Hill View Primary School Science Overview

	National Curriculum - Science Knowledge Objectives					
EYFS Understanding the world; Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.' **AU1 – Community champions** Sci links to jobs **AU2- Christmas** – Weather/ seasons **SP1- Tea Party** Cooking, changes **SP2- Around the World in 80 Days** Weather in different	**Year 1** Animals, including humans (The Gruffalo) Animals -Autumn 1 + Summer 2, Humans - Spring 1 • 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) • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense • Everyday materials (Three Bears) Spring 2 • 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 Plants (The extraordinary gardener.) Summer 1 • identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	**Year 2** Animals, including humans (The Hero's) Autumn 1 • notice that animals, including humans, have 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 Uses of everyday materials(The Troll) Autumn 2 • 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 Living things and their habitats (Walk on the Wild Side) Summer 1 • explore and compare the differences between things that are living, dead, and things that have never been alive • identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other • identify and name a variety of plants and animals in	**Year 3** Forces and magnets (The Iron Giant) Autumn 2 • compare how things move on different surfaces • notice that some forces need contact between 2 objects, but magnetic forces can act at a distance • observe how magnets attract or repel each other and attract some materials and not others • compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials • describe magnets as having 2 poles • predict whether 2 magnets will attract or repel each other, depending on which poles are facing Animals, including humans (Inside Out) Summer 2 • identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat • identify that humans and some other animals have skeletons and muscles for support, protection and movement Plants(Trust me, I'm a Botanist) Summer 1 • identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers	**Year 4** Living things and their habitats (Toot…and come in) Autumn 1 • 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 dangers to living things Solids Liquids and gasses (Land of Fire and Ice) Autumn 2 To compare and group materials together, according to whether they are solids, liquids or gases. To 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). To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. Electricity (Fun at the Fair) Spring 2 •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	**Year 5** Properties and changes of materials (Chemical Chaos) Autumn 1 • 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 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 Forces (Anglo - The dark ages) Autumn 2 (Out of this world) Summer 1 • explain that unsupported objects fall towards the Earth because of the force of	**Year 6** Living things and their habitats (Mr Nobody) Autumn 1 • 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 (Mr Nobody) Autumn 1 • 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 Animals including humans(Have a Heart). Spring 1 • identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • describe the ways in which nutrients and water are

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locations, animals. **SU1-Down on the Farm** Animals, Growing crops **SU2- Save our Seas** Materials, plastic waste, recycling, floating and sinking	• identify and describe the basic structure of a variety of common flowering plants, including trees Discrete teaching; Seasonal Change Activities **AU2** Seasonal changes • observe changes across the 4 seasons • observe and describe weather associated with the seasons and how day length varies	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 Discrete teaching; Plants **SP1+SP2** Young Gardeners Pupils should be taught to: • observe and describe how seeds and bulbs grow into mature plants • find out and describe how plants need water, light and a suitable temperature to grow and stay healthy Living things	• explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant • investigate the way in which water is transported within plants • explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal Discrete teaching; **Rocks**:**SP1** (Lost in Time) Topic 1: Rocks, Soils and fossils Pupils should be taught to: • compare and group together different kinds of rocks on the basis of their appearance and simple physical properties • describe in simple terms how fossils are formed when things that have lived are trapped within rock • recognise that soils are made from rocks and organic matter **Light** (Keys to the castle) **AU1** (Rising Stars: Topic 3 Light and Shadows) Pupils should be taught to: • recognise that they need light in order to see things and that dark is the absence of light • notice that light is reflected from surfaces • recognise that light from the sun can be dangerous and that there are ways to protect their eyes • recognise that shadows are formed when the light from a light source is blocked by an opaque object • find patterns in the way that the size of shadows change	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 Sound(What's that sound) Summer 2 • 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 Discrete teaching; Animals, including humans **SP1** (Rising Stars: Topic 4: Teeth and Eating) Pupils should be taught to: • describe the simple functions of the basic parts of the digestive system in humans • identify the different types of teeth in humans and their simple functions • construct and interpret a variety of food chains, identifying producers, predators and prey	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 Living things and their habitats **Spring 1** (Rising Stars: Topic 3: Circle of Life) Pupils should be taught to: • describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • describe the life process of reproduction in some plants and animals Animals, including humans **SP2** (Rising Stars: Topic 5: Growing Up and Growing old) Pupils should be taught to: • describe the changes as humans develop to old age Discrete teaching; Living things and their habitats Topic 3: **Summer 2** Tour guides Pupils should be taught to: • describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • describe the life process of reproduction in some plants and animals	transported within animals, including humans Discrete teaching; Light : **AU2** Topic 4: Light Pupils should be taught to: • recognise that light appears to travel in straight lines • use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them **Electricity** Topic 5: SP2 Electricity Pupils should be taught to: • associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches • use recognised symbols when representing a simple circuit in a diagram

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Progression in skills Science						
Working Scientifically						
Ref	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Testing	• Perform simple tests	• Perform simple tests	• Set up simple practical enquiries, comparative and fair tests	• Set up simple practical enquiries, comparative and fair test	• using test results to make predictions to set up further comparative and fair tests	• using test results to make predictions to set up further comparative and fair tests
Ref	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Scientific questioning	• Ask simple questions and recognise that they can be answered in different ways	• Ask simple questions and recognise that they can be answered in different ways	• Ask relevant questions and use different types of scientific enquiries to answer them	• Ask relevant questions and use different types of scientific enquiries to answer them	• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
Measuring	• Observe closely, using simple equipment.	• Observe closely, using simple equipment.	• Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	• Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	• Take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	• Take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate

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Ref	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Gathering and recording	• Gather and record data to help in answering questions	• Gather and record data to help in answering questions	• Gather, record, classify and present data in a variety of ways to help in answering questions • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	• Gather, record, classify and present data in a variety of ways to help in answering • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	• Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	• Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
Communicating Findings	• using their observations and ideas to suggest answers to questions	• using their observations and ideas to suggest answers to questions	• Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	• Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	• Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations	• Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
Ref	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Classifying	• Identifying and classifying	• Identifying and classifying				

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Concluding and questioning			• Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identifying differences, similarities or changes related to simple scientific ideas and processes	• Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identifying differences, similarities or changes related to simple scientific ideas and processes		
Ref	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Using scientific evidence			• Using straightforward scientific evidence to answer questions or to support their findings.	• Using straightforward scientific evidence to answer questions or to support their findings.	• Identify scientific evidence that has been used to support or refute ideas or arguments	• Identify scientific evidence that has been used to support or refute ideas or arguments