



Long Term Plan - Science

2019/2020			
Year group	Term 1 It's Never Dull in Hull	Term 2 Rule Britannia	Term 3 Stargazers
1	Animals including humans Seasonal changes	Plants Seasonal changes	Materials Seasonal changes
2	Animals including humans Living things and their habitats	Plants	Materials
3	Plants Animals including humans	Rocks	Light Forces and magnets
4	Animals including humans Living things and their habitats	Sound Electricity	States of matter
5	Properties and changes of materials	Forces Living things and their habitat Animals including humans	Earth and space
6	Living things and their habitats Animals including humans	Evolution	Light Electricity



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6	Animals including humans Living things and their habitats	Evolution	Light Electricity



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Science Strand	End of KS1		End of Lower KS2		End of Upper KS2	
	Skills	Knowledge	Skills	Knowledge	Skills	Knowledge
Seasonal changes	<p>Observing closely, using simple equipment.</p> <p>Gathering and recording data to help in answering questions.</p>	<p>To know the changes across the four seasons.</p> <p>To know which weather types are associated with the seasons and how the length of 'day' changes.</p> <p>To know how plants change across the four seasons and how some do not appear to change.</p>				
Living things and their habitats	<p>Identifying and classifying.</p> <p>Using their observations and ideas to suggest answers to questions.</p> <p>Observing closely, using simple equipment.</p>	<p>To know the differences between things that are living, dead and things that have been alive.</p> <p>To know that most living things live in habitats to which they are situated.</p> <p>To know that different kinds of animals and plants depend on each other.</p>	<p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes</p>	<p>To know key characteristics of plants and animals.</p> <p>To know different ways to group living things eg mammals etc, evergreen etc.</p> <p>To know a variety of living things in their local and wider environment.</p> <p>To know that</p>	<p>Reporting and presenting findings from enquiries, including conclusions, in oral and written forms such as displays and other presentations.</p> <p>Recording data and results of increasing complexity using tables, and classification keys</p>	<p>To know a range of observable characteristics of animals, microorganisms and plants.</p> <p>To give reasons for classifying plants, animals and microorganisms based on specific characteristics.</p>



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		<p>To know and name a variety of plants and animals in their habitats including microhabitats.</p> <p>To know 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.</p>	<p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p>	<p>environments can change and that this can sometimes pose dangers to living things.</p>	<p>Recording data and results of increasing complexity using tables, and classification keys.</p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments</p>	<p>To know the differences in the life cycles of a mammal, amphibian, insect and a bird.</p> <p>To know the life process of reproduction in some plants and animals.</p>
<p>Animals including humans</p>	<p>Identifying and classifying.</p> <p>Asking simple questions</p> <p>Using their observations and ideas to suggest answers to questions.</p>	<p>To know the names of a variety of animals and their groups (fish, amphibians, reptiles, birds and mammals)</p> <p>To know the difference between the different animal groups</p> <p>To know the difference between carnivores, herbivores, omnivores</p> <p>To know the features of different animals (body parts)</p> <p>To know the difference between the features</p>	<p>Recording findings using simple scientific language, drawings, labelled diagrams and tables</p> <p>Using straightforward scientific evidence to answer questions or to support their findings.</p> <p>Identify differences, similarities or changes related to simple scientific ideas and processes.</p>	<p>To know that animals (including humans) need the right types and amount of nutrition and that they cannot make their own food; nutrition comes from what they eat.</p> <p>To know that humans and some animals have skeletons and muscles for support and movement.</p> <p>To know the simple functions of the basic parts of the digestion system in humans</p> <p>To know the different</p>	<p>Recording data and results of increasing complexity using scientific diagrams and labels</p> <p>Recording data and results of increasing complexity using scientific diagrams and labels</p> <p>Reporting and presenting findings from enquiries, including conclusions, in oral and written forms such as displays and other presentations.</p> <p>Taking measurements, using a range of</p>	<p>To know the changes as humans develop into old age.</p> <p>To know the gestation period of other animals and humans.</p> <p>To know the main parts of the human circulatory system, and the functions of the heart, blood vessels and blood.</p> <p>To know the impact of diet, exercise, drugs and lifestyle on the ways their bodies function.</p>



