



Eden Park Science Intent and Progression Statements



Science

Eden Park Intent

Growing hearts and minds – together

Science at Eden Park will open up a world of exploration and discovery providing opportunities to wonder and ponder the big ‘How and Why’ questions . We want Eden Park children to be deeply curious about their natural and man-made world, starting with the familiar to make sense of the wider world they live in. From the spark of curiosity, they will learn to question, seeking out and applying knowledge to rationally explain understanding.

We want Eden Park children to be deep critical thinkers and develop evidence-based knowledge and understanding, with an appreciation of the value that science has brought to their lives and to wider humanity. They will develop the key skills of scientific enquiry through questioning, observation, interpretation and explanation. Eden Park children will learn to use a variety of approaches to answer a range of scientific questions. By hooking back to previous learning and building up their knowledge, they will develop a deep understanding of key concepts of science, allowing them to predict how things will behave.

Eden Park children will learn the disciplines of biology, physics and chemistry, understanding the terms and their applications. As they develop these disciplines, Eden Park children will become rigorous scientists, critically engaging with evidence and checking and validating data.

We want Eden Park children to see the complexities of science. For example, for our youngest children to realise that influences such as the change in seasons affect the environments they observe or in KS2 recognising that science adjusts its views over time based on new research and discoveries.

We actively teach children to use precise, scientific and mathematical vocabulary, empowering them to **communicate** their thinking through hypothesising, explaining, drawing conclusions and critically evaluating.

Our deeply curious, critical children will use a range of appropriate mediums to **communicate** their scientific learning and enthusiasm for the subject to a range of audiences. They will be able to collect, analyse, interpret and **communicate** with a range of data gathered through investigations.

Science: The Big Conceptual Picture

A distinct feature of the science curriculum is 'working scientifically'. This is an approach to investigation and experimentation within science that develops specific skills to support questioning, predicting, planning, observing, recording, interpreting and evaluating. This approach connects the science curriculum and is revisited throughout each key stage to support the application and understanding of scientific knowledge.

Our disadvantaged children can face particular challenges due to their circumstances and therefore it is particularly important that they have opportunities to learn scientific vocabulary and be empowered through practical investigation in order to discover and formulate their own thinking. Much of this vocabulary has been put on the drive in the Curriculum> Science folder.

Our desire is that all our children become curious about the world around them and to understand the positive impact science can have on our lives.

One of the big ideas within science is the way in which science has a methodology or approach that is very distinctive. This will be revisited as a concept in experiments and investigation within different contexts across the science curriculum.

ENQUIRY SKILLS - Working Scientifically

Children working as scientists and using the approaches they use is an essential understanding of the science curriculum. Where other subjects may have knowledge as the strand that links progression across the school, science will have working scientifically skills. Children will revisit an enquiry approach in different contexts to enable them to progress their scientific skills. The visuals below are used to support children's understanding of the process behind 'working scientifically'. The EY statements are included to give prominence to the importance of developing and sustaining curiosity at an early age.



Progression Statements

| | Working scientifically | Field of study 1 | Field of study 2 | Field of study 3 | Field of study 4 | Field of study 5 |
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| FS | | Key Enquiry Skill: Asking Questions (Field of study) (KNOWLEDGE) (VOCAB) | Key Enquiry Skill: Asking Questions (Field of study) (KNOWLEDGE) (VOCAB) | Key Enquiry Skill: Asking Questions (Field of study) (KNOWLEDGE) (VOCAB) | Key Enquiry Skill: Asking Questions (Field of study) (KNOWLEDGE) (VOCAB) | Key Enquiry Skill: Making Predictions (Field of study) (KNOWLEDGE) (VOCAB) |
| Year 1 | Asking simple questions and recognising that they can be answered in different ways Observing closely, using simple equipment performing simple tests Identifying and classifying Using their observations and ideas to suggest answers to questions | Key Enquiry Skill: Making predictions <u>Plants</u> 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 | Key Enquiry Skill: Observing and measuring <u>Materials</u> 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 | Key Enquiry Skill: Asking questions <u>Seasons</u> Observe changes across the 4 seasons Observe and describe weather associated with the seasons and how day length varies | Key Enquiry Skill: Observing and measuring Communicating results. <u>Animals including Humans</u> 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 | |

