



Progression in Science at Sandhills Primary School

	EYFS	KS1	Lower KS2	Upper KS2
Animals including humans		<p>Year 1</p> <ul style="list-style-type: none"> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Group animals according to what they eat Identify and name a variety of common animals that are carnivore, herbivore and omnivores Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) 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 and compare the structure of a 	<p>Year 3</p> <ul style="list-style-type: none"> Identify that humans and some other animals have skeletons and muscles for support, protection and movement 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 <p>Year 4</p> <ul style="list-style-type: none"> Describe the simple functions of the basic parts of the digestive system in humans Construct and interpret a variety of food chains, identifying producers, predators and prey Identify the different types of teeth in humans and their simple functions 	<p>Year 5</p> <ul style="list-style-type: none"> Describe the changes as humans develop to old age <p>Year 6</p> <ul style="list-style-type: none"> Identify and name the main parts of the human circulatory system, and describe the function of the heart, blood vessels and blood Describe the ways in which nutrients and water are transported within animals, including humans Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function

		<p>variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p>Year 2</p> <ul style="list-style-type: none"> • Understand that animals, including humans, have offspring which grow into adults • 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 		
Earth and Space				<p>Year 5</p> <ul style="list-style-type: none"> • 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

				<p>approximately spherical bodies</p> <ul style="list-style-type: none"> • Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky
Electricity			<p>Year 4</p> <ul style="list-style-type: none"> • Identify common appliance 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 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 	<p>Year 6</p> <ul style="list-style-type: none"> • 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

			<ul style="list-style-type: none"> Recognise some common conductors and insulators, and associate metals with being good conductors 	
Evolution and inheritance		Link to Year 2 animals, including humans		Link to year 5 animals, including humans Year 6 <ul style="list-style-type: none"> 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
Forces and magnets			Year 3	Year 5 <ul style="list-style-type: none"> Identify the effects of air resistance, water

			<ul style="list-style-type: none"> • Compare how things move on different surfaces • 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 	<p>resistance and friction, that act between moving surfaces</p> <ul style="list-style-type: none"> • Recognise that some mechanisms, including leellers, pulleys and gears allow a smaller force to have a greater effect • Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
Light			<p>Year 3</p> <ul style="list-style-type: none"> • Recognise that he/she needs light in order to see things and that dark is the absence of light 	<p>Year 6</p> <ul style="list-style-type: none"> • Recognise that light appears to travel in straight lines • Use the ideas that light travels in straight

			<ul style="list-style-type: none"> • Notice that light is reflected from surfaces • Recognise that light from the sun can be dangerous and that there are ways to protect eyes • Recognise that shadows are formed when the light from a light source is blocked by a solid object • Find patterns in the way that the size of shadows change 	<p>lines to explain that objects are seen because they give out or reflect light into the eye</p> <ul style="list-style-type: none"> • 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 ideas that light travels in straight lines to explain why shadows have the same shape as the object that cast them
Living things and their habitats		<p>Year 2</p> <ul style="list-style-type: none"> • 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 	<p>Year 4</p> <ul style="list-style-type: none"> • 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 change and that this can sometimes pose 	<p>Year 5</p> <ul style="list-style-type: none"> • 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 <p>Year 6</p> <ul style="list-style-type: none"> • Describe how living things are classified into broad groups according to common

		<ul style="list-style-type: none"> Identify and name a variety of plants and animals in their habitats, including micro-habitats 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 	dangers and have an impact on living things	<p>observable characteristics and based on similarities and differences, including micro-organisms, plants and animals</p> <ul style="list-style-type: none"> Give reasons for classifying plants and animals based on specific characteristics
Materials		<p>Year 1</p> <ul style="list-style-type: none"> Distinguish between an object and the material from which it was 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 		<p>Year 5</p> <ul style="list-style-type: none"> 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 Recognise 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

		<p>Year 2</p> <ul style="list-style-type: none"> • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching 		<p>mixtures might be separated including through filtering, sieving and evaporating</p> <ul style="list-style-type: none"> • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metal, 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
<p>Plants</p>		<p>Year 1</p> <ul style="list-style-type: none"> • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees 	<p>Year 3</p> <ul style="list-style-type: none"> • Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers 	

		<ul style="list-style-type: none"> Identify and describe the basic structure of a variety of common flowering plants, including trees <p>Year 2</p> <ul style="list-style-type: none"> Observe and describe how seeds and bulbs grow into mature plants Describe how plants need water, light and a suitable temperature to grow and stay healthy, and describe the impact of changing these 	<ul style="list-style-type: none"> Explore and describe 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 Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal 	
Rocks			<p>Year 3</p> <ul style="list-style-type: none"> 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 	Links to Year 6 evolution and inheritance

			<ul style="list-style-type: none"> Recognise that soils are made from rocks and organic matter 	
Seasonal Changes		Year 1 <ul style="list-style-type: none"> Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies 		
Sound			Year 4 <ul style="list-style-type: none"> 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 	