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		<p>of different animals (body parts)</p> <p>To know the names of different body parts and the names of the senses</p> <p>To know that animals (including humans) have offspring which grow into adults e.g. kittens into cats, puppies into dogs, babies into adults</p> <p>To know the basic needs of animals (including humans) e.g. food, water, air</p> <p>To know the importance for humans of exercise, eating the right amounts of different food and hygiene.</p>		<p>types of teeth in humans (and other animals) and their simple functions.</p> <p>To know a variety of food chains and how the energy flows through a food chain</p> <p>To know how to correctly draw a food chain</p> <p>To know some producers, predators and prey</p>	<p>scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate.</p>	<p>To know the ways in which nutrients and water is transported</p>
Plants	<p>Observing closely, using simple equipment.</p> <p>Perform simple tests.</p> <p>Gathering and recording data to help in answering questions.</p>	<p>To know a variety of common, wild and garden plants including deciduous and evergreen trees</p> <p>To know the basic structure of a variety of common flowering plants including trees.</p>	<p>Asking relevant questions and using different types of scientific enquiries to answer them</p> <p>Using results to draw simple conclusions, make predictions for new values, suggest</p>	<p>To know the functions of different parts of flowering plants.</p> <p>To know the requirements of plants, the life and growth and how they vary from plant to plant.</p>		



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	<p>Asking simple questions and recognising they can be answered in different ways.</p>	<p>To know how seeds and bulbs grow into mature plants</p> <p>To know why plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>improvements and raise further questions</p>	<p>To know the way in which water is transported in plants</p> <p>To know the part that flowers play in the lifecycle of plants</p>	
<p>Materials</p>	<p>Using their observations and ideas to suggest answers to questions.</p> <p>Identifying and classifying.</p> <p>Perform simple tests.</p> <p>Gathering and recording data to help in answering questions</p>	<p>To know differences between an object and the material from which it is made.</p> <p>To know and name a variety of materials: Wood, plastic, glass, metal, water, rock</p> <p>To know some simple physical properties of a variety of materials.</p> <p>To know how some materials have different properties to others.</p> <p>To know that some materials are more suitable than others for specific uses.</p>			<p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate.</p> <p>Recording data and results of increasing complexity using scientific tables, bar and line graphs.</p> <p>To know the similarities and differences between everyday objects and be able to group them based on their properties and results of testing.</p> <p>To know that some materials are more suitable for particular uses than others based on testing and conclusions.</p> <p>To know that some materials will dissolve in liquid to form a solution, and know how to recover a substance from a solution.</p> <p>To know how mixtures might be separated, including through</p>



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		<p>To know how the shape of some solid objects can be changed in different ways.</p>			<p>filtering, sieving and evaporating.</p> <p>To know and explain the difference between reversible and irreversible changes.</p> <p>To know that dissolving, mixing and changes of state are reversible changes.</p> <p>To know that some changes result in the formation of new materials and that this kind of change is not usually reversible. E.g. burning or mixing acid with bicarb</p>
<p>Rocks</p>		<p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, and tables</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes</p>	<p>To know different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>To know how fossils are formed when things that have lived are trapped within rock</p> <p>To know that soils are</p>		



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		Recording and classifying to help answer questions	made from rocks and organic matter		
Light		<p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including data loggers</p> <p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p>	<p>To know that light is needed in order to see things and that dark is the absence of light.</p> <p>To know that light is reflected from surfaces.</p> <p>To know that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>To know that shadows are formed when the light source is blocked by a solid object.</p> <p>To know that there are patterns in the way that the size of shadows change.</p>	<p>Making systematic and careful observations and taking accurate measurements</p> <p>Using test results to make predictions to set up further comparative and fair tests</p>	<p>To know that light appears to travel in straight lines.</p> <p>To know that light travels in straight lines and use this to explain that objects are seen because they give out or reflect light into the eye.</p> <p>To know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</p> <p>To know that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>
Forces and magnets		Using straightforward scientific evidence to	To know how things move on different surfaces.	Using test results to make predictions to set	To know that unsupported objects fall towards the Earth



