## Science KPIs by Year Group

## Key Stage 1 KPIs

| Y1 KPIs "The child..." | Working Scientifically (Autumn 1) | | | | |
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| | Asks simple questions and recognises that they can be answered in different ways. | Observes closely, using simple equipment. | Performs simple tests. | Identifies and classifies. | Uses their observations and ideas to suggest answers to questions. |
| Animals, including Humans (Spring 1 and 2) | | | | Plants (Summer 1 and 2) | |
| Identifies a variety of common animals including fish, amphibians, reptiles, birds and mammals. | Identifies a variety of common animals that are carnivores, herbivores and omnivores. | Describes and compares the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). | Identifies, draws and labels the basic parts of the human body and knows which part of the body is associated with each sense. | Can identify a variety of common wild and garden plants, including deciduous and evergreen trees. | Can describe the basic structure of a variety of common flowering plants, including trees. |
| Use of Everyday Materials (Autumn 2) | | | | Seasonal Changes (All Year) | |
| Can distinguish between an object and the material from which it is made. | Can identify a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. | Can describe the simple physical properties of a variety of everyday materials. | Can compare and group together a variety of everyday materials on the basis of their simple physical | Knows some simple changes across the 4 seasons. | Can describe weather associated with the seasons and how day length varies. |

| Y2 KPIs "The child..." | Working Scientifically (Autumn 2) | | | | | |
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| | Asks simple questions and recognises that they can be answered in different ways. | Observes closely, using simple equipment. | Performs simple tests. | Identifies and classifies. | Uses their observations and ideas to suggest answers to questions. | Gathers and records data to help answer questions. |
| Animals including Humans (Spring 1/Summer 1) | | | Plants (Spring 2) | | | |
| Knows that animals, including humans, have offspring which grow into adults. | Can describe the basic needs of animals, including humans, for survival (water, food and air). | Can describe the importance for humans of exercise, balanced diet and hygiene. | Can describe how seeds and bulbs grow into mature plants. | Can describe how plants need water, light and a suitable temperature to grow and stay healthy. | | |
| Living Things and their Habitats (Summer 2) | | | | Use of Everyday Materials (Autumn 1) | | |
| Can describe the differences between things that are living, dead, and things that have never been alive. | Knows that most living things live in habitats to which they are suited, and can describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. | Can identify a variety of plants and animals and their habitats, including microhabitats. | Can describe how animals obtain their food from plants and other animals, using a simple food chain, and identifies different sources of food. | Can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses | Understands how friction affects movement on different surfaces. | Understands how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. |

## Key Stage 2 KPIs

| Y3 KPIs "The child..." | Working Scientifically (Spring 1) | | | | | |
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| | Asks relevant questions and uses different types of scientific enquiries to answer them. | Sets up simple practical enquiries, and comparative and fair tests. | Makes systematic and careful observations and, where appropriate, takes accurate measurements using standard units and a range of equipment, including thermometers and data loggers. | Gathers, records, classifies and presents data in a variety of ways to answer questions. | Records findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. | Reports on findings from enquiries, using oral and written explanations, displays or presentations of results and conclusions. |
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| Uses results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. | Identifies differences, similarities or changes related to simple scientific ideas and processes. | Uses straightforward scientific evidence to answer questions or to support their findings. | | | | |
| Animals (Summer 2) | | Plants (Summer One) | | | | |
| Knows that animals, including humans, need certain types of nutrition from their food. | Knows that humans and some other animals have skeletons and muscles for support, protection and movement. | Can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. | Understands the requirements of plants for life and growth and how this varies from plant to plant. | Understands the way in which water is transported within plants. | Understands the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. | |
| Rocks (Autumn 2) | | | Forces and Magnets (Spring 2) | | | |
| Can sort and classify rocks on the basis of their appearance and simple physical properties. | Understands how fossils are formed. | Knows that soils are made from rocks and organic matter. | Understands friction and movement on different surfaces. | Knows that some forces need contact between 2 or more objects. | Understand that magnets attract and repel each other according to their poles. | Identify and sort magnetic and non-magnetic materials. |

| Light (Autumn 1) | | | |
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| Recognises that we need light in order to see things and that dark is the absence of light. | Knows that light is reflected from surfaces. | Knows that light from the sun can be dangerous and how to protect their eyes. | Knows how shadows are formed. |

