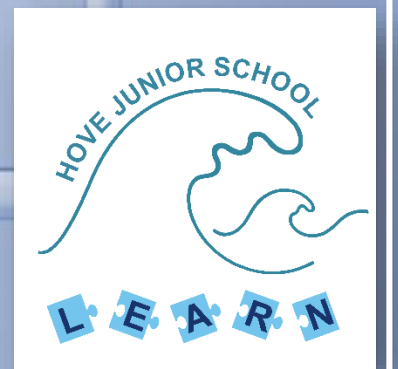




Science Progression Ladder

WEST HOVE
INFANT SCHOOL
.....
A family of friends



| | Year R (The Natural World, Managing Self) | | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| | Nursery | Reception | | | | | | |
| | <p>By the end of Reception, children:</p> <ul style="list-style-type: none"> Explore the natural world around them, making observations and drawing pictures of animals and plants (ELG) Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class (ELG) Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (ELG) Manage their own basic hygiene and personal needs, including dressing and going to the toilet, and understand the importance of healthy food choices (ELG) | | <p>By the end of Year 2: Children should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content below:</p> <ul style="list-style-type: none"> asking simple questions and recognising that they can be answered in different ways <ul style="list-style-type: none"> observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions | | <p>By the end of Year 4, children:</p> <ul style="list-style-type: none"> Plan: Ask relevant questions and use different types of scientific enquiries to answer them. Do: Set up simple practical enquiries, comparative and fair tests. Record: Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers Review: report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identify differences, similarities or changes related to simple scientific ideas and processes use straightforward scientific evidence to answer questions or to support their findings | <p>By the end of Year 6, children:</p> <ul style="list-style-type: none"> Plan: Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Do: carry out fair tests, recognising and controlling variables: deciding what observations or measurements to make over time and for how long; looking for patterns and relationships Record: Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate; Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Review: Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of - and degree of trust in - results, in oral and written forms Identifying scientific evidence that has been used to support or refute ideas or arguments | | |
| Working Scientifically | <p>Uses all his/her senses in hands-on exploration of natural materials</p> <p>Talk about what they see, using a wide vocabulary.</p> <p>Explore how things work</p> | <p>Explore the natural world around them, making observations and drawing pictures of animals and plants (ELG)</p> <p>Describe what they see, hear and feel whilst outside.</p> <p>Explores the natural world around him/her</p> <p>Autumn 1 – Gummy Bears Experiment Light and Dark Experiment Outdoor learning – Leaf parcels Outdoor learning – Spider Hunt</p> <p>Autumn 2 – Bears – similarities and differences Panda research Rotting apple experiment Porridge Making – Heat, senses. Outdoor learning – Porridge, change of state. More or less water. Outdoor learning – Herb tea, senses</p> <p>Spring 1 –</p> | <p>To begin to ask simple questions and recognise that they can be answered in different ways</p> <p><i>-explore the world around them, leading them to ask some simple scientific questions about how and why things happen;</i></p> <p>Termly Science Days Flip slide in every Science Session across the year</p> | <p>Ask simple questions and recognise that they can be answered in different ways <i>including use of scientific language from the national curriculum</i></p> <p><i>-ask people questions and use simple secondary sources to find answers;</i></p> <p>Half termly Science Day Flip slide in every Science Session across the year</p> | <p>PLAN: Ask relevant questions and use different types of scientific enquiries to answer them</p> <p><i>-The children consider their prior knowledge when asking questions.</i> <i>-They independently use a range of question stems. - Where appropriate, they answer these questions.</i> <i>-The children answer questions posed by the teacher.</i> <i>-Given a range of resources, the children decide for themselves how to gather evidence to answer the question.</i></p> <p>Weekly science lessons</p> | <p>PLAN: Ask relevant questions and use different types of scientific enquiries to answer them</p> <p><i>-The children consider their prior knowledge when asking questions.</i> <i>-They independently use a range of question stems. Where appropriate, they answer these questions.</i> <i>-The children answer questions posed by the teacher.</i> <i>-Given a range of resources, the children decide for themselves how to gather evidence to answer the question.</i> <i>-They recognise when secondary sources can be used to answer questions that cannot be answered through practical work.</i> <i>-They identify the type of enquiry that they have chosen to answer their question.</i></p> <p>Weekly science lessons</p> | <p>PLAN: Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p><i>-The children independently ask scientific questions. - Given a wide range of resources, the children decide for themselves how to gather evidence to answer a scientific question. They choose a type of enquiry to carry out. They recognise how secondary sources can be used to answer questions that cannot be answered through practical work</i> <i>- The children select from a range of practical resources to answer their questions. They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time. They look for patterns and relationships.</i></p> <p>Weekly science lessons</p> | <p>PLAN: Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p><i>Children independently ask scientific questions. This may be stimulated by a scientific experience or involve asking further questions based on their developed understanding following an enquiry.</i> <i>- Given a wide range of resources, the children decide for themselves how to gather evidence to answer a scientific question. They choose a type of enquiry to carry out and justify their choice. They recognise how secondary sources can be used to answer questions that cannot be answered through practical work.</i> <i>-The children select from a range of practical resources to gather evidence to answer their</i></p> |

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| | <p>Outdoor learning – Ice melting observations, playdough making – observing changing of state Pushes and pulls investigation Investigating mouldy bread – change of state Smelling observations – different scents</p> <p>Spring 2 – Planting seeds observations Cooking gingerbread men – changes of state</p> | | | | | | | <p>questions. They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time and for how long. They look for patterns and relationships using a suitable sample.</p> <p>Weekly science lessons</p> |
| | <p>Summer 2 – Water cycle observations – rain, condensations Uses of water Floating and sinking experiment Caring for the ocean , Oceans and plastic pollution, Climate change link</p> | <p>Use simple equipment to observe closely</p> <p>-observe the natural and humanly constructed world around them; -use simple measurements and equipment; make careful observations, sometimes using equipment to help them observe carefully.</p> <p>Termly Science Days Autumn 2 – Science Day – experiments Summer 1 – Planting beans, observation of daffodil, bean diary, observational leaf drawing</p> | <p>Use simple equipment to observe closely <i>including changes over time</i></p> <p>-use simple measurements and equipment to provide answers to questions make careful observations, sometimes using equipment to help them observe carefully, identify, classify, gather data and ask and answer questions</p> <p>Half termly Science Day Autumn 1 – Science Day - Moon Craters experiment Autumn 2 – Science Day - Moon craters experiment Materials sorting, waterproof experiment, forces experiment Spring 2 – Plants, seeds experiment</p> | <p>DO: Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p><i>The children make systematic and careful observations. They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.</i></p> <p>Autumn 1: Comparing and grouping different types of rocks. Investigating the permeability of different soils.</p> <p>Autumn 2: Reflective surfaces Making shadows Changing shadows</p> | <p>DO: Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p><i>The children make systematic and careful observations. They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.</i></p> <p>Autumn 1: Melting times of different types of matter. What affects the rate of evaporation.</p> <p>Autumn 2: Describe and explain sounds Explore pitch Finding materials that absorb sound.</p> | <p>DO: Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p><i>The children select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale.</i></p> <p><i>-During an enquiry, they make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value)</i></p> | <p>DO: Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p><i>The children select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale.</i></p> <p><i>-During an enquiry, they make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value)</i></p> | |
| | | <p>Perform simple tests</p> <p><i>-carry out simple practical tests, using simple equipment;</i> <i>-experience different types of scientific enquiries, including practical activities;</i></p> <p>Termly Science Days Autumn 2 – Science Day</p> | <p>Perform simple comparative tests</p> <p><i>-carry out simple practical tests, using simple equipment;</i> <i>-experience different types of scientific enquiries, including practical activities;</i> <i>- talk about the aim of scientific tests they are</i></p> | <p>DO: Setting up simple practical enquiries, comparative and fair tests</p> <p><i>-The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher.</i> <i>-They follow their plan to carry out: observations and</i></p> | <p>DO: Setting up simple practical enquiries, comparative and fair tests</p> <p><i>-The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher.</i> <i>-They follow their plan to carry out: observations and tests to classify; comparative</i></p> | <p>DO: Setting up different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p><i>-The children select from a range of practical resources to gather evidence to answer the questions they have</i></p> | <p>DO: Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p><i>-The children select from a range of practical resources to gather evidence to</i></p> | |