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		<p>answer questions or to support their findings.</p> <p>Setting up simple practical enquiries, comparative and fair tests</p> <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>	<p>To know that some forces need contact between two objects, but magnetic forces act at a distance.</p> <p>To know how magnetics attract or repel each other and attract some materials and not others</p> <p>To know that everyday materials can be compared and grouped on the basis of whether they are attracted to a magnet, and identify some magnetic materials.</p> <p>To know magnets have two poles.</p> <p>To know whether two magnets will attract or repel each other. Depending on which poles are facing</p>	<p>up further comparative and fair tests</p> <p>Reporting and presenting findings from causal relationships.</p>	<p>because of the force of gravity acting between the Earth and the falling object.</p> <p>To know the effects of air resistance, water resistance and friction that act between moving surfaces.</p> <p>To know that some mechanisms, including pulleys and gears, allow a smaller force to have a greater effect.</p>
Electricity		Recording findings using		Planning different types of scientific enquiries	To know the number of cells and voltage in the



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		<p>simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>	<p>To know the names of common appliances that run on electricity</p> <p>To know what a circuit is</p> <p>To know the parts/components of a circuit</p> <p>To know what makes a circuit work</p> <p>To know how a switch works</p> <p>To know what conductors and insulators are</p>	<p>to answer questions, including recognising and controlling variables where necessary.</p> <p>Using test results to make predictions to set up further comparative and fair tests</p> <p>Recording data and results of increasing complexity using scientific diagrams and charts.</p>	<p>circuit and how it is associated with the brightness of a lamp/bulb or the volume of a buzzer.</p> <p>To know how the use of switches affects a circuit</p> <p>To know the symbols in an electrical circuit diagram</p>
<p>States of matter</p>		<p>Identifying differences, similarities or changes related to simple scientific ideas and processes</p> <p>Making systematic and careful observations and, where appropriate, taking accurate</p>	<p>To know if an object is a solid, liquid or gases.</p> <p>To know the difference between solids, liquids and gases.</p> <p>To know that some materials change state when heated.</p>		



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		<p>measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p>	<p>To know the part played by evaporation and condensation in the water cycle.</p>	
<p>Sound</p>		<p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including data loggers</p> <p>Setting up simple practical enquiries, comparative and fair tests</p>	<p>To know how sounds are made - vibrating.</p> <p>To know that vibrations need a medium to travel through to get to the ear.</p> <p>To know that different objects can produce a different pitch.</p> <p>To know that 'stronger' vibrations produce greater volume.</p> <p>To know that sound</p>	



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			gets fainter as the distance from the source increases.	
Earth and space			Identifying scientific evidence that has been used to support or refute ideas or arguments	<p>To know the movement of the Earth, and other planets, relative to the sun in the solar system.</p> <p>To know the movement of the moon relative to the Earth.</p> <p>To know the sun, Earth and moon are approximately spherical bodies.</p> <p>To know the Earth rotates.</p> <p>To know night and day is caused by the Earth's rotation.</p>



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				To know and name the planets in the solar system and their order from the sun.
Evolution and inheritance			<p>Recording data and results of increasing complexity using scientific diagrams and labels</p> <p>Reporting and presenting findings from enquiries, including conclusions, in oral and written forms such as displays and other presentations.</p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments</p>	<p>To know that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p> <p>To know that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>To know how animals and plants adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>



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Science Strand	End of KS1	End of Lower KS2	End of Upper KS2
	Vocabulary	Vocabulary	Vocabulary
Seasonal changes	Shadows Deciduous evergreen Sunburn Frostbite Autumn Spring Summer Winter Temperature Frost Storm		
Living things and their habitats	Habitat Food chain Deciduous Evergreen Predator Prey	Environment Population Identify Group litter Adaptation Classification Ecology Deforestation Pollution	Asexual/sexual puberty Organism Offspring Nutrition Excretion Respire Sibling Stamen Stigma Sepal Ovual Pollination Reproducing Reproduction Fertilise(tion)



