

# Science Curriculum

| Nursery                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                  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| Educational programmes: Revised EYFS framework 2021                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                  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| Understanding the world                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                  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Enriching and widening children's vocabulary will support later reading comprehension. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| Learning Priorities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p><b>Materials / processes</b></p> <ul style="list-style-type: none"> <li>Begin to use all senses in hands on exploration of natural materials</li> <li>Begin to explore collections of materials with similar and/or different properties though an autumn collection.</li> <li>Talk about what they see, and begin to use a wider vocabulary</li> <li>Begin to develop an awareness of freezing / ice.</li> </ul> <p><b>Living things- animals and plants</b></p> <ul style="list-style-type: none"> <li>Name a variety of human body parts and understand what we use different body parts for, including the five senses</li> <li>Begin to be aware of the animals and plants in their local environment</li> <li>Begin to understand the need to respect and care for the natural environment and all living things eg Handle living things with care; Understand why it is important and learn to only collect fallen natural objects.</li> </ul> <p><b>Seasons</b></p> <ul style="list-style-type: none"> <li>Begin to talk about what they see, including the weather, using a wide range of vocabulary.</li> <li>Begin to develop an understanding of different clothing needed to go outside in cold / wet.</li> <li>Begin to develop an awareness of seasons.</li> </ul> <p><b>How things work</b></p> <ul style="list-style-type: none"> <li>Begin to explore and talk about different forces they can feel.</li> <li>Begin to understand that objects can be moved by pushing and pulling.</li> <li>Explore and investigate mechanical toys / party decorations e.g. favourite toy / push and pull toys.</li> </ul> | <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>Use all their senses in hands on exploration of natural materials.</li> <li>Begin to explore collections of materials with similar and/or different properties, using materials for 3D art / transient art</li> <li>Talk about what they see, use a wider vocabulary.</li> </ul> <p><b>Living things- animals and plants</b></p> <ul style="list-style-type: none"> <li>Begin to understand the need to respect and care for the natural environment eg Name some of the animals they see; Learn how to handle animals with care.</li> <li>Begin to understand the key feature of the life cycles of an animal.</li> <li>Develop an awareness of animals and their young.</li> <li>Develop an awareness of the lifecycle of a hen / chicken.</li> </ul> <p><b>Seasons</b></p> <ul style="list-style-type: none"> <li>Begin to use language to compare different weather and talk about likes / dislikes of different weather</li> <li>Develop an understanding of different clothing needed to go outside in snow / sun / cold / warm.</li> <li>Begin to develop an awareness of seasons, winter/ spring.</li> </ul> <p><b>How things work</b></p> <ul style="list-style-type: none"> <li>Explore and talk about different forces they can feel.</li> <li>Begin to understand that 'push' means 'move away' and 'pull' means 'move towards.'</li> <li>Continue to explore and investigate mechanical toys e.g. vehicles.</li> </ul> | <p><b>Materials / processes</b></p> <ul style="list-style-type: none"> <li>Continue to use all their senses in hands on exploration of natural materials, eg Begin to talk about likes/ dislikes</li> <li>Explore collections of materials with similar and/or different properties eg linked to plants and water</li> <li>Talk about what they see, continuing to use a wide vocabulary.</li> <li>Talk about the differences between materials and changes they notice</li> <li>Begin to develop an awareness of floating/ sinking linked to the water topic.</li> <li>Explore and observe how frozen things melt.</li> </ul> <p><b>Living things-animals and plants</b></p> <ul style="list-style-type: none"> <li>Begin to understand the need to respect and care for the natural environment and all living things.</li> <li>Begin to name some of the plants they see (i.e. realising that different plants have different names).</li> <li>Begin to explore different animal and their habitats, handling living things with care and understand why this is important.</li> <li>Plant seeds and care for growing plants.</li> <li>Begin to understand the some key features of the life cycle of a plant eg plants can grow from seeds, they grow taller</li> <li>Begin to understand how to look after plants eg know that plants need water and light to grow.</li> </ul> <p><b>Seasons</b></p> <ul style="list-style-type: none"> <li>Begin to develop an awareness of weather characteristics at different times of year.</li> <li>Begin to develop an awareness of seasons, spring, summer.</li> </ul> <p><b>How things work</b></p> <ul style="list-style-type: none"> <li>Explore and talk about different forces they can feel.</li> <li>Explore how things work in water eg water wheels, funnels, spin.</li> </ul> |

|                      | Autumn                                                                                                                                                                                                                                           | Spring                               | Summer                                      |
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| Retrieval Vocabulary |                                                                                                                                                                                                                                                  | Winter, sun, push, pull              | Spring, summer, autumn, winter, water       |
| New Vocabulary       | Listen, smell, see, hear, hard, soft, leaves, pine cones, conkers, twigs, ice, water, freeze, head, face, neck, teeth, eyes, nose, mouth, ears, knees, toes, legs, arms gentle, carefully rain, sun, wind, autumn, winter, toy, push, pull, bend | Egg, hatch, spring, snow, cold, warm | Float, sink, melt, seeds, grow, plant, spin |