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| | | | <p>– experiments Summer 1 – Planting beans, observation of daffodil, bean diary, observational leaf drawing</p> | <p><i>working on.</i></p> <p>Half termly Science Day Autumn 1 – Science Day - Moon Craters experiment Autumn 2 – Science Day - Moon craters experiment Materials sorting, waterproof experiment, forces experiment Spring 2 – Plants, seeds experiment</p> | <p><i>tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.</i></p> <p>Summer 1: Comparing how well plants grow in the dark, in sunlight, with water, without water Spring 1: Investigate which materials are magnetic and which are not</p> | <p><i>and simple fair tests; observations over time; and pattern seeking.</i></p> <p>Summer 2: Components required for an electrical circuit – Devise an experiment to test the effect of varying components.</p> | <p><i>generated. They carry out fair tests, recognising and controlling variables.</i> <i>-They choose a type of enquiry to carry out.</i> <i>-They decide what observations or measurements to make over time and for how long.</i> <i>-They look for patterns and relationships.</i> <i>-They recognise how secondary sources can be used to answer questions that cannot be answered through practical work.</i></p> <p>CONTEXT:</p> | <p><i>answer the questions they have generated. They carry out fair tests, recognising and controlling variables.</i> <i>-They choose a type of enquiry to carry out and justify their choice.</i> <i>-They decide what observations or measurements to make over time and for how long.</i> <i>-They look for patterns and relationships using a suitable sample.</i> <i>-They recognise how secondary sources can be used to answer questions that cannot be answered through practical work.</i></p> <p>CONTEXT:</p> |
| | | | <p>Identify and classify</p> <p><i>-use simple features to compare objects, materials and living things;</i> <i>-decide how to sort and classify objects into simple groups with some help;</i></p> <p>Termly Science Days Autumn 2 – Animal grouping, diet Autumn 2 – Science Day – animal groups and features Spring 1 – Material sorting Spring 2 – Material properties Summer 1 – Evergreen and deciduous comparison, observational leaf drawing Summer 2 – Animal groups sorting</p> | <p>Identify, <i>group</i> and classify</p> <p><i>-record and communicate findings in a range of ways with support;</i> <i>-sort, group, gather and record data in a variety of ways to help in answering questions such as in simple sorting diagrams, pictograms, tally charts, block diagrams and simple tables.</i></p> <p>Half termly Science Day Autumn 1 – Science Day - Moon Craters experiment Autumn 2 – Science Day - Moon craters experiment Materials sorting, waterproof experiment, forces experiment Spring 1 – Habitats and Animals Food chains, Living, Dead, Never Lived Summer 2 – Healthy living/ diet diagrams</p> | <p>RECORD: Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers</p> <p><i>-make systematic and careful observations, including using magnifying glasses, taking photographs, making comparisons</i></p> <p><i>-use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.</i></p> <p><i>-use more precise equipment, eg; decibel meters/ forcemeters</i></p> <p>Autumn 1-2: Rocks, Fossils and Soils: amount of water absorbed by soils; relative hardness of rocks – Mohs Scale; Rock sorting by observable features and Natural vs Man-made</p> | <p>RECORD: Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers</p> <p><i>-make systematic and careful observations, including using magnifying glasses, taking photographs, making comparisons</i></p> <p><i>-use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.</i></p> <p><i>-use more precise equipment, eg; decibel meters/ forcemeters</i></p> <p>Sound:</p> | <p>RECORD: -Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate; Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p><i>-select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale.</i> <i>-During an enquiry, make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value).</i></p> <p>CONTEXT:</p> | <p>RECORD: -Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate; Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p><i>-select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale.</i> <i>-During an enquiry, make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in</i></p> |

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| | | | | | Spring 1: Forces: amount of force required to overcome friction -Newton meters | | | order to get accurate data (closer to the true value). CONTEXT: |
| | | | <p>Gather and record data to help in answering questions</p> <p><i>-use simple features to compare objects, materials and living things;</i></p> <p><i>-decide how to sort and classify objects into simple groups with some help;</i></p> <p>Termly Science Days Autumn 1 – Senses investigation Autumn 2 – Animal grouping, diet Autumn 2 – Science Day – animal groups and features Spring 1 – Material sorting Spring 2 – Material properties Summer 1 – Planting beans, observation of daffodil, bean diary, observational leaf drawing Summer 2 – Animal groups sorting</p> | <p>Gather and record data to help in answering questions <i>including from secondary sources of information</i></p> <p><i>-record and communicate findings in a range of ways with support;</i></p> <p><i>-sort, group, gather and record data in a variety of ways to help in answering questions such as in simple sorting diagrams, pictograms, tally charts, block diagrams and simple tables.</i></p> <p>Half termly Science Day Autumn 1 – Science Day - Moon Craters experiment Autumn 2 – Science Day - Moon craters experiment Materials sorting, waterproof experiment, forces experiment Spring 1 – Habitats and Animals Food chains, Living, Dead, Never Lived Spring 2 – Plants, seeds experiment Summer 2 – Healthy living/ diet diagrams</p> | <p>RECORD: Gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, keys and tables</p> <p><i>The children present evidence and their observations- using photographs, videos, pictures, labelled diagrams or writing.</i></p> <p><i>Children record their measurements using different ways to record data- tables, tally charts and bar charts (given templates, if required, to which they can add headings).</i></p> <p><i>Children use tables, Venn diagrams, Carroll diagrams, mind maps to record classifications.</i></p> <p><i>Children are supported to present the same data in different ways in order to help with answering the question.</i></p> <p>Autumn 1: Comparing and grouping different types of rocks; Soil posters; rock hardness & permeability tables; soil permeability measurements</p> <p>Autumn 2/Spring 1: Photographing shadows, mapping path of light-beams; diagram of light travelling into eye with key parts of eye labelled</p> | <p>RECORD: Gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p><i>The children sometimes decide how to record and present evidence and their observations- using photographs, videos, pictures, labelled diagrams or writing.</i></p> <p><i>Children record their measurements using different ways to record data- tables, tally charts and bar charts (given templates, if required, to which they can add headings).</i></p> <p><i>Children use tables, Venn diagrams, Carroll diagrams, mind maps to record classifications.</i></p> <p><i>Children are supported to present the same data in different ways in order to help with answering the question.</i></p> <p>Spring 2: Grouping and classifying living things</p> | <p>RECORD: Record data and results of increasing complexity, using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p><i>The children decide how to record and present evidence, sometimes selecting from a bank of suggested outcomes.</i></p> <p><i>They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing.</i></p> <p><i>They record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs.</i></p> <p><i>They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys.</i></p> <p><i>-Children sometimes present the same data in different ways in order to help with answering a question</i></p> <p>Report and present findings from enquiries, including conclusions, causal relationships and degree of trust in results, in oral and written forms such as displays and other presentations</p> <p>Grouping and classifying materials by their properties;</p> | <p>RECORD: Record data and results of increasing complexity, using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p><i>The children decide how to record and present evidence.</i></p> <p><i>They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing.</i></p> <p><i>They record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs.</i></p> <p><i>They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys.</i></p> <p><i>-Children sometimes present the same data in different ways in order to help with answering a question</i></p> <p>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</p> <p>CONTEXT:</p> |

