -Carry out simple tests and Use simple measurements and equipment (e.g. hand lenses, egg timers) to gather data when exploring how humans grow as they get older. -Begin to recognise different ways in which they might answer scientific questions when finding out what animals, including humans, need to survive. -With help, they should record and communicate their findings in a range of ways when finding out how to eat a healthy, balanced diet.	sense of sight. - Carry out simple tests when exploring the 5 senses. - With guidance, they should begin to notice patterns and relationships when exploring the 5 senses. -Begin to recognise different ways in which they might answer scientific questions when exploring the 5 senses. - Talk about what they have found out and how they found it out when exploring the 5 senses. - With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language about the 5 senses.	and classifying) when identifying a variety of materials and sorting them according to a variety of criteria; identifying natural and man-made materials and identifying the suitability of metal and plastic for a variety of purposes. -Experience different types of science enquiries, including practical activities; carry out simple tests; use their observations and ideas to suggest answers to questions; talk about what they have found out and how they found it out; with help, they should record and communicate their findings in a range of ways and begin to use simple scientific language when investigating that some materials can change shape by squashing, bending, stretching and twisting, and others can't. -Ask people questions and use simple secondary sources to find	

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	habitats and when exploring plants and animals in an unfamiliar habitat and when exploring food chains in a habitat. -Experience different types of science enquiries, including practical activities when exploring micro-habitats in the local environment.	-Experience different types of science enquiries, including practical activities when finding out why exercise is important to keep our bodies healthy.		answers when identifying different products that can be made from wood and their features and purposes. -Experience different types of science enquiries, including practical activities when learning about some man-made materials, their uses and their inventors.	
3/4	**Rocks** **Pupils should be taught to:** -Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. -Describe in simple terms how fossils are formed when things that have lived are trapped within rock. -Recognise that soils are made from rocks and organic matter. **WS:** – Talk about criteria for grouping, sorting and	**Animals, including Humans** **Pupils should be taught to:** -Describe the simple functions of the basic parts of the digestive system in humans. -Identify the different types of teeth in humans and their simple functions -Construct and interpret a variety of food chains, identifying producers, predators and prey **WS:**	**Electricity** **Pupils should be taught to:** –Identify common appliances that run on electricity. -Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. -Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.	**Plants** **Pupils should be taught to:** –Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. -Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. -Investigate the way in which water is transported within plants.	**States of Matter** **Pupils should be taught to:** -Compare and group materials together, according to whether they are solids, liquids or gases. -Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). -Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. **WS:** -Talk about criteria for grouping, sorting and classifying by identifying, describing, sorting and comparing a variety of solids and liquids, using technical vocabulary and giving reasons for their thinking.

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	classifying by identifying some common rocks and identifying rocks that are naturally occurring and those that are man-made. -Grouping rocks according to characteristics. -Begin to look for naturally occurring patterns and relationships by observing and comparing rocks. -Use relevant simple scientific language to discuss their ideas and communicate their findings by justifying their choices and explaining their decisions. - Set up simple practical enquiries, comparative and fair tests. Recognise when a simple fair test is necessary and help to decide how to set it up by planning an experiment to compare rocks. - Use relevant simple scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences, including oral and written explanations, displays or presentations of results and conclusions by evaluating the results from this instigation and	– Talk about criteria for grouping, sorting and classifying by identifying similarities and differences between the diets of different organisms, then sorting and describing them using technical vocabulary such as herbivore, carnivore, and omnivore. - Should be given a range of scientific experiences including different types of science enquiries to answer questions by constructing and interpreting a variety of food chains. - Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them by identifying different types of human teeth and their functions. -Communicate their findings using oral and written explanations or displays by sorting,	-Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. -Recognise some common conductors and insulators, and associate metals with being good conductors. **WS:** - Talk about criteria for grouping, sorting and classifying by investigating the differences between mains and battery powered circuits. -Set up simple practical enquiries and help to decide how to set it up by constructing a circuit to test which materials allow electricity to pass through. - Make systematic and careful observations and help to make decisions about what observations to make, how long to make	-Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. **WS:** - Set up simple practical enquiries, comparative and fair tests and recognise when a simple fair test is necessary and help to decide how to set it up by planning experiments where they will grow beans, measuring root growth, conduct experiments where the capillary action in plant stems can be observed and plan and conduct an experiment to show the importance of light for plant growth. -Draw simple conclusions and answer questions and communicate their findings in ways that are appropriate by the children	-Set up simple practical enquiries and make systematic and careful observations to identify and explore the properties of gases and make predictions. -Talk about criteria for grouping, sorting and classifying by sorting groups of materials according to their properties -Set up simple practical enquiries, comparative and fair tests and help to decide how to set it up by conducting a melting investigation. -Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigation by making observations, report on findings from research and use straightforward scientific language to understand the process of evaporation. -Collect and record data from their own observations and measurements in a variety of ways by using simple scientific language, drawings and diagrams about the process of condensation. -Begin to look for naturally occurring patterns and relationships by applying prior knowledge of evaporation and condensation while learning about the water cycle.

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	drawing their own conclusions. - Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations by using a variety of sources to find out information about rocks and their uses. - Talk about criteria for grouping, sorting and classifying by sorting soil samples by different criteria. - Talk about criteria for grouping, sorting and classifying and to know when secondary sources might help them to answer questions by the children grouping fossils according to what they can see. Children may need to use research books or the internet to find out more about some of the fossils. -	drawing, labelling or describing teeth. - To raise their own relevant questions and recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations by using a variety of sources to learn more and answer questions about the digestive system. - Use relevant simple scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences, including oral and written explanations, displays or presentations of results and conclusions and set up simple practical enquiries by either drawing and labelling diagrams to show what they have learned, or conducting an digestion experiment.	them for and the type of simple equipment that might be used by making generalisations about which materials are conductors and which are insulators. - Set up simple practical enquiries, comparative and fair tests and recognise when a simple fair test is necessary and help to decide how to set it up by designing and testing a variety of switch designs. - With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected and finding ways of improving what they have already done by children making predictions about how to alter the brightness of a bulb, planning and carrying out an experiment, changing	recording their findings and drawing conclusions. - Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations by studying in-depth some ways in which seeds are dispersed, or identify seeds found outside.	

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			one factor at a time and drawing conclusions from their investigations.			
5						
6						