

Chandlers Ridge - Science Long Term Plan

Nurs	Working scientifically statements – from characteristics of effective learning Playing and Exploring Active Learning Creative and Critical Thinking					
	Who Am I? Humans *Use all their senses in hands on-exploration of natural materials. *Begin to make sense of their own life-story and family history. *Understand the key features of the life cycle of animals (humans).	Celebrations Materials Sound Light and dark *Explore how things work. *Talk about the differences in materials and changes they notice.	What Happened? Weather Seasons Forces *Explore how things work. *Explore and talk about different forces they can feel. *Talk about the differences between materials and changes they notice.	Long, Long Ago Materials/changing materials Forces *Use all their senses in hands on-exploration of natural materials. *Explore collections of materials with similar and/or different properties. *Talk about the differences between materials and changes they notice.	What's in my garden? Animals and their habitats Plants *Use all their senses in hands on-exploration of natural materials. *Begin to understand the need to respect and care for the natural environment and all living things. *Explore collections of materials with similar and/or different properties. *Plant seeds and care for growing plants.	Loving Life Life cycles *Understand the key features of the life cycle of plants and animals. *Begin to understand the need to respect and care for the natural environment and all living things. Food Changing materials *Talk about the differences between materials and changes they notice – cooking and baking
Rec	Working scientifically statements – from characteristics of effective learning Playing and Exploring Active Learning Creative and Critical Thinking					
	Magical Creatures Animals *Begin to understand the need to respect and care for the natural environment and all living things. *Understand the key features of the life cycle of plants and animals.	Tell Me a Story Animals *Begin to understand the need to respect and care for the natural environment and all living things.	People Who Help us Humans *Use all their senses in hands on-exploration of natural materials. *Begin to make sense of their own life-story and family history. *Understand the key features of the life cycle of animals (humans). Explore how things work. *Talk about the differences in materials and changes they notice.	Animals *Begin to understand the need to respect and care for the natural environment and all living things. *Understand the key features of the life cycle of plants and animals. Materials/changing materials Forces *Use all their senses in hands on-exploration of natural materials. *Explore collections of materials with similar and/or different properties. *Talk about the differences between materials and changes they notice.	Animals and their habitats Plants *Use all their senses in hands on-exploration of natural materials.*- Begin to understand the need to respect and care for the natural environment and all living things. *Explore collections of materials with similar and/or different properties. *Plant seeds and care for growing plants. Food Changing materials *Talk about the differences between materials and changes they notice – cooking and baking	

Chandlers Ridge - Science Long Term Plan

	<p>Ourselves Humans</p> <ul style="list-style-type: none"> *Know the names of my body parts and their function *Name the five senses and know what they are used for *Know what we can do to keep us healthy – exercise, healthy eating, cleaning teeth. *Understand the need to show respect for animals and the natural world. 	<p>Aliens Changing states of matter Natural World</p> <ul style="list-style-type: none"> *Explore scientific experimentations *Talk about things they have observed. *Understand the need to show respect for animals and the natural world. 	<p>Pirates Forces Weather/seasons</p> <ul style="list-style-type: none"> *Explore the natural world around them. *Understand the effect of changing seasons on the natural world. *Recognise some environments that are different to the one they live in. *Show care and concern for living things. *Talk about why some things happen e.g. melting, freezing, floating, sinking *Describe what they can see, hear and feel when outside. 	<p>Dinosaurs Natural World</p> <ul style="list-style-type: none"> *Explore the natural world around them. *Understand the effect of changing seasons on the natural world. *Recognise some environments that are different to the one they live in. *Show care and concern for living things. *Describe what they can see, hear and feel when outside. 	<p>Plants and animals</p> <ul style="list-style-type: none"> *Make observations about the natural world *Name some body parts of animals and minibeasts *Name parts of a plant or tree *Talk about the different seasons. *Can link different types of weather to different seasons. *Talk about changes of states such as freezing and melting. *Understand changes in the natural world such as day and night. *Talk /order some life cycles such as a butterfly, chick, frog etc 	<p>Plants and animals – around the world</p> <ul style="list-style-type: none"> *Make observations about the natural world *Name some body parts of animals and minibeasts *Name parts of a plant or tree *Talk about some similarities and differences between their local environment and that of other countries they come across in books. *Talk about the different seasons. *Can link different types of weather to different seasons. *Talk about changes of states such as freezing and melting. *Understand changes in the natural world such as day and night. *Talk /order some life cycles such as a butterfly, chick, frog etc
<p>Year 1</p>	<p>Working Scientifically Statements</p> <ul style="list-style-type: none"> * Ask simple questions stimulated by their exploration of their world *Make measurements using non-standard units of measure *Observe objects, living things, events and the world around them closely, using their senses and simple equipment *Recognise basic features, similarities and differences of objects or living things *Sort and group objects or living things in different ways *Perform simple tests to explore a question or idea suggested to them, with support *Present evidence they have collected in simple templates provided for them to help in answering questions *Draw or photograph evidence and label with support *Use their ideas to suggest answers to questions *Say what has changed when observing objects, living things or events *Respond to suggestions to connect what has been observed with possible further actions or observations *Present findings in simple templates provided for them or orally *Draw or photograph evidence and label with support 					