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| Reception                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                           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| Learning Priorities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>Begin to explore the natural world / resources around them.</li> <li>Describe what they see, hear and feel while outside.</li> <li>Use all their senses appropriately to explore different materials, with increased concentration to address curiosity. Talk about likes / dislikes of different materials.</li> </ul> <p><b>Living things – animals and plants</b></p> <ul style="list-style-type: none"> <li>Explore the natural world around them (including plants and animals).</li> <li>Understand the need to respect and care for the natural environment and all living things.</li> <li>Handle living things with care and talk about why this is important.</li> <li>Understand the use of the different parts of the body including the five senses.</li> <li>Begin to recognise and name some familiar plants and animals in their local environment eg oak tree, robin etc.</li> </ul> <p><b>Seasons</b></p> <ul style="list-style-type: none"> <li>Begin to understand the effects of changing seasons on the natural world around them e.g. how animals and plants may change or behave differently.</li> <li>Develop an awareness of the seasons, autumn/winter</li> </ul> <p><b>Exploring different processes</b></p> <ul style="list-style-type: none"> <li>Observe, interact with and talk about a range of natural processes, eg extreme cold weather changing water to ice; Changes in properties of food while cooking.</li> </ul> | <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>Explore the natural world around them.</li> <li>Experiment with ways of grouping / sorting different objects by materials / properties.</li> <li>Begin to identify &amp; name some everyday materials, including.</li> <li>Use language to describe different materials.</li> </ul> <p><b>Living things – animals and plants</b></p> <ul style="list-style-type: none"> <li>Make observations and drawings of animals.</li> <li>Explore and talk about a variety of animal habitats and what animals need to survive.</li> <li>Begin to find out about plants and animals in contrasting natural environments.</li> <li>Understand some important processes in the natural world around them e.g. life cycle of a caterpillar.</li> <li>Observe and begin to talk about how animals (including humans) and plants change during growth / life cycles.</li> <li>Begin to use some correct terminology e.g. cocoon, chrysalis.</li> </ul> <p><b>Seasons</b></p> <ul style="list-style-type: none"> <li>Understand the effect of changing seasons on the natural world around them.</li> <li>Develop an awareness of the seasons, autumn / winter / spring.</li> <li>Observe and identify key characteristics of each season.</li> </ul> <p><b>How things work</b></p> <ul style="list-style-type: none"> <li>Explore and talk about how some things move /work. A small / big force (push or pull) can change the speed and distance of a moving object.</li> <li>The direction of an object can be changed when pushed or pulled.</li> <li>Humans are not the only forces that can make things move eg wind, rain, blow.</li> </ul> | <p><b>Materials</b></p> <ul style="list-style-type: none"> <li>Explore and talk about the natural world around them.</li> <li>Explore floating and sinking linked to the type of material / object.</li> </ul> <p><b>Living things – animals and plants</b></p> <ul style="list-style-type: none"> <li>Explore the natural world around them, making observations and drawing pictures of animals and plants.</li> <li>Experience and talk about growing plants (including from seed).</li> <li>Begin to understand the life cycle of plants eg seed – plant – seed.</li> <li>Understand how to look after plants and what they need to survive and grow, including: light, air, water and food (ie nutrition from the soil).</li> <li>Begin to understand how plants and animals help and need one other e.g. flowers and bees, humans and plants.</li> </ul> <p><b>Seasons</b></p> <ul style="list-style-type: none"> <li>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</li> <li>Develop an understanding of the cycle of seasons.</li> <li>Begin to identify how plants change in different seasons eg leaves, buds, blossom.</li> <li>Explore and begin to develop an understanding of light (including colour and shadow).</li> </ul> <p><b>Exploring different processes</b></p> <ul style="list-style-type: none"> <li>Understand and talk about some important processes.</li> <li>Heat will change ice to water.</li> <li>Through cooking, understand and talk about the changes of water turning to ice.</li> </ul> |

|                      | Autumn                                                                     | Spring                                                                                                                                                    | Summer                                                                                                                                                                                                                             |
|----------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Retrieval Vocabulary | Hear, see, touch, smells, autumn, winter, freeze                           | Observe, compare, autumn, winter, spring                                                                                                                  | Observe, compare<br>Seed, plant, grow, summer, flowers, bees, humans<br>wood, plastic, glass, metal, water, rock, life cycle, cocoon,<br>chrysalis, wind, rain, blow, tail, wing, claw, fin, scales, feathers,<br>fur, beak, paws, |
| New Vocabulary       | Observe, compare<br>Shoulder, elbow, bone, lips, tongue, taste, sight, ice | Wood, plastic, glass, metal, water, rock, life cycle, cocoon,<br>chrysalis, wind, rain, blow, tail, wing, claw, fin, scales, feathers,<br>fur, beak, paws | Flowers, bees, humans, leaves, buds, blossom, light, colour,<br>shadow melt, solid, liquid                                                                                                                                         |