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| | Gathering and recording data to help in answering questions | flowering plants, including trees. (VOCAB) | 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 | | 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 | |
| Year 2 | Asking simple questions and recognising that they can be answered in different ways Observing closely, using simple equipment performing simple tests Identifying and classifying Using their observations and ideas to suggest answers to questions | Key Enquiry Skill: Asking questions <u>Living things and their Habitats</u> 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 | Key Enquiry Skill: Setting up tests <u>Electricity</u> 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 | Key Enquiry Skill: Asking questions <u>Animals including Humans</u> 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) | Key Enquiry Skill: Setting up tests <u>States of Matter</u> 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 | |

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| | <p>Gathering and recording data to help in answering questions</p> | <p>needs of different kinds of animals and plants, and how they depend on each other</p> <p>Identify and name a variety of plants and animals in their habitats, including microhabitats</p> <p>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> | <p>Identify whether or not a lamp will light in a simple 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>The above knowledge is currently in year 4 - suggested year 2 coverage in black.</p> | <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</p> | <p>the temperature at 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>The above knowledge is currently in year 4 - suggested year 2 coverage in black.</p> | |
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| <p>Year 3</p> | <p>Asking relevant questions and using different types of scientific enquiries to answer them</p> <p>Setting up simple practical enquiries, comparative and fair tests</p> <p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> | <p>Key Enquiry Skill: Interpreting and communicating results</p> <p>Plants Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>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</p> <p>Investigate the way in which water is transported within plants</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p> | <p>Key Enquiry Skill: Recording data and evaluating</p> <p>Forces and magnets Compare how things move on different surfaces.</p> <p>Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance</p> <p>Observe how magnets attract or repel each other and attract some materials and not others</p> <p>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</p> <p>Describe magnets as having 2 poles predict whether 2 magnets will attract or repel each other, depending on which poles are facing</p> | <p>Key Enquiry Skill: Observing and Measuring</p> <p>Rocks</p> <p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>Recognise that soils are made from rocks and organic matter</p> | <p>Key Enquiry Skill: Recording data</p> <p>Light</p> <p>Recognise that they need light in order to see things and that dark is the absence of light</p> <p>Notice that light is reflected from surfaces</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>Recognise that shadows are formed when the light from a light source is blocked by an opaque object</p> <p>Find patterns in the way that the size of shadows change</p> | <p>Key Enquiry Skill: Asking questions</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>Describe the simple functions of the basic parts of the digestive system in humans.</p> <p>Identify the different types of teeth in humans and their simple functions.</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey</p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement</p> |
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| Year 4 | <p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>Recording findings using 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>Identifying differences, similarities or changes related to simple scientific ideas and processes</p> <p>Using straightforward scientific evidence to answer questions or to support their findings.</p> | <p>Key Enquiry Skill: Evaluating</p> <p>States of Matter</p> <p>Compare and group materials together, according to whether they are solids, liquids or gases</p> <p>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)</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p> | <p>Key Enquiry Skill: Asking questions</p> <p>Living things and habitats</p> <p>Recognise that living things can be grouped in a variety of ways</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things</p> | <p>Key Enquiry Skill: Evaluating</p> <p>Sound</p> <p>Identify how sounds are made, associating some of them with something vibrating</p> <p>Recognise that vibrations from sounds travel through a medium to the ear</p> <p>Find patterns between the pitch of a sound and features of the object that produced it</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>Key Enquiry Skill: Making predictions</p> <p>Electricity</p> <p>Identify common appliances that run on electricity</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>Identify whether or not a lamp will light in a simple 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>Key Enquiry Skill: Asking question</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>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</p> |
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| <p>Year 5</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 when appropriate</p> <p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> | <p>Key Enquiry Skill: Setting up tests, recording data and interpreting results.</p> <p>Properties 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 solution, and describe how to recover a substance from a solution</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes</p> | <p>Key Enquiry Skill: Asking questions.</p> <p>Animals including humans</p> <p>Describe the changes as humans develop to old age.</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 describe the ways in which nutrients and water are transported within animals, including humans.</p> | <p>Key Enquiry Skill: Setting up tests, recording data and evaluating.</p> <p>Forces</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>Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</p> | <p>Key Enquiry Skill: Observing and measure:</p> <p>Rocks</p> <p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>Recognise that soils are made from rocks and organic matter</p> | <p>Key Enquiry Skill: Asking questions</p> <p>Living things and 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> |
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| | | 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 | | | | |
| Year 6 | <p>Using test results to make predictions to set up further comparative and fair tests</p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, 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>Key Enquiry Skill: Asking questions</p> <p>Living things and Habitats</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>Key Enquiry Skill: Making predictions, observing and measuring, Evaluating</p> <p>Physics: 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>Key Enquiry Skill: Asking Questions</p> <p>Biology: Evolution</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</p> | <p>Key Enquiry Skill: Observing and measuring</p> <p>Physics: 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</p> | <p>Key Enquiry Skill: Making predictions, observing and measuring, evaluating.</p> <p>Chemistry: States</p> <p>Compare and group materials together, according to whether they are solids, liquids or gases</p> <p>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)</p> <p>Identify the part played by evaporation and condensation in the water cycle and</p> |