| Y4 KPIs "The child..." | Working Scientifically (Spring 1) | | | | | |
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| | Asks relevant questions and uses different types of scientific enquiries to answer them. | Sets up simple practical enquiries, and comparative and fair tests. | Makes systematic and careful observations and, where appropriate, takes accurate measurements using standard units and a range of equipment, including thermometers and data loggers. | Gathers, records, classifies and presents data in a variety of ways to answer questions. | Records findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. | Reports on findings from enquiries, using oral and written explanations, displays or presentations of results and conclusions. |
| | | | Sound (Spring 2) | | | |
| Uses results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. | Identifies differences, similarities or changes related to simple scientific ideas and processes. | Uses straightforward scientific evidence to answer questions or to support their findings. | Understands how sound is made and travels. | Can identify some links between the pitch or volume of a sound and features of the object that produced it. | | |
| Animals including Humans/Living Things (Autumn 1 and Summer 2) | | | | | | |
| Understands the functions of the basic parts of the digestive system in humans. | Can identify the different types of teeth in humans and their functions. | Understands a variety of food chains, identifying producers, predators and prey. | Classify and sort living things in a variety of ways. | Uses classification keys to help group, identify and name a variety of living things in their local and wider environment | Recognises that environments can change and that this can sometimes pose dangers to living things. | |
| States of Matter (Autumn 2) | | | Electricity (Summer 1) | | | |
| Can classify and sort materials according to states of matter. | Knows that states can change according to temperature. | Understands how evaporation and condensation affects the water cycle. | Can identify common appliances that run on electricity. | Can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. | Can identify problems in closing a simple circuit. | Can identify some common conductors and insulators. |

| Y5 KPIs "The child..." | Working Scientifically (Autumn 2) | | | | | |
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| | Plans different types of scientific enquiry to answer questions, including recognising and controlling variables where necessary. | Takes measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. | Records data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. | Uses test results to make predictions that set up further comparative and fair tests. | Reports and presents findings from enquiries, including conclusions, causal relationships and explanations of the degree of trust in results, in oral and written forms such as displays and other presentations. | Identifies scientific evidence that has been used to support or refute ideas or arguments. |
| Living Things (Summer 1) | | Properties and Changes of Materials (Spring 1) | | | | |
| Knows some differences in the life cycles of a mammal, an amphibian, an insect and a bird. | Can describe the process of reproduction in some plants and animals. | Classify and sort materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. | Understands dissolving and can identify some soluble materials. | Uses knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. | Can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. | Understands reversible and irreversible changes, and that some changes produce new materials. |
| AIH (Sum 2) | Forces (Spring 2) | | | Earth and Space (Autumn 1) | | |
| Can describe the changes as humans develop to old age. | Understands in simple terms how gravity works. | Can describe the effects of air resistance, water resistance and friction between moving surfaces. | Recognises that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. | Can describe the movement of the Earth, and other planets, relative to the Sun in the solar system. | Can describe the movement of the Moon relative to the Earth. | Uses the concept of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. |

| Y6 KPIs "The child..." | Working Scientifically (Summer 2) | | | | | |
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| | Plans different types of scientific enquiry to answer questions, including recognising and controlling variables where necessary. | Takes measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. | Records data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. | Uses test results to make predictions that set up further comparative and fair tests. | Reports and presents findings from enquiries, including conclusions, causal relationships and explanations of the degree of trust in results, in oral and written forms such as displays and other presentations. | Identifies scientific evidence that has been used to support or refute ideas or arguments. |
| **Animals including Humans (Autumn 1)** | | | **Electricity (Spring 1)** | | | |
| Can identify the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. | Recognises the impact of diet, exercise, drugs and lifestyle on the way their bodies function. | Understands the ways in which nutrients and water are transported within animals, including humans. | Associates the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. | Compares 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. | Uses recognised symbols when representing a simple circuit in a diagram. | |
| **Living Things (Autumn 2)** | | **Evolution and Inheritance (Summer 1)** | | | | |
| Can 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. | Gives reasons for classifying plants and animals based on specific characteristics. | Recognises that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. | Recognises that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. | Identifies how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. | | |
| **Light (Spring 2)** | | | | | | |
| Recognises that light appears to travel in straight lines. | Uses the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. | Explains that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. | Uses the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. | | | |