Chandlers Ridge - Science Long Term Plan

	<p>Everyday Materials</p> <ul style="list-style-type: none"> *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 	<p>Light and Dark - Non Statutory</p> <ul style="list-style-type: none"> *Name and compare sources of light. *Name nocturnal animals and how their features help them at night. *Recognise seasonal changes. *Recognise the dangers of the sun. 	<p>Animals including Humans</p> <ul style="list-style-type: none"> *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 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. 	<p>Plants</p> <ul style="list-style-type: none"> *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. *Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). 	
<p>Seasonal Changes</p> <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. 					
<p>Year 2</p>	<p>Working Scientifically Statements</p> <ul style="list-style-type: none"> *Ask simple questions about their experiences and observations of objects, living things or events and with help use these observations to suggest ways to discover an answer or solve a problem, recognising that some can be answered in a variety of ways *Make measurements using non-standard and standard units of measure *Use equipment, provided for observation and measuring, correctly *Identify things to measure or observe that are relevant to the questions or ideas they are investigating using a simple test *Suggest a practical way of how to find things out, or collect data to answer a question or idea they are investigating *Make comparison between basic features or components of objects, living things or events to support identification and/or classification *Sort and group objects, living things or events on the basis of their observations and explain why *Gather and record data in appropriate ways with increasing independence to help in answering questions *Use their observations and ideas to suggest answers to questions and to make predictions *Respond to suggestions to identify some evidence needed to answer a question *Use understanding of what has been observed or own experience to predict outcomes of further actions or observations *Report on and record findings as drawings, photographs, labelled diagrams, orally, as displays, or in simple prepared tables or charts 				
<p>Use of Everyday Materials</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. 	<p>Super Scientists – Non Statutory</p> <ul style="list-style-type: none"> *Explain what a scientist does. *Name a range of scientists and be able to explain how they have helped society. 	<p>Weather and Climate – Non Statutory</p> <ul style="list-style-type: none"> *Explain and observe different weathers. *Investigate and explain how weather has changed and why. *Discuss ways people can help to improve global warming to 	<p>Animals</p> <ul style="list-style-type: none"> *Notice that animals, including humans, have offspring which grow into adults. *Find out about and describe the basic needs of animals, including 	<p>Plants</p> <ul style="list-style-type: none"> *Observe and describe how seeds and bulbs grow into mature plants. * Find out and describe how plants need water, light and a 	<p>Living things and habitats</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