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| | | | | different ways and that adaptation may lead to evolution | to explain why shadows have the same shape as the objects that cast them | associate the rate of evaporation with temperature |
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Progression Statements across Year Groups

| Working Scientifically | | | |
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| EYFS | KS1 | Lower KS2 | Upper KS2 |
| Questioning / Using prior knowledge and experience, observing from real life | | | |
| <ul style="list-style-type: none"> • Show curiosity about objects, events and people. • Question why things happen. • Ask 'how' and 'why' questions about their experiences and in response to stories or events. | <ul style="list-style-type: none"> • Ask simple questions, (with support) as a starting point to develop comparative fair tests. • Find out things from a range of secondary information sources including books, websites and information packs. | <ul style="list-style-type: none"> • Use straightforward scientific evidence to answer questions or to support their findings. • Explain the purpose of a variety of scientific or technological developments. • Ask relevant questions based on their prior understanding of scientific fair tests and enquiries. | <ul style="list-style-type: none"> • From initial question-based exploration, plan enquiries, including recognising and controlling dependent and independent variables where appropriate. • Ask a range of questions that would be suitable for a scientific enquiry. |
| Planning an enquiry | | | |
| <ul style="list-style-type: none"> • Find ways to solve problems. • Using resources for activities. | <ul style="list-style-type: none"> • Find out things from a range of secondary information sources including books, websites and information packs. • Suggest ideas for how they might go about finding answers to their question and explain their steps. | <ul style="list-style-type: none"> • Plan to use straightforward scientific evidence to answer questions or to support their findings and give reasons for their approach. • Select appropriate equipment or information sources to address specific questions or ideas under investigation. • | <ul style="list-style-type: none"> • From initial question-based exploration, plan enquiries, including recognising and controlling dependent and independent variables where appropriate and justify their plan. • Select appropriate equipment or information sources to address specific questions or ideas under investigation. |