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| | | | <p>Use his/her observations of the human/ naturally occurring world around them to share ideas and to suggest answers to questions</p> <p>-notice links between cause and effect with support; -begin to notice patterns and relationships with support; -begin to draw simple conclusions; -use simple and scientific language; -read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1;</p> <p>Termly Science Days Autumn 1 – Human body and Senses Autumn 2 – Animal grouping, diet Autumn 2 – Science Day – animal groups and features Spring 1 – Material sorting Spring 2 – Material properties Summer 1 – Planting beans, observation of daffodil, bean diary, observational leaf drawing Summer 2 – Animal groups sorting</p> | <p>Use his/her observations and ideas to suggest answers to questions <i>noticing similarities, differences and patterns</i></p> <p><i>Communicate his/her ideas, what he/she does and what he/she finds out in a variety of ways</i></p> <p>-notice links between cause and effect -notice patterns and relationships -draw simple conclusions; -use simple and scientific language; -read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1; -talk about their findings to a variety of audiences in a variety of ways.</p> <p>Half termly Science Day Autumn 1 – Science Day - Moon Craters experiment Autumn 2 – Science Day - Moon craters experiment Materials sorting, waterproof experiment, forces experiment Spring 1 – Habitats and Animals Food chains, Living, Dead, Never Lived Spring 2 – Plants, seeds experiment Summer 2 – Healthy living/ diet diagrams</p> | <p>REVIEW: Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p><i>Children communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary.</i></p> <p>Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p><i>They draw conclusions based on their evidence and current subject knowledge.</i> <i>-They identify ways in which they would do it differently if they repeated the enquiry.</i> <i>-Children use their evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface.</i> <i>-Following a scientific experience, the children begin to recognise further questions which can be answered by extending the same enquiry.</i></p> | <p>REVIEW: Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p><i>Children communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary.</i></p> <p>Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p><i>They draw conclusions based on their evidence and current subject knowledge.</i> <i>-They identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry.</i> <i>-Children use their evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface.</i> <i>-Following a scientific experience, the children ask further questions which can be answered by extending the same enquiry.</i></p> | <p>REVIEW: Report and present findings from enquiries, including conclusions, causal relationships and explanations of - and degree of trust in - results, in oral and written forms</p> <p><i>In their conclusions, children:</i> <i>- identify causal relationships and patterns in the natural world from their evidence</i> <i>- identify results that do not fit the overall pattern</i> <i>- explain their findings using their subject knowledge</i></p> <p><i>-They evaluate, for example, the choice of method used, the control of variables, the precision and accuracy of measurements</i></p> <p><i>-They identify limitations that reduce the trust they have in their data.</i></p> <p><i>-They communicate their findings using relevant scientific language and illustrations.</i></p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments</p> <p><i>-Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources.</i> <i>When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer.</i></p> <p><i>-They talk about how their scientific ideas</i></p> | <p>REVIEW: Report and present findings from enquiries, including conclusions, causal relationships and explanations of - and degree of trust in - results, in oral and written forms</p> <p><i>In their conclusions, children:</i> <i>- identify causal relationships and patterns in the natural world from their evidence</i> <i>- identify results that do not fit the overall pattern</i> <i>- explain their findings using their subject knowledge</i></p> <p><i>-They evaluate, for example, the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used.</i></p> <p><i>-They identify any limitations that reduce the trust they have in their data.</i></p> <p><i>-They communicate their findings to an audience using relevant scientific language and illustrations.</i></p> <p>Identifying scientific evidence that has been used to support or refute ideas or arguments</p> <p><i>-Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from</i></p> |
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| | | | | | | | <p><i>change due to new evidence that they have gathered.</i></p> <p><i>-They talk about how new discoveries change scientific understanding</i></p> | <p><i>secondary sources. When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer.</i></p> <p><i>-They talk about how their scientific ideas change due to new evidence that they have gathered.</i></p> <p><i>-They talk about how new discoveries change scientific understanding</i></p> |
| Vocabulary | <p>Questions, investigation, same, changes, different, light, dark, guess, predictions, experiment,</p> <p>See, sight, smell, touch, feel, senses</p> <p>Reaction, bubble, explode, explore</p> | <p>Investigate, questions, predict, observe, look, senses, practical, experiment, real life, gather, record, answer, world, science, test, equipment, test, answer, observing, equipment, identify, classify, sort, group, record, diagram, map, compare, contrast, describe,</p> | <p>Investigate, questions, predict, observe, look, senses, practical, experiment, real life, gather, record, answer, world, science, test, equipment, test, answer, observing, equipment, identify, classify, sort, group, record, diagram, chart, map, data, compare, contrast, describe, biology, chemistry, physics</p> | <p>practical work, fair testing, relationships, accurate, thermometer, timer, force meter, estimate, data, diagram, identification key, chart, bar chart, prediction, similarity, difference, evidence, findings, properties, characteristics, conclusion, explanation, reason, evaluate, improve</p> <p>biology, chemistry, physics</p> | <p>practical work, fair testing, relationships, accurate, thermometer, data logger, stopwatch, timer, force meter, estimate, data, diagram, identification key, chart, bar chart, prediction, similarity, difference, evidence, information, findings, criteria, values, properties, characteristics, conclusion, explanation, reason, evaluate, improve</p> <p>biology, chemistry, physics</p> | <p>practical work, fair testing, variables, independent variable, dependent variable, control variable, relationships, accurate, thermometer, data logger, force meter, stopwatch, timer, accuracy, precision, estimate, data, diagram, identification key, chart, bar chart, scatter graphs, bar graphs, line graphs, prediction, similarity, difference, evidence, information, findings, justify, criteria, values, properties, characteristics, conclusion, explanation, reason, evaluate, improve</p> <p>biology, chemistry, physics</p> | <p>practical work, fair testing, variables, independent variable, dependent variable, control variable, relationships, accurate, thermometer, data logger, force meter, stopwatch, timer, accuracy, precision, estimate, data, diagram, identification key, chart, bar chart, scatter graphs, bar graphs, line graphs, prediction, similarity, difference, evidence, information, findings, justify, causal relationship. argument (science,) criteria, values, properties, characteristics, conclusion, explanation, reason, evaluate, improve</p> <p>biology, chemistry, physics</p> | |
| Animals, Including Humans | <p>By the end of Reception, children:</p> <ul style="list-style-type: none"> Explore the natural world around them, making observations and drawing pictures of animals and plants (ELG) Manage their own basic hygiene and personal needs, including dressing and going to the toilet, and | <p>By the end of Year 2:</p> <ul style="list-style-type: none"> notice that animals, including humans, have offspring which grow into adults find out about and describe the basic needs of animals, including humans, for survival (water, food and air) describe the importance for humans of | <p>By the end of Year 4, children:</p> <ul style="list-style-type: none"> 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>By the end of Year 6, children:</p> <ul style="list-style-type: none"> Describe the changes as humans develop to old age. 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 | | | | |