Chandlers Ridge - Science Long Term Plan

	<p>*Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>*Discuss what future scientist may create and how it would be helpful.</p>	<p>prevent it having a negative effect on our planet and the wild weather.</p>	<p>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.</p>	<p>suitable temperature to grow and stay healthy</p>	<p>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 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</p>
Year 3	<p>Working Scientifically Statements</p> <p>*Within a group suggest relevant questions that can be explored/investigated further using different types of science enquiry *Take simple accurate measurements and/or careful observations using whole number standard units relevant to questions or ideas under investigation *Use a range of equipment for measuring and observing, including thermometers and data loggers *Plan and carry out simple practical enquiries, comparative and fair tests relevant to the questions or ideas they are investigating, with support *Identify and group objects, living things, processes or events by linking them to the characteristics of known objects, living things, processes or events *Gather and present evidence and data using simple scientific language and vocabulary as writing, drawing, labelled diagrams, display, through ICT, keys, bar charts or tables (using *ranges and intervals chosen for them) to help in answering questions *Use straightforward scientific evidence to answer questions and make predictions *Say whether what happened was what they expected, acknowledging any unexpected outcomes *Use results of enquiries to consider whether they meet predictions and explain why *With help use results, observations or own experience to prompt new questions and predictions for a further test *Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions with support/as a group *Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables with support/as a group</p>					
	<p>Light</p> <p>*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</p>	<p>Forces and Magnets</p> <p>*Compare how things move on different surfaces. *Notice that some forces need contact between two objects, but magnetic forces can act at a distance.</p>	<p>Rocks and soils</p> <p>*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.</p>	<p>Plants</p> <p>*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,</p>	<p>Animals including humans</p> <p>*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>	<p>Revisit previous topics</p>

Chandlers Ridge - Science Long Term Plan

	<p>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</p>	<p>*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>	<p>*Recognise that soils are made from rocks and organic matter</p>	<p>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.</p>	<p>*Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	
<p>Year 4</p>	<p>Working Scientifically Statements</p> <ul style="list-style-type: none"> *Ask relevant questions that can be answered by the appropriate scientific enquiry, research or experiment/test *Take accurate measurements using more complex standard units and parts of units *Choose from a range provided, appropriate equipment for measuring and observing including thermometers and data loggers *Make systematic and careful observations of objects, living things and events *Plan and carry out simple practical enquiries, comparative and fair tests relevant to the questions or ideas they are investigating *Identify one or more control variables from those provided when conducting a fair test *Identify differences, similarities or changes related to simple scientific ideas or processes and more complex groups of objects, living things and events *Gather and present simple scientific data in a variety of ways as Year 3 including tables and bar charts where intervals and ranges agreed through discussion, to help in answering questions *Use straightforward scientific evidence to support their findings, make further predictions and explain their findings *Identify scientific evidence they have used in drawing conclusions *Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions *Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions *Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables 					
	<p>Electricity</p> <ul style="list-style-type: none"> *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 	<p>States of Matter</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 	<p>Sound</p> <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 	<p>Animals including Humans</p> <ul style="list-style-type: none"> *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 	<p>Living Things and Their Habitats</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 	<p>Revisit previous topics</p>