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| Prediction | | | |
| <ul style="list-style-type: none"> • Make suggestions as to why things happen, with support. | <ul style="list-style-type: none"> • Beginning to make your own relevant predictions based on what you know. | <ul style="list-style-type: none"> • Make their own predictions based on what they know. | <ul style="list-style-type: none"> • Make and justify their predictions. • Use test results to make predictions to set up further comparative and fair tests. |
| Observing | | | |
| <ul style="list-style-type: none"> • Make observations about animals and plants and explain why some things occur, and talk about changes. • Know and talk about similarities and differences in the world around them. | <ul style="list-style-type: none"> • Observe closely while manipulating simple equipment, to generate and explore answers to questions. • Identify and classify objects and living things through comparison of similarities and differences. | <ul style="list-style-type: none"> • Beginning to make systematic and careful observations. • Explain what they have observed in experiments or investigations, linking cause and effect using key scientific vocabulary. | <ul style="list-style-type: none"> • Make systematic and careful observations in a range of contexts. • Recognise applications of specific scientific ideas and identify aspects of science used within particular jobs or roles, including the ways in which science and technology can be used to meet needs, wants and opportunities. |
| Measuring and Recording | | | |
| <ul style="list-style-type: none"> • Select and use technology for particular purposes. • Create simple representations of what is happening. | <ul style="list-style-type: none"> • Make measurements using standard and non-standard units to collect evidence. • Gather and record data to help in answering questions. | <ul style="list-style-type: none"> • Make systematic and accurate measurements using standard units, using a range of measuring equipment (e.g. thermometers and data loggers) . • Record findings using simple scientific language. | <ul style="list-style-type: none"> • Take repeated measurements, selecting from a range of scientific equipment, (including digital) with increasing accuracy and precision. • Repeat sets of observations or measurements where appropriate, selecting suitable ranges and intervals. |

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| | | | <ul style="list-style-type: none"> Record data and results of increasing complexity. |
| Fair Testing and Recording | | | |
| <ul style="list-style-type: none"> Follow instructions involving several ideas or actions. Take a risk, engage in new experiences and learn by trial and improvement. | <ul style="list-style-type: none"> Perform simple tests, beginning to think about some things being kept the same and a single change. Identify obvious risks when prompted. Perform and record simple tests. Make simple classifications. | <ul style="list-style-type: none"> Respond to given questions and develop their own comparative and fair tests. Identify obvious risks. Beginning to conduct and record comparative and fair tests by identifying one or more control variables within an investigation. | <ul style="list-style-type: none"> Understand the importance of accurate results. Conduct accurately comparative and fair tests by identifying one or more control variables within an investigation. Be able to spot when a test might be unfair and give reasons why. Making adaptations when a test is not working as it should be. Select an appropriate way of recording and accurately recording results in an increasing complexity. |
| Presentation and communication of results | | | |
| <ul style="list-style-type: none"> Represent their own ideas, thoughts and feelings. Develop their own narratives by connecting key ideas and events. | <ul style="list-style-type: none"> Record findings in various formats to answer questions (e.g. drawings, diagrams, bar charts, tables, displays, photographs, scientific labels, maps). | <ul style="list-style-type: none"> Select ways to gather, record, classify and present data in a variety of ways to help in answering their experimental question. Record findings using appropriate scientific language to inform conclusions drawn (Use all of the following over the course of the Years: drawings, labelled diagrams, keys, bar charts, and tables.) | <ul style="list-style-type: none"> Record data and results of increasing complexity, using scientific diagrams and labels, classification keys, tables, bar, line and scatter graphs, and models. Report findings from investigations, including written explanations of and degree of trust in results, explanation involving causal relationships, and conclusions to support or refute ideas or arguments. |

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| | | <ul style="list-style-type: none"> • Communicate their findings in a variety of forms. • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions, identifying similarities, differences or changes. | <ul style="list-style-type: none"> • Present findings in written form, displays and other presentations to refute or support arguments. • Use primary and secondary sources and be able to justify their ideas. |
| Analysing/reviewing results/data & Forming conclusions | | | |
| <ul style="list-style-type: none"> • Make links and notice patterns from what they are observing. | <ul style="list-style-type: none"> • Give simple explanations of similarities, differences and patterns within investigations using scientific vocabulary to answer questions. | <ul style="list-style-type: none"> • Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests. • Identify straightforward patterns in observations or in data presented in various formats, including tables, pie and bar charts, labelled diagrams, and line graphs. | <ul style="list-style-type: none"> • Identify patterns in data presented in various formats, including line graphs, scatter graphs, classification keys and scientific diagrams and labels to inform predictions, recognising obvious inconsistencies. • Distinguish between opinion and scientific evidence in contexts related to science, and use evidence rather than opinion to support or challenge scientific arguments. • Use scientific ideas and vocabulary accurately when describing processes or phenomena. • Use abstract ideas or models of more than one step when describing processes or phenomena. |