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| | understand the importance of healthy food choices (ELG) | exercise, eating the right amounts of different types of food, and hygiene | <ul style="list-style-type: none">• Identify that humans and some other animals have skeletons and muscles for support, protection and movement.• 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. | lifestyle on the way their bodies function. <ul style="list-style-type: none">• Describe the ways in which nutrients and water are transported within animals, including humans. |
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| | <p>Understands the key features of the life cycle of a plant and an animal</p> <p>Is beginning to understand the need to respect and care for the natural environment and all living things</p> <p>Use all their senses in hands-on exploration of natural materials.</p> <p>Begin to make sense of their own life-story and family's history.</p> | <p>Explores the natural world around him/her</p> <p>Talk about members of their immediate family and community.</p> <p>Name and describe people who are familiar to them.</p> <p>Explore the natural world around them, making observations and drawing pictures of animals and plants (ELG)</p> <p>Autumn 1 – Families Outdoor learning – Spider Hunt</p> <p>Autumn 2 – Bears – similarities and differences Panda research</p> <p>Spring 1 – Caring for animals – looking after pets.</p> <p>Summer 1 – Dinosaurs, types, similarities, differences, fossils</p> <p>Summer 2 – Sketches of fish</p> | <p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>Autumn 2 – Science Day Summer 2</p> | <p>Understand that animals, including humans, have offspring which grow into adults</p> <p>Spring 2</p> | <p>Children can name the nutrients found in food.</p> <p>Children understand that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients.</p> <p>Children can name some bones that make up their skeleton, giving examples that support, help them move or provide protection</p> <p>Children can describe how muscles and joints help them to move.</p> <p>Summer 2: Children read and compare nutritional information on food packaging and compare nutritional values between foods.</p> <p>Create a healthy eating plan for a client.</p> <p>Investigate the sugar and fat contents in different foods and drinks using a bar chart to present findings.</p> <p>Use of x ray apps for children to predict and see for themselves what different bones look like.</p> <p>Create a model of a working joint.</p> | <p>Children can sequence the main parts of the digestive system</p> <p>Can draw the main parts of the digestive system onto a human outline</p> <p>Can describe what happens in each part of the digestive system</p> <p>Spring 1 Research the function of the digestive system.</p> <p>Use collage materials to build 3D pictures of the digestive system</p> <p>Digestion re-enactment, using tights, plastic bag, bananas & crackers, orange juice, paper plate</p> <p>Use 'Virtuali-Tee' with ipads, to see the digestive system.</p> | <p>Children can discuss how when babies are young, they grow rapidly. They are very dependent on their parents. Record data using line graphs or bar charts in the context of a baby's growth in weight and height in their first year.</p> <p>As they develop, they learn many skills. Map a timeline that indicates stages in the growth and development of humans.</p> <p>Identify the changes that take place in old age.</p> <p>Children can describe the changes that take place at puberty. A child's body changes and develops primary and secondary sexual characteristics. This enables the adult to reproduce.</p> <p>Analyse the similarities and differences between how boys and girls experience puberty.</p> <p><i>N.B. This topic is taught alongside PSHE under the new statutory requirements for relationships and health education.</i> Use secondary sources to explore gestation periods and life expectancies of different animals.</p> | <p>Children can state that the heart pumps blood in the blood vessels around to the lungs. Oxygen goes into the blood and carbon dioxide is removed. The blood goes back to the heart and is then pumped around the body.</p> <p>Can draw (or label) a diagram of the circulatory system and label the parts and annotate it to show what the parts do.</p> <p>Children can describe the important jobs of the blood vessels and blood.</p> <p>Nutrients, water and oxygen are transported in the blood to the muscles and other parts of the body where they are needed. As they are used, they produce carbon dioxide and other waste products.</p> <p>Children can use the role play model to explain the main parts of the circulatory system and their role.</p> <p>They can use 'Virtuali-Tee' with iPad to see the position of the heart.</p> <p>Create life-size models of the heart.</p> <p>Dissect a pig's heart - Links with secondary school visit for this activity.</p> <p>Carbon dioxide is carried by the blood back to the heart and then the cycle starts again as it is transported back to the lungs to be removed from the body. This is the human circulatory system.</p> <p>Produce a piece of writing that demonstrates the key</p> |
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| | | | | | | | | | knowledge e.g. information text. |
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| | | | <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p>Autumn 2 – Science Day Summer 2</p> <p><i>Describe the lifecycle of a butterfly – real caterpillar link –</i> Summer 2</p> | | <p>Children can name some bones that make up their skeleton, giving examples that support, help them move or provide protection</p> <p>Children can describe how muscles and joints help them to move.</p> <p>Use of x ray apps for children to predict and see for themselves what different bones look like.</p> <p>Create a model of a working joint.</p> <p>Investigate patterns asking questions such as: Can people with longer legs run faster? Can people with bigger hands catch a ball better?</p> <p>Compare, contrast and classify skeletons of different animals.</p> | <p>Children understand that humans have four types of teeth: incisors for cutting; canines for tearing; and molars and premolars for grinding (chewing).</p> <p>Children can identify the three different types of teeth in their mouth and talk about their shape and what they are used for.</p> <p>Spring 1: Observe human teeth – shapes related to different functions.</p> <p>Explore eating different types of food to identify which teeth are being used for cutting, tearing and grinding (chewing).</p> <p>Identify teeth of different animals. Classify animals as herbivores, carnivores or omnivores according to the type of teeth they have.</p> | | <p>Children can understand that regular exercise is important for a healthy body.</p> <p>Children can discuss how diet and exercise have an impact on the way our bodies function. Carry out a range of pulse rate investigations:</p> <p>fair test – effect of different activities on my pulse rate pattern seeking – exploring which groups of people may have higher or lower resting pulse rates</p> <p>observation over time - how long does it take my pulse rate to return to my resting pulse rate (recovery rate)</p> <p>pattern seeking – exploring recovery rate for different groups of people.</p> <p>To be able to record, report and present results appropriately</p> |
| | | | <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>Group animals according to what they eat Autumn 2</p> | <p>Describe the basic needs of animals, including humans, for survival (water, food and air)</p> <p>Spring 1 Spring 2 Summer 2</p> | | <p>Children understand that living things can be classified as producers, predators and prey according to their place in the food chain.</p> <p>Spring 1: Research using secondary sources to identify animals in a habitat and find out what they eat.</p> <p>Use arrows to identify producers, predators and prey in a food chain within a habitat.</p> | | <p>Children can discuss the impact of drugs and lifestyle on the way bodies function.</p> <p>Research the negative effects of drugs (e.g., tobacco) and the benefits of a healthy diet and regular exercise by asking an expert or using carefully selected secondary sources.</p> <p>Present information e.g., in a health leaflet describing impact of drugs and lifestyle on the body.</p> <p><i>N.B. This topic can be taught alongside PSHE.</i></p> |

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| | | <p>Knows and can talk about the different factors that support his/her overall health and wellbeing; regular physical activity</p> <p>Knows and can talk about the different factors that support his/her overall health and wellbeing; healthy eating</p> <p>Manage their own basic hygiene and personal needs, including dressing and going to the toilet, and understand the importance of healthy food choices (ELG)</p> <p>Spring 1 – People that help us topic PSE sessions</p> <p>Summer 1 – Body awareness - Naming parts of the body – protective behaviours</p> | <p>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</p> <p>Autumn 1</p> | <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</p> <p>Summer 2</p> | | | | |
| Vocabulary | <p>Diet, healthy, food, similar, different, carnivore, omnivore, herbivore, dinosaurs, fossils, homes</p> <p>Healthy, happy, exercise, water, love, food groups</p> <p>Families, love, parents, carers, mummies, daddies, brothers, sisters, home, house, flat, garden, stairs, neighbours, family, pets, grandparents, cousins</p> <p>Head, shoulders, arms, hands, fingers, legs, feet, toes, stomach, elbow, knee</p> <p>penis, testicles, vulva, vagina, anus (PSHE lessons)</p> | <p>Fish, amphibians, reptiles, birds, mammals, carnivores, herbivores, omnivores, skeleton, skull, skin, head, neck, arms, elbows, arms, fingers, chest, legs, knees, feet and toes.</p> <p>Head, shoulders, arms, hands, fingers, legs, feet, toes, stomach, knee, legs, penis, testicles, vulva, vagina, anus, (within PSHE)</p> <p>Sight, touch, taste, smell, and hearing.</p> <p>Common, animals, dinosaurs, elbows, fish, herbivores – legs, amphibians plants, cow, hamster, guinea pig, tortoise, knees, reptiles, triceratops, face, birds, mammals, meat and plants, eyes, pets, badger, human, bear, chickens, hair, carnivores - head mouth, meat, cat, dog, lion, tiger, fox, shark, neck, teeth, killer, whale, eagle, hawk, snake,</p> | <p>Offspring, humans, needs, water, oxygen, survival, exercise, food groups, carbohydrates, protein, fat. Exercise, hygiene, weather, climate change, pollution, global warming, greenhouse gases, emissions,</p> <p>Head, shoulders, arms, hands, fingers, legs, feet, toes, stomach, penis, testicles, vulva, vagina, anus, (within PSHE) elbow, knee</p> <p>survival - spawn-tadpole-frog, grow, water, food, air lamb-sheep, adults, exercise, hygiene, baby-toddler-child-teenager-adult nutrition, egg-chick-chicken, reproduce, egg-caterpillar-pupa-butterfly</p> | <p>Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, teeth, muscles, joints, support, protect, move, skull, ribs, spine</p> | <p>Digestive system, digestion, mouth, saliva, oesophagus, stomach, small intestine, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain</p> | <p>puberty, the vocabulary to describe sexual characteristics in line with the school's RSE policy, life cycle, foetus, baby, child, adolescent, adult, reproduce, sexual, sperm, fertilises, egg, live young (Y5 -Living things and their habitats)</p> | <p>heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, cycle, circulatory system, diet, drugs, lifestyle</p> | |