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			<p>Germinate(tion) Movement Sensitivity Growth Retirement Micro-organism Microbe Decay Exoskeleton Endoskeleton Bacteria Virus Mould</p>
<p>Animals including humans</p>	<p>Amphibians Reptiles Mammals Carnivores Herbivores Omnivores Gills Claws Hooves Hips More advance human body parts - Ankle - Elbow - Hips - Shoulder - Knee Habitat offspring adult reproduction</p>	<p>Skeleton Muscles Skull Ribs Hips Protection healthy Movement Carbohydrates Muscles Protein Fats Sugar Balanced diet Digestive system Oesophagus Stomach Small/large intestines Incisors Molars Pre-molars</p>	<p>Puberty Sibling Offspring Young Adult Teenager Elderly Retirement Gestation Life cycle Period Circulatory system Aorta Ventricles Arteries Capillaries White/red blood cells Bloodstream Drug substances Glucose Starch</p>



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	<p>water air survival mouth tongue teeth exercise diet Hygiene Nutrition Growth Eat food</p>	<p>Canines Wisdom teeth Milk teeth Pulp Enamel Root Gum Food chain Producer Predator Prey Consume</p>	<p>Trans and saturated fats Medicine</p>
Plants	<p>Deciduous evergreen Stem Roots Soil Petal Trunk Branches Seedlings Shoot Temperature Bud Germination Reproduction Nutrients Conditions</p>	<p>Pollination Seed formation Seed dispersal Transported Stamen Style Stigma Fertiliser Pollen Nectar</p>	
Materials	<p>Wood Plastic Glass Paper Metal</p>		<p>Solubility Transparency Conductivity Filter</p>



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	<p>Rock Water properties Material Hard Soft Bendy Rough smooth Seedlings Shoot Temperature Bud Germination Reproduction Nutrients Conditions</p>		<p>Evaporation Dissolving Sieving Reversible Irreversible Hardness Magnetic Mixing Liquid Solution Melting</p>
Rocks		<p>Granite Chalk Limestone Organic Permeable Impermeable Fossils Sedimentary Rocks Slate Marble Matter Property Formation Soil</p>	
Light			



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		<p>Light Dark Shadow Reflect Light source Solid Block Mirror Reflective surface Transparent Translucent Absence of light Bright Dull</p>	<p>Reflect Direction Refraction Light spectrum Beam Lens Iris Retina Pupils</p>
Forces and magnets		<p>Force Magnets (bar, ring horseshoe) Attract Repel Strength Magnetic Surface Poles Push Pull Distance Direct contact Properties</p>	<p>Gravity Resistance Air resistance Water resistance Mechanisms Levers Pulleys Gears</p>
Electricity		<p>Buzzer Insulator Electricity Component Cell</p>	<p>Voltage amp Current Resistance resistor</p>



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		Battery Lamp Switch Circuit Conductor Bulb Symbol Motor Copper Open Closed Series Parallel	Transformer Filament Energy
States of matter		Temperature Celsius Compressibility Soluble Dissolve Humidity Condensation Evaporation Precipitation Weight Mass Vapour Solid Liquid Gas Matter Mixture Climate pressure	
Sound			



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		<p>Pitch Vibrations Medium Volume Conduct Vacuum Waves Faint Frequency Vibrate Insulate particles</p>	
Earth and space			<p>Sun Moon All planets of solar system Solar System Orbit Planets Spherical Rotate Axis star Tilt Gravity Elliptical orbit Asteroid Eclipse Satellite Lunar Equator Northern and southern hemisphere poles</p>



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<p>Evolution and inheritance</p>			<p>Offspring Adaptation Characteristics Breeds Environments Genes Evolution Environments Palaeontologists Survival Species Classification</p>
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