ESW

Science

Curriculum

Overview of Progression

		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Area of learning								
	Project/Unit Title	T1 Seasonal Changes – Autumn T2 Materials and Properties T3 Forces Seasonal change- Winter T4 Life cycles – plants Seasonal change – Spring T5 Animals and habitats T6 Healthy Life Seasonal change – summer	T1 Human (parts of the human body) T2 Plants T3 Animals including humans Seasonal change – winter T4 Plants Seasonal change – Spring T5 Everyday materials (indoors) T6 Materials Seasonal change – summer	T1 Plants T2 Everyday materials (outdoors) T3 Animals including humans (basic need and growth) T4 Plants All about diet and health T5 Living things and their habitats. Food chains T6 Living things and their habitats (around the World)	T1 Animals including humans (what make us) T2 Rocks and Soils T3 Forces and Magnets T4 Plants (Life cycles) T5 Light T6 Plants (exploring a world of plants)	T1 Electricity T2 Animals including humans – teeth, digestive system T3 States of Matter T4 Living things in their habitats T5 Sound T6 Habitats and conservation	T1 Forces – Levers and Pulleys T2 Earth and Space T3 Living things and their habitats T4 Properties of materials T5 Properties and changes of materials T6 Animals including humans (life cycles)	T1 living things in their habitats T2 Electricity T3 Animals including humans. Heart and blood circulation T4 Light T5 Evolution and inheritance T6 Evolution and inheritance Environmental Earth Awareness
Plants	Substantive Knowledge	Draw information from a simple map. Explore the natural world around them. Describe what they see, hear and feel whilst outside.	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a	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	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements of	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	Describe the life process of reproduction in some plants and animals.	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and

		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.	variety of common flowering plants, including trees. .	grow and stay healthy. Identify and name a variety of plants and animals in their habitats, including microhabitat	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. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things.		differences, including micro-organisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics.
Living things and their habitats	Substantive Knowledge	Draw information from a simple map. Explore the natural world around them. Describe what they see, hear and feel whilst outside. Recognise some environments that are different to the	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.	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	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	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. Recognise that environments can	Describe the life process of reproduction in some plants and animals.	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.

		one in which they live.	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). Observe changes across the four seasons.	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. Notice that animals, including humans, have offspring which grow into adults.		change and that this can sometimes pose dangers to living things. Construct and interpret a variety of food chains, identifying producers, predators and prey.		Give reasons for classifying plants and animals based on specific characteristics. 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
Animals including humans		Talk about members of their	Identify and name a variety of common animals including fish,	Notice that animals, including humans, have	Identify that animal, including humans, need the right types and	Describe the simple functions of the basic parts of	Describe the changes as humans	Identify and name the main parts of the human circulatory system,

		immediate family and community. Name and describe people who are familiar to them. Recognise some environments that are different to the one in which they live	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 Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	offspring which grow into adults. Find out about 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 different types of food, and hygiene. 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	amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Identify that human and some other animals have skeletons and muscles for support, protection and movement.	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	develop to old age. 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.	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. 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.
Evolution and inheritance		Recognise some environments that are different to the one in which they live. (Reception – Living things and their habitats		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. Notice that animals, including humans, have offspring which grow into adults	• Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	Recognise that environments can change and that this can sometimes pose dangers to living things.	Describe the life process of reproduction in some plants and animals.	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

Seasonal Changes		Explore the natural world around them. Describe what they see, hear and feel whilst outside. Understand the effect of changing seasons on the natural world around them.	Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.		Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.		Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.	
Materials		Explore the natural world around them. • Describe what they see, hear and feel whilst outside.	Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday	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.	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. Compare and group together a variety of everyday materials on the basis of whether they are attracted	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	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. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a	

			materials on the basis of their simple physical properties		to a magnet, and identify some magnetic materials.	condensation in the water cycle and associate the rate of evaporation with temperature. Recognise some common conductors and insulators, and associate metals with being good conductors.	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	
Rocks		Explore the natural world around them. Describe what they see, hear and feel whilst outside	Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.	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			Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.