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| Living Things & Their Habitats | <p>By the end of Reception, children:</p> <ul style="list-style-type: none"> Explore the natural world around them, making observations and drawing pictures of animals and plants (ELG) Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class (ELG) | | <p>By the end of Year 2:</p> <ul style="list-style-type: none"> explore and compare the differences between things that are living, dead, and things that have never been alive identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other identify and name a variety of plants and animals in their habitats, including 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 sources of food | | <p>By the end of Year 4, children:</p> <ul style="list-style-type: none"> Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things. | | <p>By the end of Year 6, children:</p> <ul style="list-style-type: none"> 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. 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. | |
| | <p>Use all their senses in hands-on exploration of natural materials.</p> <p>Explore collections of (<i>natural</i>) materials with similar and/or different properties.</p> <p>Begin to understand the need to respect and care for the natural environment and all living things.</p> <p>Understand the key features of the life cycle of a plant and an animal.</p> | <p>Explore the natural world around them.</p> <p>Describe what they see, hear and feel whilst outside.</p> <p>Recognise some environments that are different to the one in which they live</p> <p>Explore the natural world around them, making observations and drawing pictures of animals and plants (ELG)</p> <p>Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class (ELG)</p> <p>Autumn 1 – Light and Dark Experiment Outdoor learning – Spider Hunt</p> <p>Autumn 2 – Bears – similarities and differences Panda research Posting letters observations of environment on walk</p> <p>Summer 1 – Dinosaurs, habitats and eating habits</p> <p>Summer 2 – Ocean pollution, animals, habitats</p> | <p><i>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</i></p> <p>Autumn 2 – Science Day</p> | <p>explore and compare the differences between things that are living, dead, and things that have never been alive</p> <p>Spring 1</p> <p>identify and name a variety of plants and animals in their habitats, including microhabitats</p> <p>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 – <i>food chains</i></p> <p>Spring 1 Spring 2</p> | | <p>Children can name living things living in a range of habitats, giving the key features that helped them to identify them.</p> <p>Children can give examples of how an environment may change both naturally and due to human impact.</p> <p>Spring 2 Park trip or exploration of school grounds with pooters and magnifying glasses to observe and classify minibeasts and other species found.</p> <p>Compare and contrast the living things observed.</p> <p>Exploration of the school grounds and local environment to gauge human impact e.g., litter, tree planting</p> | <p>Children learn that as part of their life cycle, plants and animals reproduce.</p> <p>Most animals reproduce sexually. This involves two parents where the sperm from the male fertilises the female egg.</p> <p>Compare the gestation times for mammals and look for patterns e.g., in relation to size of animal or length of dependency after birth.</p> <p>Can draw the life cycle of a range of animals identifying similarities and differences between the life cycles</p> | <p>Know that living things can be formally grouped according to characteristics.</p> <p>Plants and animals are two main groups but there are other living things that do not fit into these groups e.g., micro-organisms such as bacteria and yeast, and toadstools and mushrooms.</p> <p>Plants can make their own food whereas animals cannot.</p> <p>Use secondary sources to learn about the formal classification system devised by Carl Linnaeus and why it is important.</p> <p>Classify plants and animals, presenting this in a range of ways e.g., Venn diagrams, Carroll diagrams and keys.</p> |
| | | | <p><i>Describe and compare the structure of a variety of common animals (fish,</i></p> | | | <p>Children can use classification keys to identify unknown plants and animals.</p> | <p>Animals, including humans, have offspring which grow into adults. In humans and some</p> | <p>Know that animals can be divided into two main groups: those that have</p> |

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| | | <p><i>amphibians, reptiles, birds and mammals, including pets)</i> Autumn 2 – Science Day Summer 2</p> <p><i>Describe the lifecycle of a butterfly – real caterpillar link –</i> Summer 2</p> | | | <p>Classify living things found in different habitats based on their features.</p> <p>Create a simple identification key based on observable features of liquorish allsorts.</p> <p>Use secondary sources to find out about how environments may naturally change.</p> <p>Use secondary sources to find out about human impact, both positive and negative, on environments.</p> | <p>animals, these offspring will be born live, such as babies or kittens, and then grow into adults.</p> <p>In other animals, such as chickens or snakes, there may be eggs laid that hatch to young which then grow to adults.</p> <p>Some young undergo a further change before becoming adults e.g., caterpillars to butterflies. This is called a metamorphosis.</p> <p>Use secondary sources and, where possible, first-hand observations (butterflies) to find out about the life cycle of a range of animals.</p> | <p>backbones (vertebrates); and those that do not (invertebrates).</p> <p>Vertebrates can be divided into five small groups: fish; amphibians; reptiles; birds; and mammals. Each group has common characteristics.</p> <p>Invertebrates can be divided into a number of groups, including insects, spiders, snails and worms.</p> <p>Can give examples of animals in the five vertebrate groups and some of the invertebrate groups.</p> |
| | | <p><i>Identify and name a variety of common animals that are carnivores, herbivores and omnivores</i></p> <p><i>Group animals according to what they eat</i> Autumn 2</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 Spring 1</p> | | <p>Can present their learning about changes to the environment in different ways e.g., campaign video, persuasive letter.</p> <p>Spring 2 Create a fact file on PowerPoint.</p> | <p>Plants reproduce both sexually and asexually and bulbs, tubers, runners and plantlets are examples of asexual plant reproduction which involves only one parent.</p> <p>Gardeners may force plants to reproduce asexually by taking cuttings.</p> <p>Sexual reproduction occurs through pollination, usually involving wind or insects.</p> <p>Can explain the difference between sexual and asexual reproduction and give examples of how plants reproduce in both ways.</p> <p>Grow and observe plants that reproduce asexually e.g., strawberries, spider plants, potatoes.</p> <p>Take cuttings from a range of plants e.g., African violet, mint</p> | <p>Describe how plants can be divided broadly into two main groups: flowering plants; and non-flowering plants.</p> <p>Use information about the characteristics of an unknown animal or plant to assign it to a group.</p> <p>Can give examples of flowering and non-flowering plants.</p> <p>Look at observable characteristics of a common plant (e.g., daffodil) and suggest words to describe its appearance in detail- They could try and translate their descriptions into Latin using a translation website.</p> |
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| <p>Vocabulary</p> | <p>Diet, habitat, animals, dinosaurs, cat, dog, mouse, panda, bear, fish, shark, environment, birds, bird feeder, good, homes, senses, fossils, hatch, chick,</p> | <p>Fish, amphibians, reptiles, birds, mammals, carnivores, herbivores, omnivores, skeleton, skull, skin, head, neck, arms, elbows, arms, fingers, chest, legs, knees, feet and toes. Sight, touch, taste, smell, and hearing.</p> | <p>Predator, species, related producers, consumers, energy, sun, plant, animal, prey, habitat, desert, jungle, rainforest, polar regions, artic</p> <p>living dead never alive habitats micro-habitats food food chain sun-grass-cow-human</p> <p>alive healthy logs leaf litter stony path under bushes shelter seashore woodland</p> <p>ocean rainforest conditions hot/warm/cold dry/damp/wet bright/shade/dark</p> | <p>photosynthesis, pollen, insect/wind pollination, male, female, seed formation, seed dispersal (e.g. wind dispersal, animal dispersal, water dispersal),air, nutrients, minerals, soil, absorb, transport</p> | <p>Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate</p> | <p>life cycle, reproduce, sexual, fertilise, asexual, plantlets, runners, tubers, cuttings, egg, live young, metamorphosis,</p> | <p>flowering, non-flowering, mosses, ferns, conifers, vertebrates, fish, amphibians, reptiles, birds, mammals, warm-blooded, cold-blooded, invertebrates, insects, spiders, snails, worms</p> |
| <p>Evolution and Inheritance</p> | | | | | | <p>By the end of Year 6, children:</p> <ul style="list-style-type: none"> 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. | |
| | | | | | | | <p>Children recognise that all living things have offspring of the same kind, as features in the offspring are inherited from the parents.</p> <p>Due to sexual reproduction, the offspring are not identical to their parents and vary from each other.</p> <p>Identify inherited and adaptive traits.</p> <p>Understand that adaptations are random mutations.</p> <p>Explain how human evolution has occurred and compare modern</p> |

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| | | | | | | | <p>Children understand that plants and animals have characteristics that make them suited to their environment.</p> <p>If the environment changes rapidly, some species may not suit the environment and will die.</p> <p>If the environment changes slowly, animals and plants with variations that are best suited to this, survive in greater number to reproduce and pass their characteristics onto their young.</p> <p>Overtime, these inherited characteristics become dominant in a population.</p> <p>Children recognise that over a long period of time, these characteristics may be so different to how they were originally that a new species is created and that this is evolution.</p> <p>Explain the process of evolution.</p> <p>Give examples of how plants and animals are suited to an environment.</p> <p>Use models to demonstrate evolution e.g. 'Darwin's finches' bird beak activity.</p> <p>Give an example of how an animal has evolved over time e.g. penguin, peppered moth.</p> <p>Use secondary sources to find out about how the population of peppered moths changed during the industrial revolution.</p> |
| | | | | | | | Children know that fossils give us evidence of what lived on Earth millions of years ago and provide |