KNOWLEDGE PROGRESSION

| | EYFS | KS1 | Lower KS2 | Upper KS2 |
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| Animals, including humans, evolution and inheritance | | | | |
| Parts of the body | | Identify, name, draw and label the basic parts of the human body. | <p>Identify and name the basic parts of the digestive system in humans (mouth, tongue, teeth, oesophagus, stomach, small and large intestine, anus)</p> <p>Identify the simple functions of the teeth and different types of teeth in humans</p> <p>Identify that humans and some animals have skeletons and muscles for support, protection and movement</p> | <p>Identify and name the basic parts and organs of the gaseous exchange system - lungs, nose, throat, bronchi, bronchial tubes, diaphragm, ribs and breathing</p> <p>Identify and name the basic parts and organs of the Human circulatory system - the heart, blood vessels, blood, blood pressure and clotting</p> |
| Health and well-being | Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good | <p>Know the basic needs for animals (including humans) and plants e.g. water, air and light, explore temperature with seasons.</p> <p>Describe the importance for humans of exercise, eating the</p> | Understand 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>Understand the effect of exercise and rest on pulse rate</p> <p>Know about the importance of exercise for good health</p> |

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| | <p>sleep routine - being a safe pedestrian</p> | <p>right amounts of different types of food, and hygiene</p> <p>Understand the differences between things that are living or dead and things that have never been alive.</p> | <p>Understand the importance of teeth, their functions and how to keep them healthy</p> <p>Know about the effects of a healthy or unhealthy diet on the human body</p> <p>Know that there are life processes including nutrition, movement, growth and reproduction common to animals, including humans</p> | <p>Understand the roles of drugs and medicines in keeping us well</p> <p>Describe respiration as the activity that releases energy from food as a fuel to maintain the body's activity, and identify that plants also respire</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans</p> <p>Understand different types of microorganisms exist which both support and are detrimental to health</p> <p>How to protect against microorganisms</p> |
| <p>Identify and Classify</p> | <p>Know about similarities and differences in relation to living things</p> | <p>Identify, group and name a variety of plants and animals in a variety of habitats (including micro-habitats), including birds, invertebrates, mammals.</p> | <p>Identify and name a variety of living things in the local and wider environment, using classification keys to assign them to groups</p> | <p>Explain and give reasons for the classification of living things into broad groups according to common observable characteristics and based on similarities and differences,</p> |

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| | Know about similarities and differences between themselves and others | Identify, compare and describe the features of a variety of common animals including fish, birds, amphibians, reptiles, mammals and invertebrates. Understand how humans and animals use their bodies to perceive the world through their senses. | Give reasons for classifying animals based on specific characteristics and how they are suited to their environment | including plants, animals and microorganisms |
| Life Cycles | | Identify the life cycles of everyday animals (Including how humans and animals develop through stages. Vocabulary: baby, toddler, teenager, adult, pregnancy) | Know that male and female humans and other animals can produce healthy offspring | Know and describe the life cycles common to a variety of animals including humans and to a variety of plants (growth, reproduction and death) Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the changes as humans develop from birth to old age as part of the human lifecycle Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents |
| Food chains, habitats & Interdependence | Make observations of animals and plants and explain why some things occur, and talk about changes | Understand how animals obtain their food from plants and other animals using the idea of a simple food chain. | Explain, by using and constructing food chains and simple food webs, how feeding | Explain relationships within food chains and webs using scientific vocabulary eg predator, producer, carnivore, herbivore |