Light		Describe what they see, hear and feel whilst outside	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Describe the simple physical properties of a variety of everyday materials.		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 chang		Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnet	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
Forces		Explore the natural world around them.		Find out how the shapes of solid objects made from some materials can	Compare how things move on different surfaces.		Explain that unsupported objects fall towards the Earth because	

		Describe what they see, hear and feel whilst outside.		be changed by squashing, bending, twisting and stretching.	Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. 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 two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing		of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	

Sound		Describe what they see, hear and feel whilst outside.	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.			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. 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		
Electricity						Identify common appliances that run on electricity.		Associate the brightness of a lamp or the volume

						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. 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.		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

Earth and Space		Explore the natural world around them. Describe what they see, hear and feel whilst outside.	Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies.				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 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.	
	Working Scientifically (Disciplinary Knowledge)	Reception	Year 1 Developing the skills of	Year 2 Confidently	Year 3 Developing the skills of	Year 4 Confidently	Year 5 Developing the skill of	Year 6 Confidently
	Plan	Listen attentively and respond to what they hear	Asking simple questions and recognising that they can be	Asking simple questions and recognising that they can be	Asking relevant questions and using different types of scientific	Asking relevant questions and using different types of scientific	Planning different types of scientific	Planning different types of scientific

		with relevant questions	answered in different ways	answered in different ways	enquiries to answer them (begin to decide on most appropriate type of scientific enquiry) Setting up simple practical enquiries, comparative and fair tests (explain why the test is fair, using language of variables)	enquiries to answer them (begin to decide on most appropriate type of scientific enquiry) Setting up simple practical enquiries, comparative and fair tests (explain why the test is fair, using language of variables)	enquiries to answer questions. Recognising and controlling variables where necessary (select most appropriate type of enquiry, use and understand the language of independent, dependant and control variables)	enquiries to answer questions. Recognising and controlling variables where necessary (select most appropriate type of enquiry, use and understand the language of independent, dependant and control variables)
	Do	Show an ability to follow instructions involving several ideas or actions □ be confident to try new activities… □ use a range of small tools… □ safely use and explore a variety of materials, tools and techniques	Observing closely, using simple equipment Performing simple tests Identifying and classifying Measure using non-standard units of measure. (ruler / cubes / thermometer / hands / egg timers)	Observing closely, using simple equipment Performing simple tests Identifying and classifying Measure using standard units where all the numbers are marked on the scale. length (m/cm); mass (kg/g);	Making systematic and careful observations Taking accurate measurements using standard units, using a range of equipment, (including thermometers and data loggers) (help to make decisions on which equipment to use) Measure using standard units	Making systematic and careful observations Taking accurate measurements using standard units, using a range of equipment, (including thermometers and data loggers) (help to make decisions on which equipment to use) Measure using standard units	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision Taking repeat readings when appropriate (make own decisions regarding all above) Measure using standard units using equipment	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision Taking repeat readings when appropriate (make own decisions regarding all above) Measure using standard units using equipment

				temperature (°C); capacity (litres/ml) Rulers / measuring cylinders / thermometers / scales	where not all the numbers are marked on the scale, and beginning to take repeat readings. length (m/cm/mm); mass (kg/g); temperature (°C); capacity (litres/ml); time (min, sec) Data loggers / rulers / measuring cylinders and jugs / thermometers/ scales	where not all the numbers are marked on the scale, and take repeat readings where necessary. length (m/cm/mm); mass (kg/g); temperature (°C); capacity (litres/ml); time (min, sec) Data loggers / thermometers / measuring cylinders and jugs / scales / stop watches / tape measure	that has scales, involving decimals. length (m/cm/mm); mass (kg/g); temperature (°C, incl negative nmbr); capacity (litres/ml); time (min, sec, ms) Newton meters / data loggers / thermometers / measuring jugs and cylinders / scales / stop watches / tape measure	that has scales, involving decimals. length (m/cm/mm) mass (kg/g); temperature (°C, incl negative nmbr); capacity (litres/ml) ; time (min, sec, ms) Data loggers / thermometers / measuring jugs / scales / stop watches / tape measure
	Record	Explore the natural world around them, making observations and drawing pictures of animals and plants	Gathering and recording data to help in answering questions Use text, simple labelled diagrams, pictures, photographs, simple prepared tables to record their observations	Gathering and recording data to help in answering questions Use text, block diagrams, simple labelled diagrams, pictograms, pictures, photographs, tally charts, simple	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions (help to make decisions on what data to collect and why) Recording findings using simple scientific language,	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions (help to make decisions on what data to collect and why) Recording findings using simple scientific language,	Recording data and results of increasing complexity (using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs)	Recording data and results of increasing complexity (using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs)