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| | | | | | | | <p>evidence for the theory of evolution.</p> <p>Compare the ideas of Charles Darwin and Alfred Wallace on evolution.</p> <p>Examine fossil evidence of things that lived millions of years ago.</p> <p>Explain and give examples of fossil evidence that can be used to support evolution.</p> <p>Research the work of Mary Anning and how this provided evidence of evolution. (check not overlapping with year 3)</p> | |
| Vocabulary | | | | | | | <p>Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils</p> | |
| Materials | <p>By the end of Reception, children:</p> <ul style="list-style-type: none"> Explore the natural world around them, making observations and drawing pictures of animals and plants (ELG) Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class (ELG) Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (ELG) | | <p>By the end of Year 2:</p> <ul style="list-style-type: none"> identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching | | <p>By the end of Year 4, children:</p> <ul style="list-style-type: none"> 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. Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). <ul style="list-style-type: none"> Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature | | <p>By the end of Year 6, children:</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> <ul style="list-style-type: none"> 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 | |
| | <p>Uses all his/her senses in hands-on exploration of natural materials</p> <p>Use all their senses in hands-on exploration of natural materials.</p> <p>Explore collections of materials with similar and/or different properties.</p> | <p>Recognises some environments that are different to the one in which he/she lives</p> <p>Describe what they see, hear and feel whilst outside.</p> <p>Explore the natural world around them, making observations and drawing</p> | <p>Distinguish between an object and the material from which it is made</p> <p>Spring 1</p> | <p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>Autumn 2</p> | <p>Children can name some types of rock and give physical features of each.</p> <p>Autumn 1</p> <p>Classify rocks in a range of ways, based on their appearance.</p> <p>Devise a test to investigate the</p> | <p>Children can name properties of solids, liquids and gases</p> <p>Autumn 1</p> <p>Identify the behavior of particles in a solid, liquid and gas – create a live model to demonstrate this.</p> <p>Classify materials</p> | <p>Children understand that materials have different uses depending on their properties and state (liquid, solid, gas).</p> <p>Properties include hardness, transparency, electrical and thermal conductivity and attraction to magnets.</p> <p>Investigate the properties of different materials in order to</p> | |

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| | <p>Talk about what they see, using a wide vocabulary</p> <p>Talks about the differences between materials and changes he/she notices</p> | <p>pictures (ELG)</p> <p>Understand some important processes and changes in the natural world around them (ELG)</p> <p>Autumn 1 – Gummy Bears Experiment Outdoor learning – Leaf parcels</p> <p>Autumn 2 – Leaf bread – predicting and describing textures Outdoor learning – Porridge, change of state. More or less water. Porridge Making – Heat, senses.</p> <p>Spring 1 – Outdoor learning – Ice melting observations, playdough making – observing changing of state Investigating mouldy bread – change of states Cooking gingerbread men – changes of state</p> <p>Summer 2 – Water cycle observations – rain, condensations Uses of water Floating and sinking experiment Caring for the ocean , Oceans and plastic pollution, Climate change link</p> | | | <p>hardness of a range of rocks.</p> <p>Devise a test to investigate how much water different rocks absorb.</p> | <p>according to whether they are solids, liquids and gases.</p> <p>Explore making gases visible.</p> <p>Experiment to show that gas is matter and has a weight (fizzy drinks).</p> | <p>recommend materials for particular functions depending on these properties e.g., test waterproofness and thermal insulation to identify a suitable fabric for a coat.</p> <p>Can create a chart or table grouping/comparing everyday materials by different properties</p> | |
| | | <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</p> <p>Spring 1 Science Day – Summer 2</p> | <p>Children can explain how a fossil is formed</p> <p>Autumn 1 Use secondary sources to research how fossils are formed.</p> <p>Create mold fossils using plasticine.</p> <p>Create a sedimentary sandwich to represent how sedimentary rocks are formed.</p> <p>Research the work of Mary Anning</p> | <p>Children understand that melting is a state change from solid to liquid. Freezing is a state change from liquid to solid.</p> <p>Autumn 1 Investigate the melting point of different materials of ice, butter and chocolate.</p> | <p>Children learn that some materials will dissolve in a liquid and form a solution while others are insoluble and form sediment.</p> <p>Investigate rates of dissolving by carrying out comparative and fair tests.</p> <p>Can explain what dissolving means, giving examples.</p> <p>Can group solids based on their observations when mixing them with water.</p> | | | |
| | | <p>Describe the simple physical properties of a variety of everyday materials – <i>simple experiment to test suitability of materials</i></p> <p>Spring 2 Science Day – Summer 2</p> | <p>Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p> <p>Autumn 2</p> | <p>Can explain that soils are made from rocks and also contain living/dead matter</p> <p>Autumn 1 Observe soils closely using magnifying glasses.</p> <p>Classify soils in a range of ways based on their appearance.</p> <p>Devise a test to investigate the water retention of soils- which soil would be best for ‘Ug’ to build a house on?</p> <p>Observe how soil can be separated through sedimentation</p> | <p>Children understand that some materials change state when they are heated or cooled.</p> <p>Autumn 1 Set up investigations to explore changing the rate of evaporation e.g., washing, puddles, handprints on paper towels, liquids in containers.</p> | <p>Describe how mixtures can be separated by filtering, sieving and evaporation.</p> <p>Can use knowledge of liquids, gases and solids to suggest how materials can be recovered from solutions or mixtures by evaporation, filtering or sieving.</p> <p>Separate mixtures by sieving, filtering and evaporation, choosing the most suitable method and equipment for each mixture.</p> | | |
| | | <p>Compare and group together a variety of everyday materials on the basis of their simple</p> | | | <p>Children can identify and describe the different stages of the water cycle.</p> | <p>Understand that some changes to materials such as dissolving, mixing and</p> | | |
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| | | | physical properties Spring 1 | | | Autumn 1 Use secondary sources to find out about the water cycle. | changes of state are reversible, but some changes such as burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new materials and these are not reversible. Explore a range of non-reversible changes e.g., rusting, adding fizzy tablets to water. Carry out comparative and fair tests involving non-reversible changes e.g. What affects the rate of rusting? What affects the amount of gas produced? Research new materials produced by chemists e.g. Spencer Silver (glue of sticky notes) and Ruth Benerito (wrinkle free cotton). | |
| Vocabulary | Glass, metal, plastic, wood, brick, rock, paper, fabrics, Hard, soft, bendy, squashy, shiny, smooth, rough | Glass, metal, plastic, wood, brick, rock, paper, fabrics, elastic, foil, hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent. | Materials, wood, metal, plastic, glass, brick, rock, paper, cardboard, rock, foil, solid, objects, squashing, bending, twisting, stretching absorbency, flexibility, insulating ability, magnetism, strength, transparency, water resistance metal - coins, cans, cars, table legs wood - matches, floors, telegraph poles, spoons John Dunlop - rubber Charles Macintosh - waterproof | Rock, stone, pebble, boulder, grain, crystals, minerals, layers, hard, soft, texture, permeable, impermeable, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil | Solid, liquid, gas, state, change, melting, freezing, melting point, boiling point, condensation, evaporation, precipitation, temperature, water cycle, particles | thermal insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material | Not covered discretely. | |
| Forces | By the end of Reception, children: <ul style="list-style-type: none"> Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (ELG) | | | By the end of Year 4, children: <ul style="list-style-type: none"> Compare how things move on different surfaces. Notice that some forces need contact between two 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. <ul style="list-style-type: none"> Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing. | By the end of Year 6, children: <ul style="list-style-type: none"> Explain that unsupported objects fall towards the Earth because of the force of 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. | | | |