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| | | <p>Identify and group animals according to their food source i.e. carnivores, herbivores and omnivores.</p> <p>Know how different habitats and animals provide for and depend on each other</p> | <p>relationships occur in the local environment</p> <p>Identify and name a variety of living things that can be grouped as producers, consumers, predator, prey, herbivores, carnivores and omnivores</p> | <p>and the impact if there is a break in the food chain</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p> |
| Living things, Plants | | | | |
| Structure of plants and function of different parts | Explore the natural world around them. | Understand the basic structure of a variety of plants including trees: leaf, flower, stem/trunk, root and how they change as plant seeds and bulbs germinate and mature | Identify and describe the functions of different parts of plants: roots, stem/trunk, leaves and flowers | |
| Classification of plants | | <p>Begin simple classification of plants, recognising similarities and differences, including deciduous and evergreen</p> <p>Identify and name a variety of common wild and garden plants including deciduous and evergreen trees</p> | <p>Give reasons for classifying plants based on specific characteristics and how they are suited to their environment</p> <p>Know that the root anchors the plant and that water and nutrients are taken in through the root and transported through the stem to other parts of the plant</p> <p>Describe the ways in which nutrients, water and oxygen are transported within plants</p> | Explain and give reasons for the classification of living things into broad groups according to common observable characteristics and based on similarities and differences, including plants, animals and microorganisms |

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| Requirements for life | | Know the basic condition for survival and growth of healthy plants | Identify the requirements of plants for life and growth (air, light, water, nutrients from soil and space) and how they vary from plant to plant Know that plants need light to produce food for growth and the importance of the leaf to this process | |
| Life cycle | | Identify the life cycles of flowering plants | Know that pollen pollinates the ovule of a flower to form seeds which are dispersed in different ways | Describe the life processes of reproduction in some plants and animals, including sexual and asexual reproduction in plants, and sexual reproduction in animals |
| Environment & Plants | | Explore how environments need to be protected and maintained and the impact humans have on them | Recognise that environments can change and that this can sometimes pose dangers to living things | Explain that species of plants and animals are dependent upon the environment they are in and the consequences of change |
| Materials | | | | |
| Properties of Materials incl magnetism, solubility | Know about similarities and differences in relation to objects and materials Explore characteristics of everyday objects | Distinguish between an object and the material from which it is made Describe the simple physical properties of a variety of everyday materials, including wood, plastic, glass, metal, water, and rock and use these properties to group them | Group together materials according to whether they are solids, liquids or gases Compare how things move on different surfaces Explain that some materials conduct electricity while others do not & recognise which materials are common | Compare and group together everyday materials based on a range of properties determined through investigation i.e. hardness, solubility, conductivity (electrical and thermal), insulation, magnetism, transparency |

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| | | (Including natural and manmade) Identify, name and compare the uses and suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard | conductors and insulators of electricity | Give reasons, where appropriate, for the uses of everyday materials based on evidence from comparative and fair tests |
| Changes of state incl reversible & irreversible changes Separation of materials | Safely use and explore a variety of materials | Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching | Understand how the state of water changes within the water cycle and how this relates to temperature, using correct scientific vocabulary (evaporation/condensation) Identify materials which can be attracted to a magnet and use this to identify metals in everyday objects Understand that materials change state when they are heated or cooled, and measure the temperature at which this happens in degrees Celsius (°C) | Explain that some substances will dissolve in liquid to form a solution, and how to recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including filtering, sieving and evaporating Understand that some changes of state (e.g. mixing, dissolving, melting, boiling, condensing, freezing and evaporating) are reversible changes, and identify reasons for this Know how to recover separate parts from mixtures of powders by applying sieving, filtering, dissolving and evaporation techniques Know that some changes of materials can result in the |

