Science Overview

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|  |  | Scientific Thinking |
| Concept | Pre-School | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| To work scientifically | I can talk about what I can see using a wide range of vocabulary  | I can ask simple questions and make observations | I can ask simple questions and make predictions based on observationsI can perform simple tests and observe closely to gather and record results | I can ask simple questions and make predictions based on observationsI can perform simple tests and observe closely to gather and record results | I can ask relevant questionsI can set up simple practical enquiries and fair testsI can make accurate measurements I can record my findings using simple language, drawings, labelled diagrams, bar charts and tables | I can ask relevant questionsI can set up simple practical enquiries and fair testsI can make accurate measurements I can record my findings using simple language, drawings, labelled diagrams, bar charts and tables | I can plan enquiries including variablesI can use appropriate techniques and apparatusI can take accurate measurementsI can record data using scientific diagrams and labels, classification keys, graphs and models | I can plan enquiries including variablesI can use appropriate techniques and apparatusI can take accurate measurementsI can record data using scientific diagrams and labels, classification keys, graphs and modelsI can report findings as well as explanations of resultsI can present findings in written form, displays and other presentationsI can use test results to make predictions and set up further fair tests |

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|  |  | Biology |
| Concept | Pre-School | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| To understand plants | I can plant seeds and care for growing plantsI can begin to understand the key features of the life cycles of a plant | I can identify plants and flowers in the gardenI can begin to understand the key features of the life cycles of a plant | I can identify and name a variety of common plants and treesI can observe and describe how seeds and bulbs grow in to mature plants | I can identify and name a variety of common plants and trees I can observe and describe how seeds and bulbs grow in to mature plantsI can identify and describe the basic structure of a variety of common flowering plantsI can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy |  | I can explore the requirements of plants for life and growth and how this varies from plant to plantI can investigate the way in which water is transported within plantsI can explore the role of flowers in the life cycle of a plant |  | I can relate knowledge of plants to studies of all living thingsI can relate knowledge of plants to studies of evolution and inheritance |
| To understand animals and humans | I can begin to care for the natural environment and living things | I can identify and name insects (mini beasts) we would find in the gardenI can link animals to seasons | I can identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates.I can identify and name a variety of plants and animals in their habitats, including microhabitats.I can identify, name, draw and label the basic parts of the human body and say which part is associated with each sense | I can identify and name a variety of plants and animals in their habitats, including microhabitats.I can identify and name a variety of common animals that are carnivores, herbivores and omnivoresI can describe and compare the structure of a variety of common animalsI know animals and humans have offspring with grow to adultsI can describe the importance for humans of exercise, eating right and hygieneI can investigate and describe the basic needs of animals and humans for survival | I can identify that animals, including humans need the right types and amounts of nutrition and that they cannot make their own food – getting nutrition from what they eatI can construct and interpret a variety of food chains, identifying producers, predators and preyI can describe the simple functions and parts of the digestive system in humansI can identify the different types of teeth in humans and their simple functionsI can identify that humans and some animals have skeletons and muscles for support, protection and movement  |  | I can describe changes as humans develop to old ageI can identify and name the main parts of the human circulatory system and describe their functionsI can recognise the importance of diet, exercise, drugs and lifestyle on the way the human body functionsI can describe the ways in which nutrients and water are transported within animals and humans |  |
| To investigate living things | I can begin to care for the natural environment and living things | I can explore natural habitats found in gardensI can describe basic life cycles of garden plants and animals |  | I can identify that most living things live in habitats to which they are suited and describe how the different habitats meet an animal’s needsI can identify and name a variety of plants and animals in their habitats and describe how simple food chains work | I recognise that living things can be grouped in a variety of waysI can explore and use classification keysI can recognise that environments change and this can sometimes pose dangers to specific habitats |  | I can describe the different life cycles of mammals, amphibians, insects and birdsI can describe the process of reproduction in some plants and animalsI can describe how living things are classified in to broad groups according to common observable characteristicsI can give reasons for classifying plants and animals based on specific characteristics |  |
| To understand evolution and inheritance |  |  |  |  |  | I can identify how plants and animals resemble their parents in many featuresI can recognise that living things have changed over time and that fossils and other sources of information help us identify living things who lived on the Earth long ago(I can identify how animals and plants are suited to and adapt to their environment in different ways |  | I can recognise that living things have changed over time and fossils provide information about living things that inhabited the Earth millions of years agoI can recognise that living things produce offspring of the same kind, but normally offspring varyI can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution |

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|  |  | Chemistry |
| Concept | Pre-School | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| To investigate materials | I can use my senses to explore natural materials I can explore naturally occurring changes in state | I can use my senses to explore natural materials I can talk about the differences between materials and changes  | I can distinguish between an object and the material from which it is madeI can identify and name a variety of everyday materials as well as describe their simple physical properties | I can identify and name a variety of everyday materials as well as describe their simple physical propertiesI can compare and group a variety of everyday materials on the basis of their simple physical propertiesI can identify and compare the suitability of a variety of everyday materials for particular usesI can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching | I can compare and group different kinds of rocks based on simple physical propertiesI can relate the properties of rocks to their formation – igneous or sedimentaryI can describe how fossils are formed when things that have lived are trapped within sedimentary rockI can recognise that soils are made from rocks and organic matter | I can compare and group materials according to whether they are solids, liquids or gasesI can observe some materials change state of matter when heated or cooled and measure the temperature at which this happensI can identify the part played by evaporation and condensation in the water cycle and link the rate of evaporation to temperature | I can understand how some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solutionI can use knowledge of solids, liquids and gases to decide how mixtures might be separated including filtering, sieving and evaporatingI can demonstrate that dissolving, mixing and changes of state are reversible but that some changes result in the formation of new materials and that this kind of change is not reversibleI can group together materials based on evidence from comparative fair testsI can give reasons based on evidence from fair tests for the particular uses of materials |  |

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|  |  | Physics |
| Concept | Pre-School | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| To understand the Earth’s movement in space | I can use my senses to explore the weather linked to the changing seasons  | I can explore and experience the changing seasons I can understand the effect of changing seasons  | I can observe changes across the four seasons and describe weather associated with the seasons | I can observe changes across the four seasons and describe weather associated with the seasonsI can observe the apparent movement of the sun during the day | I can describe the Earth’s movement around the sun and the moon relative to EarthI understand what the stars are |  | I can describe the movement of the Earth and other planets relative to the sunI can describe the movement of the moon relative to the EarthI can describe the Sun, Earth and Moon as approximately spherical bodies(I can use the idea of the Earth’s rotation to explain day, night and the apparent movement of the sun across the skyI can use the idea of the Earth’s rotation to explain day, night and the apparent movement of the stars across the night sky |  |
| To understand light and seeing | I can explore light and shadows | I can explore how light travels using natural light sourcesI can explore my senses |  | I can observe and name a variety of light sourcesI can explain that we see things because light travels from them to our eyes |  | I can recognise that we need light to see and that darkness is the absence of lightI know light is reflected from surfacesI know light from the sun can be dangerous for my eyes and skinI can recognise how shadows are formed and find patterns in the way they change |  | I can understand that light travels in straight linesI can explain that objects are seen because they give out or reflect light in to the eyesI can explain how shadows have the same shape as the objects that cast them and predict the size of shadows when the position of a light source changes |
| To investigate sound and hearing | I can explore my senses | I can explore my senses |  |  | I can identify how sounds are made, associating them with something vibratingI can recognise that vibrations from sounds travel through a medium to the ear |  |  | I can find patterns between the pitch of a sound and features of the object that produced itI can find patterns between the volume of a sound and the strength of the vibrations that produced itI can recognise that sounds get fainter as the distance from the source increases |
| To understand electrical circuits |  |  |  | I can identify common appliances that run on electricityI can construct a simple series electrical circuit |  | I can identify common appliances that run on electricityI can construct a simple circuit and identify and name its basic partsI can identify whether or not a lamp will light on a circuit based on if it is complete or notI can recognise common conductors and insulators |  | I can associate the brightness of the lamp or volume of a buzzer with the number and voltage of cellsI can compare and give reasons for variations in how components functionI can use recognised symbols when representing a simple circuit in a diagram |
| To understand movement, forces and magnets | I can explore and talk about different forces I can feel | I can observe and interact with forces |  |  | I can compare how things move on different surfacesI can discuss the fact that some forces need contact between two objects but magnetic forces can act at a distanceI can observe how magnets attract or repel each other and attract some materials and not othersI can compare and group objects based on their magnetismI can describe magnets as having two poles and use my knowledge to predict attraction or repulsion |  | I can describe magnets as having two polesI can predict whether two magnets will attract or repelI can identify the effect of drag forces e.g. water resistance and frictionI understand that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effectI can explain that unsupported objects fall towards the Earth because of gravity |  |