Chandlers Ridge - Science Long Term Plan

	<p>series circuit, based on whether or not the lamp is part of a complete loop with a battery</p> <p>*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> <p>*recognise some common conductors and insulators, and associate metals with being good conductors</p>	<p>which this happens in degrees Celsius (°C)</p> <p>*identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p>	<p>*find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>*recognise that sounds get fainter as the distance from the sound source increases</p>		<p>their local and wider environment</p> <p>*recognise that environments can change and that this can sometimes pose dangers to living things</p>	
Year 5	<p>Working scientifically statements</p> <p>*Ask relevant questions that can be answered by the appropriate scientific enquiry, research or experiment/test</p> <p>*Take measurements using a range of scientific equipment with increasing accuracy and precision identifying the ranges and intervals used</p> <p>*With help recognise that some measurements and observations may need to be repeated</p> <p>*Plan enquiries deciding when it is appropriate to carry out a fair test or another type of practical enquiry from a range suggested</p> <p>*Identify one or more control variables in investigations when conducting a fair test</p> <p>*Classify objects, living things and events creating and using simple tables, keys or data bases with support</p> <p>*Select appropriate ways of gathering and presenting scientific data from models, writing, drawing, display, through ICT, tables or graphs (choosing appropriate ranges and intervals)</p> <p>*Use correct scientific symbols where appropriate in recording</p> <p>*Recognise when scientific evidence is for or against an argument</p> <p>*Recognise when scientific evidence supports an idea or not and use this to support predictions</p> <p>*Use test results to draw conclusions, recognising that the test may need improvements to improve reliability</p> <p>*Use test results to prompt new questions and make predictions for setting up further tests</p> <p>*Present findings in written form, displays and other presentations including orally, explaining results and conclusions drawn from results</p> <p>*Identify causal relationships in reporting outcomes where appropriate</p>					
	<p>Forces in Action</p> <p>*Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>*Identify the effects of air resistance, water resistance and friction that act between moving surfaces.</p>	<p>Properties and changes of Materials</p> <p>*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.</p> <p>*Know that some materials will dissolve in liquid to form a</p>	<p>Earth and Space</p> <p>*Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <p>*Describe the movement of the Moon relative to the Earth.</p> <p>*Describe the Sun, Earth and Moon as approximately spherical bodies.</p>	<p>Living Things and their habitats</p> <p>* Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>*Describe the life process of reproduction in some plants and animals.</p>	<p>Micro-organisms – Non Statutory</p> <p>*To understand that bacteria, viruses and fungi are three different types of microbes that are found everywhere and come in different shapes and sizes.</p> <p>*Learn that infection can spread through sneezing and coughing and that covering</p>	<p>Animals including Humans</p> <p>Links to Jigsaw topic and RSE work</p> <p>*Describe the changes as humans develop to old age.</p>

Chandlers Ridge - Science Long Term Plan

	<p>*Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p>	<p>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</p>	<p>*Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.</p>		<p>the mouth when sneezing or coughing can prevent the spread of infection. *To understand what dental plaque is and how it forms, which foods and drinks cause tooth decay and the consequences of it and how to brush teeth effectively. *To understand that most common infections get better on their own through time, bed rest, liquid intake and healthy living but that if antibiotics are taken, it is important to finish the course.</p>	
<p>Year 6</p>	<p>Working scientifically statements</p> <ul style="list-style-type: none"> *Recognise scientific questions to which they do not yet have definitive answers using a range of scientific enquiries to explore possible answers *Decide whether it is appropriate to repeat observations or measurements and explain how this impacts on data collection *Choose and use correctly appropriate equipment to support observation and data collection with increasing accuracy *Recognise significant variables in investigations selecting the most suitable to investigate controlling variables where appropriate *Use tables, keys and data bases to classify or identify specific objects, living things or events by their characteristics *Begin to identify some positives and some limitations of specific forms of classification *Recognise which type of practical enquiry is most appropriate to the question or idea being investigated, before planning and carrying out the enquiry *Decide on the most appropriate formats to present sets of scientific data such as using line graphs for continuous variables *Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs *Identify scientific evidence that has been used to support or refute ideas or arguments *Recognise scientific questions that do not yet have definitive answers *Provide straightforward explanations for differences in repeated measurements or observations *Use test results to make predictions for setting up further comparative and fair tests 					

Chandlers Ridge - Science Long Term Plan

<p>*Compare their results with others and give reasons why they may be different</p> <p>*Report and present findings from enquiries, including conclusions, causal relationships and explanations of results in oral and written form such as displays and other presentations</p>					
<p>Electricity</p> <p>*Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <p>*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.</p> <p>*Use recognised symbols when representing a simple circuit in a diagram.</p>	<p>Light</p> <p>*Recognise that light appears to travel in straight lines.</p> <p>*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.</p> <p>*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.</p> <p>*Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>	<p>Living Things</p> <p>*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.</p> <p>*Give reasons for classifying plants and animals based on specific characteristics.</p>	<p>Evolution and Inheritance</p> <p>*Recognise 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>*Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>*Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>	<p>Animals including Humans</p> <p>*Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>*Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>*Describe the ways in which nutrients and water are transported within animals, including humans.</p>	<p>Changing Me/Puberty</p> <p>*Explain how girls and boys' bodies change during puberty and understand the importance of looking after yourself physically and emotionally.</p> <p>*Describes how a baby develops from conception through the nine months of pregnancy, and how it is born.</p>