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| <p>Talk about what they see, using a wide vocabulary</p> <p>Explores and talks about different forces he/she can feel –</p> <ul style="list-style-type: none"> -how the water pushes up when they try to push a plastic boat under it -how they can stretch elastic, snap a twig, but cannot bend a metal rod -magnetic attraction and repulsion | <p>Explore the natural world around them, making observations and drawing pictures (ELG)</p> <p>Spring 1 – Pushes and pulls investigation</p> | | | | <p>Children can give examples of forces in everyday life. They will learn that a force is a push or a pull.</p> <p>Spring 1 Identify push and pull forces in their world around them e.g., a swing, bicycle, drawing etc.</p> | | <p>A force causes an object to start moving, stop moving, speed up, slow down or change direction.</p> <p>Gravity is a force that acts at a distance. Everything is pulled to the Earth by gravity. This causes unsupported objects to fall.</p> <p>Research how the work of scientists such as Galileo Galilei and Isaac Newton helped to develop the theory of gravity.</p> | |
| | | | | | <p>-Children can give examples of objects moving differently on different surfaces.</p> <p>-When an object moves on a surface, the texture of the surface and the object affect how it moves. It may help the object to move better or it may hinder its movement e.g. ice skater compared to walking on ice in normal shoes.</p> <p>Spring 1: With guidance, carry out investigations to explore how objects move on different surfaces e.g. spinning coins, rolling balls/cars down ramps, soles of shoes etc.</p> <p>They can use their results to make predictions for further tests e.g., friction of a shoe on different surfaces (Newton meters)</p> | | <p>Air resistance, water resistance and friction are contact forces that act between moving surfaces.</p> <p>The object may be moving through the air or water, or the air and water may be moving over a stationary object.</p> <p>Investigate the effects of water resistance in a range of contexts e.g., dropping shapes through water and pulling shapes, such as boats, along the surface of water.</p> <p>Can explain the results of their investigations in terms of the force, showing a good understanding that as the object tries to move through the water or air or across the surface the particles in the water, air or on the surface slow it down</p> | |
| | | | | | <p>-Children will discover that the strongest parts of a magnet are the poles.</p> <p>-Magnets have two poles – a north pole and a south pole. If two like poles, e.g. two north poles, are brought together they will push away from each other – repel. If two unlike poles, e.g. a north and south, are brought together they will pull</p> | | <p>Recognise that a mechanism is a device that allows a small force to be increased to a larger force.</p> <p>Understand that the small force moves a long distance and the resulting large force moves a small distance, e.g. a crowbar or bottle top remover.</p> <p>Can demonstrate clearly the effects of using levers, pulleys and gears.</p> | |

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| | | | | | together – attract. Spring 1 Children can name a range of types of magnets and show how the poles attract and repel. Children can draw diagrams using arrows to show the attraction and repulsion between the poles of magnets. | | | |
| | | | | | -Children will investigate how a magnet attracts magnetic material. -Iron and nickel and other materials containing these, e.g. stainless steel, are magnetic. Spring 1 Use classification evidence to identify that some metals, but not all, are magnetic | | Pulleys, levers and gears are all mechanisms, also known as simple machines. Explore how levers, pulleys and gears work. Make a product that involves a lever, pulley or gear | |
| Vocabulary | Push, pull, force, movement, change, stretch | | | | force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole | | force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears | |
| Light | | | | | By the end of Year 4, children: <ul style="list-style-type: none"> Recognise that they need light in order to see things, and that dark is the absence of light. <ul style="list-style-type: none"> 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. | | By the end of Year 6, children: <ul style="list-style-type: none"> 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. | |
| | | | | | Children know that we see objects because our eyes can sense light. Dark is the absence of light. We cannot see anything in complete darkness. Experience complete darkness (dark tent) and predict what they will be able to see/can't see. | | | Light appears to travel in straight lines, and we see objects when light from them goes into our eyes. The light may come directly from light sources, but for other objects some light must be reflected from the object into our eyes for the object to be seen. |

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| | | | | <p>Understand that in order to see, light needs to reflect from the surface of an object and enter our eye.</p> <p>Draw diagrams to show understanding that light travels in a straight line.</p> | | | <p>Investigate whether or not light can be easily bent or curved e.g., using torches and pieces of thick card with holes punched into the centre or bent and straight hose pipe.</p> <p>Can describe, with diagrams or models, how light travels in straight lines either from a direct light source or reflected from other objects into our eyes</p> |
| | | | | <p>Recognise that some objects, for example, the sun, light bulbs and candles are sources of light.</p> <p>Know that objects are easier to see when there is more light.</p> <p>Identify light sources from non-light sources (e.g., the moon which reflects life). Create a table to show findings.</p> | | | <p>Explore how objects that block light (are not fully transparent) will cause shadows.</p> <p>Understand that because light travels in straight lines the shape of the shadow will be the same as the outline shape of the object.</p> <p>Explore the uses of the behaviour of light, reflection and shadows, such as in periscope design, rear view mirrors and shadow puppets.</p> <p>Can predict and explain, with diagrams or models as appropriate, how the shape of shadows can be varied</p> |
| | | | | <p>Some surfaces reflect light.</p> <p>Light is reflected from most surfaces but in different amounts.</p> <p>Objects that are good reflectors are easier to see than poor reflectors when there is less light.</p> <p>Compare different materials e.g., card, aluminum foil, plastic bags, carpet, corrugated card, paper. Predict which will be the best at reflecting light before testing.</p> <p>Design a reflective back pack or jacket.</p> | | | |

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| | | | | <p>Know that the light from the sun can damage our eyes and therefore we should not look directly at the sun and can protect our eyes by wearing sunglasses or sunhats in bright light.</p> <p>Crete a poster, power point, information leaflet to highlight the dangers of sunlight on the eyes.</p> <p>Design a hat or sunglasses to protect the eyes- researching UV protection levels using secondary sources.</p> | | | |
| | | | | <p>Shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light.</p> <p>The size of the shadow depends on the position of the source, object and surface.</p> <p>Explore how shadows vary as the distance between a light source and an object or surface is changed.</p> <p>Create a shadow puppet theatre, choosing suitable materials to create the puppets.</p> <p>Use models (Lego figures) and torches to demonstrate how shadows change shape and size depending on where the position of the light source.</p> | | | |
| Vocabulary | | | | <p>light, light source, dark, absence of light, surface, shadow, reflect, mirror, Sun, sunlight, dangerous, opaque, translucent, transparent.</p> | | | <p>light, light source, dark, absence of light, surface, shadow, reflect, mirror, Sun, sunlight, dangerous straight lines, light rays, refraction, absorb, prism, opaque, translucent, transparent, visible spectrum.</p> |
| Electricity | | | | <p>By the end of Year 4, children:</p> <ul style="list-style-type: none"> Identify common appliances that run on electricity. <ul style="list-style-type: none"> Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. | | | <p>By the end of Year 6, children:</p> <ul style="list-style-type: none"> 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 |

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| | | | | <ul style="list-style-type: none"> 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. 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 | <p>components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.</p> <ul style="list-style-type: none"> Use recognised symbols when representing a simple circuit in a diagram |
| | | | | <p>-Children recognise that many household devices and appliances run on electricity.</p> <p>- Some plug in to the mains and others run on batteries.</p> <p>-identify possible hazards around electricity and create a safety poster/leaflet outlining good practice. Summer term</p> | <p>- Children will learn that adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound.</p> <p>-they will see that if you use a battery with a higher voltage, the same thing happens.</p> <p>- However, they will explore and find that adding more bulbs to a circuit will make each bulb less bright. Using more motors or buzzers, each motor will spin more slowly and each buzzer will be quieter</p> <p>Spring term: Plan and conduct an investigation.</p> <p>Make electric circuits to demonstrate how variation in the working of particular components can be changed by increasing or decreasing the number of cells or using cells of different voltages</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> |
| | | | | <p>-An electrical circuit consists of a cell or battery connected to a component using wires. Children can explain the terms 'battery' and 'cell'.</p> <p>-If there is a break in the circuit, a loose connection or a short circuit, the component will not work.</p> <p>-A switch can be added to the</p> | <p>-Children will make circuits to solve particular problems</p> <p>- Carry out fair tests exploring changes in circuits. - Make circuits that can be controlled as part of a DT project.</p> <p>Spring term: Can draw circuit diagrams of a range of</p> |

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| | | | | | <p>circuit to turn the component on and off</p> <p>Summer term: -name the components in a circuit. -Construct a range of circuits. -Show understanding of the structures of circuits using drawings which show how the components are connected -Control a circuit using a switch and explain how the switch works. -Explore how to connect a range of different switches and investigate how they function in different ways</p> | | <p>simple series circuits using recognised symbols</p> <p>Create a game using knowledge of circuits.</p> <p>Explore the use of morse code</p> |
| | | | | | <p>-Some metals are good conductors so they can be used as wires in a circuit</p> <p>Summer term: -Identify and name metals that can conduct electricity. -Explore which materials can be used instead of wires to make a circuit. - Classify the materials that were suitable/not suitable for wires. -Children can decide (some independently, some with guidance) how to set up a simple practical enquiry, make predictions and draw simple conclusions from their results</p> | | |
| | | | | | <p>-Non-metallic solids are insulators except for graphite (pencil lead).</p> <p>-Water, if not completely pure, also conducts electricity.</p> <p>Summer term: -Children can explain what electrical conductors and insulators are and give several examples of these.</p> <p>- Children can make predictions, use a range of (electrical) equipment and draw simple conclusions from their results</p> | | |
| Vocabulary | | | | | Electricity, electrical appliance/device, mains, | | Circuit, complete circuit, circuit diagram, circuit |