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| | | | | formation of new materials and are irreversible e.g cooking, burning and other chemical changes, and identify reasons for this |
| Seasonal changes / Our Solar System | | | | |
| | Describe what they see, hear and feel whilst outside. Understand the effect of changing seasons on the natural world around them. | Identify the four seasons and the regular changes in sunlight and weather associated with them in the UK | Know that the Earth moves around the Sun, taking one year to do so; that the Moon moves around the Earth, taking 28 days to do so; and that the Earth revolves, taking one day | Know that the Earth spins on its own axis and how this results in the apparent movement of the sun across the sky and that this results in day and night Describe the shapes, sizes and relative movements of the sun, moon, earth and other planets in the solar system |
| Electricity | | | | |
| Application of electricity | | Know that many everyday appliances use electricity | Describe the use of electricity to power common appliances and its effect (heat, light, movement etc.) | |
| Electrical circuits | | Construct simple circuits involving batteries, wires and bulbs and buzzers | Demonstrate that a circuit must be correctly constructed and complete in order for components to function Identify and name the basic parts of a simple electric series circuit, including cells, wires, bulbs, switches, and buzzers | Explain the effect of changing the voltage of a battery Know how to represent and construct circuits by using drawings, recognised symbols and diagrams Manipulate circuits to vary components function, including |

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| | | | <p>Know about ways of varying the current in a circuit to make bulbs brighter or dimmer</p> <p>Understand how switches are created through closing and opening any part of the circuit</p> <p>Know how to construct own switches using conducting materials</p> | <p>brightness of bulbs, loudness of buzzers and on/off position of switches, comparing and giving reasons for variations</p> <p>Describe the effects of static electricity and show that they occur when some materials are rubbed together</p> |
| Forces | | | | |
| | | <p>Understand how things move at different speeds, speed up, slow down, and change direction using simple comparisons, comparative vocabulary and superlative vocabulary</p> | <p>Understand how some forces need contact between two objects and how magnetic forces can act at a distance</p> <p>Know about the forces of attraction and repulsion between magnetic poles and use this knowledge to predict whether magnets will attract or repel each other</p> <p>Know that magnets are an example of a force that attracts some metals</p> | <p>Explain, through observation, that forces push and pull objects, making them change shape, and that there is always something doing the pushing or pulling either by contact or at a distance</p> <p>Investigate how forces, including gravity and drag forces such as, friction, air resistance and water resistance, affect the movement of a variety of objects</p> <p>Explain that drag forces tend to slow things down, including air resistance and, to a greater extent, resistance in liquids</p> <p>Describe, in terms of drag forces, why moving objects that are not driven tend to slow down</p> |

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| | | | | <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>Measure the size of a force</p> <p>Understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs and that they can increase the effect of a force</p> |
| Sound | | | | |
| | | Recognise and name a variety of sound sources, noticing that we hear with our ears | Observe and name a variety of sources of sound, noticing that we hear with our ears after vibrations travel through a medium | |
| | | | <p>Identify how sounds are made, associating some of them with something vibrating</p> <p>Find patterns between the pitch of a sound and the features of an object that produced it</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it</p> | |

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| | | | Recognise that sounds get fainter as the distance from the sound source increases | |
| Light | | | | |
| | | | <p>Recognise that they need light in order to see things and that dark is the absence of light</p> <p>Notice that light is reflected from surfaces</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> | <p>Know and explain that objects are seen because they give out or reflect light in a straight line into the eye</p> <p>Understand that light travels in straight lines from a light source or is reflected from a surface into the eye</p> |
| | | | <p>Know how shadows are made when the straight line of light (from a light source) is blocked by something that is not transparent i.e. opaque or translucent</p> <p>Understand through investigation how the size of size of a shadow can be altered</p> | <p>Understand how the ray model of light explains the shape and size of shadows</p> <p>Know that light can be broken into colours and that different colours of light can be combined to appear as a new colour</p> |
| Rocks | | | | |
| | | | Compare and group together different kinds of rocks on the basis of their simple physical properties | <p>Describe how fossils are formed and provide evidence of evolution</p> <p>Recognise that living things have changed over time and that</p> |

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| | | | <p>Relate the simple physical properties of some rocks to their formation (igneous or sedimentary)</p> <p>Understand that soils are made of rocks and organic matter</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock</p> <p>Know how to separate solid particles of different sizes by sieving</p> | <p>fossils provide information about living things that inhabited the Earth millions of years ago</p> |
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See the Tarka Science Progression Statement document for key vocabulary linked to knowledge.