			Basic classification – grouping and matching	tables to record their observations	drawings, labelled diagrams, keys, bar charts, and tables Prepare own tables, use pictograms, tally charts, basic Venn and Carroll diagrams with prepared headings.	drawings, labelled diagrams, keys, bar charts, and tables Prepare own tables, use pictograms, basic Venn and Carroll diagrams, and line graphs. Use pre-made classification keys to identify and classify	Choose the appropriate form of presentation. Prepare own tables to record data, including columns for taking repeat readings Classification keys – beginning to make their own keys, some headings may be given Use Venn and Carroll diagrams	Choose the appropriate form of presentation. Prepare own tables to record data, including columns for taking repeat readings Classification keys – making their own keys. Use Venn and Carroll diagrams
	Review	Participate in discussions, offering their own ideas, using recently introduced vocabulary offer explanations for why things might happen… Express their ideas and feelings about their experiences Know some similarities and differences…	Using their observations and ideas to suggest answers to questions	Using their observations and ideas to suggest answers to questions	Reporting on findings from enquiries (including oral and written explanations, displays or presentations of results and conclusions) Using results to draw simple conclusions, make predictions for new values, suggest improvements and	Reporting on findings from enquiries (including oral and written explanations, displays or presentations of results and conclusions) Using results to draw simple conclusions, make predictions for new values, suggest improvements and	Using test results to make predictions to set up further comparative and fair tests (decide if / when further tests are needed based on results) Reporting and presenting findings from enquiries, including conclusions, causal relationships	Using test results to make predictions to set up further comparative and fair tests (decide if / when further tests are needed based on results) Reporting and presenting findings from enquiries, including conclusions, causal relationships

		drawing on their experience			raise further questions Identifying differences, similarities or changes related to simple scientific ideas and processes Using straightforward scientific evidence to answer questions or to support their findings	raise further questions Identifying differences, similarities or changes related to simple scientific ideas and processes Using straightforward scientific evidence to answer questions or to support their findings	Give explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations Identifying scientific evidence that has been used to support or refute ideas or arguments (discuss how scientific arguments have developed over time)	Give explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations Identifying scientific evidence that has been used to support or refute ideas or arguments (discuss how scientific arguments have developed over time)
	Working Scientifically Vocabulary	look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group	observe, changes, patterns, grouping, sorting, compare, same, different, identify (name), measure, data, record results, drawing, picture, table, tally chart, present, pictogram, block chart, Venn diagram, ask questions, test, investigate, explore,	observe, changes, patterns, grouping, sorting, compare, same, different, identify (name), measure, data, record results, drawing, picture, table, tally chart, present, pictogram, block chart, Venn diagram, ask questions, test, investigate, explore,	practical work, fair testing, relationships, accurate, thermometer, data logger, stopwatch, timer, estimate, data, diagram, identification key, chart, bar chart, prediction, similarity, difference, evidence, information, findings, criteria,	practical work, fair testing, relationships, accurate, thermometer, data logger, stopwatch, timer, estimate, data, diagram, identification key, chart, bar chart, prediction, similarity, difference, evidence, information, findings, criteria,	variables, independent variable, dependent variable, control variable, evidence, justify, argument (science), causal relationship, accuracy, precision, scatter graphs, bar graphs, line graphs, force meter	variables, independent variable, dependent variable, control variable, evidence, justify, argument (science), causal relationship, accuracy, precision, scatter graphs, bar graphs, line graphs, force meter

			equipment, resources, magnifying glass, hand lens, ruler, tape measure, metre stick, pipette, syringe, spoon, teaspoon, answer questions, interpret results, scientific enquiry, pattern seeking, comparative testing, observing over time, classifying, researching using secondary sources	equipment, resources, magnifying glass, hand lens, ruler, tape measure, metre stick, pipette, syringe, spoon, teaspoon, answer questions, interpret results, scientific enquiry, pattern seeking, comparative testing, observing over time, classifying, researching using secondary sources	values, properties, characteristics, conclusion, explanation, reason, evaluate, improve	values, properties, characteristics, conclusion, explanation, reason, evaluate, improve		

Biology	Chemistry	Physics