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| | | | | | plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol | | symbol, cell, battery, bulb, buzzer, motor, switch, voltage, morse code |
| Earth and Space | | | | | | <p>By the end of Year 6, children:</p> <ul style="list-style-type: none"> Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. Describe the movement of the Moon relative to the Earth. <ul style="list-style-type: none"> Describe the Sun, Earth and Moon as approximately spherical bodies. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. | |
| | | | | | | <p>Children learn that the Sun is a star at the centre of our solar system.</p> <p>There are 8 planets.</p> <p>These travel around the Sun in fixed orbits.</p> <p>Earth takes 365½ days to complete its orbit around the Sun.</p> <p>Make first-hand observations of how shadows caused by the Sun change through the day.</p> <p>Make a sundial.</p> <p>Consider the views of scientists in the past and evidence used to deduce shapes and movement of the Earth, Moon and planets before space travel.</p> | |
| | | | | | | <p>The Earth rotates (spins) on its axis every 24 hours.</p> <p>As Earth rotates half faces the Sun (day) and half is facing away from the Sun (night).</p> <p>As the Earth rotates, the Sun appears to move across the sky.</p> | |

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| | | | | | | <p>Can show using diagrams the rotation of the Earth and how this causes day and night.</p> <p>Can explain what causes day and night.</p> | | |
| | | | | | | <p>The Moon orbits the Earth.</p> <p>It takes about 28 days to complete its orbit.</p> <p>The Sun, Earth and Moon are approximately spherical.</p> <p>Can explain the movement of the Earth and Moon.</p> <p>Can use the model to explain how the Earth moves in relation to the Sun and the Moon moves in relation to the Earth</p> | | |
| Vocabulary | | | | | | <p>Sun, Moon, Earth, planets (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, Solar System, rotate, star, orbit</p> | | |
| Plants | <p>By the end of Reception, children:</p> <ul style="list-style-type: none"> Explore the natural world around them, making observations and drawing pictures of animals and plants (ELG) Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class (ELG) | | <p>By the end of Year 2:</p> <ul style="list-style-type: none"> observe and describe how seeds and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy | | <p>By the end of Year 4, children:</p> <ul style="list-style-type: none"> Identify and describe the functions of different parts of flowering plants: roots; stem/trunk; leaves; and flowers. Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. | | <p>By the end of Year 6, children:</p> <ul style="list-style-type: none"> | |
| | <p>-Use all their senses in hands-on exploration of natural materials.</p> <p>-Talk about what they see, using a wide vocabulary</p> <p>-Plants seeds and cares for growing plants</p> <p>-Understands the key features of the life cycle of a plant and an animal</p> | <p>-Describe what they see, hear and feel whilst outside</p> <p>Explore the natural world around them, making observations and drawing pictures of animals and plants (ELG)</p> <p>Know some similarities and differences between the natural world around them and contrasting environments, drawing on</p> | <p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>Summer 1 Science Day – Spring 1</p> | <p>Observe and describe how seeds and bulbs grow into mature plants</p> <p>Spring 2</p> | <p>Observe how many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom.</p> <p>Know that the roots absorb water and nutrients from the soil and anchor the plant in place. The stem transports water and nutrients/minerals around the plant and holds the leaves and</p> | | | |

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| | <p>-Begin to understand the need to respect and care for the natural environment and all living things.</p> | <p>their experiences and what has been read in class (ELG)</p> <p>Autumn 1 – Outdoor learning – Leaf parcels Harvest crops, plants, seasons</p> <p>Autumn 2 – Leaf bread – predicting and describing textures Rotting apple experiment</p> <p>Spring 2 – Seed observations – planting seeds as a class Life cycle of a seed Outdoor learning – update outdoor planters, compost Parts of a plant – observational drawings</p> | | | <p>flowers up in the air to enhance photosynthesis, pollination and seed dispersal. The leaves use sunlight and water to produce the plant's food.</p> <p>Summer 1</p> <p>Can explain the function of parts of a flowering plant and draw diagrams to show this.</p> <p>Investigate what happens to plants when they are put in different conditions e.g., in darkness, in the cold, deprived of water, different types of soil.</p> <p>Predict and observe what happens to cut white carnations or celery when put into coloured water.</p> | | | |
| | | <p>Identify and describe the basic structure of a variety of common flowering plants, including trees</p> <p>Summer 1 Science Day – Spring 1</p> | <p>Describe how plants need water, light and a suitable temperature to grow and stay healthy, and describe the impact of changing these</p> <p>Spring 2</p> | <p>Know that some plants produce flowers which enable the plant to reproduce.</p> <p>Pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers (pollination).</p> <p>This forms seeds, sometimes contained in berries or fruits which are then dispersed in different ways.</p> <p>Different plants require different conditions for germination and growth.</p> <p>Can describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal, and germination.</p> <p>Observe flowers carefully – dissect to identify different parts.</p> | | | | |

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| | | | | | <p>Classify seeds in a range of ways including how they are dispersed.</p> <p>Create and design a seed, discussing how it is dispersed and the species of flowering plant that it is from.</p> | | | |
| Vocabulary | Seed, growth, water, sunlight, dark, soil, stem, root, leaves, flower, grow, plants, trees, growing, earth, environment, world, | Wild plants, common, seeds, garden plants, petals, fruits, seed, bulb, tree, blossom, petal, evergreen, deciduous, daisy, dandelion, clover, buttercup, ivy, sunflower, rose, sweet pea Live, sun, breathe, water, grow, flower, leaf, root, stem, petal, sunlight, nutrients, trunk. Garden, plants, branches, leaf, root, fruit, vegetables, plant - leaf, root, bulb, leaves, bud, flowers | Oxygen, live, sun, breathe, water, grow, flower, leaf, root, stem, petal, sunlight Water, grow, light, healthy Suitable, temperature, germination, reproduction | photosynthesis, pollen, insect/wind pollination, male, female, stigma, stamen, style, anther, filament, ovary, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal), air, nutrients, minerals, soil, absorb, transport, xylem | See 'Living Things and Their Habitats' | See 'Living Things and Their Habitats' | See 'Living Things and Their Habitats' | |
| Seasonal Changes | <p>By the end of Reception, children:</p> <ul style="list-style-type: none"> Explore the natural world around them, making observations and drawing pictures of animals and plants (ELG) Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class (ELG) Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (ELG) | | <p>By the end of Year 2:</p> <ul style="list-style-type: none"> observe changes across the 4 seasons observe and describe weather associated with the seasons and how day length varies | | KS1 ONLY | | KS1 ONLY | |
| | Talks about what he/she sees, using a wide vocabulary | <p>Describes what he/she can see, hear and feel whilst outside</p> <p>Understand the effect of changing seasons on the natural world around them.</p> <p>Explore the natural world around them, making observations and drawing pictures of animals and plants (ELG)</p> <p>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (ELG)</p> <p>Signs of the seasons</p> | <p>Observe changes across the four seasons</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p> <p><i>Seasonal changes lesson planned in for every season. Record findings in book as they go.</i></p> <p>Autumn 1 Autumn 2 Spring 2 Summer 1</p> | <p>Observe changes across the four seasons</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p> <p>Spring 1</p> | | | | |

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| | | <p><i>Autumn1- Autumn</i> <i>Autumn2 - Winter</i> <i>Spring2 - Spring</i> <i>Summer2 – Summer</i></p> <p><i>Autumn 2 - Visit to local park looking at seasonal changes. Environmental observations.</i></p> | | | | | | |
| <p>Vocabulary</p> | <p>Harvest, seasons, crops, farmer, Spring, Summer, Autumn, Winter, day, seasons, leaves, weather, trees,</p> | <p>Seasons, winter, spring, summer, autumn, months, year, sunrise, sunset, , day, night, light, dark, day length, weather, daylight,</p> <p>Rain, snow, sunlight, warm, cold, fog, sleet, hail, snow, rain wind,</p> | <p>Winter, spring, summer, autumn, months, year, sunrise, sunset, varies, day, night, light, dark, day length, weather, effects, temperature, equator</p> | | | | | |