<p>States of Matter</p>			<p>Year 4</p> <ul style="list-style-type: none"> • 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 • Identify the part played by evaporative and condensation in the water cycle and associate the rate of evaporating with temperature 	
<p>Working Scientifically</p>		<p>Year 1</p> <ul style="list-style-type: none"> • Ask simple questions and recognise that they can be answered in different ways (???) • Use simple equipment to observe closely • Perform simple tests (???) • Identify and classify (???) • Use his/her observation and ideas 	<p>Year 3</p> <ul style="list-style-type: none"> • Ask relevant questions and use differed types of scientific enquires to answer them (???) • Set up simple practical enquires, comparative and fair tests (???) • Make systematic and careful observations and, where appropriate, take accurate 	<p>Year 5</p> <ul style="list-style-type: none"> • Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary (???) • Take measurements, using a range of scientific equipment, with increasingly accuracy and

		<p>to suggest answers to questions (???)</p> <ul style="list-style-type: none"> Gather and record data to help in answering questions (???) <p>Year 2</p> <ul style="list-style-type: none"> Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum (???) Use simple equipment to observe closely including changes over time (???) Communicate his/her ideas, what he/she does and what he/she finds out in a variety of ways Perform simple comparative tests (???) Identify, group and classify (???) Use his/her observations and ideas to suggest answers to questions noticing 	<p>measurements using standard units, using a range of equipment, including thermometers and data loggers (???)</p> <ul style="list-style-type: none"> Gather, record, classify and present data in a variety of ways to help in answering questions (???) Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables (???) Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions (???) Use results to draw simple conclusion, make prediction for new values, suggest improvement and raise further questions (???) Identify differences, similarities or changes related to simple 	<p>precision, taking repeat readings when appropriate (???)</p> <ul style="list-style-type: none"> Record data and results of increasingly complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs (???) Use test results to make predictions to set up further comparative and fair tests (???) Report and present findings from enquires, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentation (???) Identify scientific evidence that has been used to support or refute ideas or arguments ((???) <p>Year 6</p>
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		<p>similarities, differences and patterns (???)</p> <ul style="list-style-type: none"> Gather and record data to help in answering questions including from secondary sources of information (???) 	<p>scientific ideas and processes (???)</p> <ul style="list-style-type: none"> Use straightforward scientific evidence to answer questions or to support his/her findings (???) <p>Year 4</p> <ul style="list-style-type: none"> Ask relevant questions and use different types of scientific enquires to answer them (???) Set up simple practical enquiries, comparative and fair tests (???) Make systematic and careful observations and where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers (???) Gather, record, classify and present data in a variety of ways to help in answering question (???) Record findings using simple scientific 	<ul style="list-style-type: none"> Plan different types of scientific enquiries to answer their own or others' questions, including recognising and controlling variables where necessary (Electricity, working scientifically, light) Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate (Evolution and inheritance, electricity, living things and their habitats, working scientifically, light) Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs (Evolution and inheritance, electricity, living things and their habitats, animals)
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			<p>language, drawings, labelled diagrams, keys, bar charts and tables (???)</p> <ul style="list-style-type: none"> • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions (???) • Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further question (???) • Identify differences, similarities or change related to simple scientific ideas and processes (???) • Use straightforward scientific evidence to answer questions or to support his/her findings (???) 	<p>including humans, working scientifically, light)</p> <ul style="list-style-type: none"> • Use test results to make predictions to set up further comparative and fair tests (evolution and inheritance, electricity, animals including humans, light) • Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and write forms such as displays and other presentations (evolution and inheritance, living things and their habitats, animals including humans, working scientifically, light) • Identify scientific evidence that has been used to support or refute ideas or arguments (evolution and inheritance,
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				<p>living things and their habitats, animals including humans, working scientifically, light)</p> <ul style="list-style-type: none">• Describe and evaluate their own and other people's scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources (animals including humans, working scientifically)• Group and classify things and recognise patterns (living things and their habitats, light)• Find things out using a wide range of secondary sources of information (evolution and inheritance, working scientifically)• Use appropriate scientific language and ideas from the national curriculum to explain, evaluate and communicate his/her
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Working scientifically – people to focus on

Year 1

Mae Jaminson – NASA astronaut (American, black, women)
Linda Buck – found out about how we smell things (American, white, women)
Ole Kirk Christiansen (Danish, male, white)

Year 2

Louis Pasteur's work on how germs spread (French, white, male)
Charles Macintosh – developed new materials (Scottish, white, male)
Rachel Carson – study of the ocean (American, white, women)
Marie Maynard Daly (African American, black, women)

Year 3

Marie Curie – research into X-rays (French-Polish, white, women)
George Washington Carver – explore the requirement of plants for life and growth (American, black, male)

Year 4

Alexander Graham Bell – vibrations from sounds travel through a medium to the ear (Scottish, white, male)
Thomas Edison – scientific ideas related to electricity (American, white, male)
Frederick McKinley Jones – refrigerated trucks (African American, black, male)

Year 5

David Attenborough – work of naturalists and animal behaviours (English, white, male)
Margaret Hamilton's development of the software for the Apollo Moon Missions (American, white, female)
Eva Crane – research into the life cycle of bees (English, white, female)
Mark Dean – coloured PC monitor (American, black, male)

Year 6

Libbie Hyman – classifying plants and animals based on characteristics (American, white, women)
Alexander Fleming – discovering of penicillin (Scottish, white, male)
Dr Daniel Hale Williams – performed first prototype open-heart surgery (African American, black, male)

Mary Leakey – living things have changed over time (English, white, female)

Lewis latimer – carbon lightr bulb (African American, black ,male)