Every Child a  
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| Year 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                              |
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| <b>Working Scientifically (taken from the National Curriculum)</b> <ul style="list-style-type: none"> <li>• Ask simple questions and recognise that they can be answered in different ways</li> <li>• Observe carefully, using simple equipment</li> <li>• Performing simple tests</li> <li>• Identifying and classifying</li> <li>• Using their observations and ideas to suggest answers to their questions</li> <li>• Gathering and recording data to help in answering questions.</li> </ul> |                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Plants                                                                                                                                                                                                     | Animals, including humans                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Everyday materials                                                                                                                                                                                                                                                                                                                                                        | Seasonal Changes                                                                                                             |
| Knowledge and concepts                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees; Identify and describe the basic structure of a variety of common flowering plants, including trees. | Identify and name a variety of common animals, including fish, amphibians, reptiles, birds and mammals; Identify and name a variety of common animals that are carnivores, herbivores and omnivores; Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets); Identify, name, draw and label the basic parts of the human body and say which part of the human body is associated with each sense. | Distinguish between an object and the materials from which it is made; Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock; Describe the simple physical properties of a variety of everyday materials; Compare and group together a variety of everyday materials on the basis of their simple physical properties. | Observe changes across the four seasons; Observe and describe weather associated with the seasons and how day length varies. |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Observation over time</b><br>Observing the changes in the four seasons at the beginning over the course of the year.<br>Observe how plants change over a period of time.                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                              |

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| Year 1                                                 | Plants                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Animals, including humans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Everyday materials                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Seasonal Changes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| Sequence of learning, including working Scientifically | <p><b>TAPS – Plant Structure</b></p> <ul style="list-style-type: none"> <li>• Make close observations of leaves, seeds, flowers etc. <b>How does our bean seed change each week? OBSERVATION OVER TIME</b></li> <li>• Compare two leaves, seeds, flowers etc. <b>What are the most common British plants and where can we find them? RESEARCH USING SECONDARY SOURCES</b></li> <li>• Classify leaves, seeds, flowers etc using a range of characteristics.</li> <li>• Identify trees and plants by matching them to named images.</li> <li>• Compare similarities and differences between plants and trees. eg they both have leaves, but trees have trunks and flowers have stems.</li> <li>• Identify deciduous and evergreen trees using their leaves as a reference point.</li> <li>• Spotting, identifying and comparing plants in local area (Whitworth Art Gallery) and Smithills Farm.</li> </ul> <p><b>Scientist Link –</b><br/>Lillian Snelling (botanical illustrator)</p> | <p><b>TAPS – Body Parts or Animal Classification</b></p> <ul style="list-style-type: none"> <li>• Make first hand close observations of animals from each of the groups.</li> <li>• Comparing teeth, diet and features of two animals from the same or different group.</li> <li>• Classify animals using a range of features</li> <li>• Identify animals by matching them to named images.</li> <li>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>• Identify main parts of the human body that they can see and link these to the 5 senses. <b>What are all the names for the parts of our bodies? IDENTIFYING, CLASSIFYING AND GROUPING</b></li> <li>• Look at similarities and differences between their body and their peers. eg hair colour, eye shape, missing teeth, height. <b>Do taller people always have bigger feet than smaller people? PATTERN SEEKING</b></li> <li><b>Is your friend's face the same as yours? IDENTIFYING, CLASSIFYING AND GROUPING</b></li> </ul> <p><b>Scientist Link –</b> Georg Meissner and Rudolf Wagner (first detected taste buds)</p> | <p><b>TAPS – Transparency (link to classifying and sorting objects/materials)</b></p> <ul style="list-style-type: none"> <li>• Classify objects made of one material in different ways e.g. a group of objects made of metal.</li> <li>• Classify in different ways one type of object made from a range of materials e.g. a collection of spoons made of different materials.</li> <li>• Describe the simple physical properties of a specific material e.g. plastic can be flexible and rigid.</li> <li>• Sort and classify materials based on their properties, e.g. wood, plastic, metal, transparent, opaque and translucent. <b>How can we classify these materials? IDENTIFYING, CLASSIFYING AND GROUPING</b></li> <li>• Test the properties of objects e.g. Waterproofness of shelters, strength of three little pig shelters, absorbency of cloth for a puppy's bed. <b>We need to make a suitable coat for Teddy. Which material will be waterproof? COMPARATIVE TESTING</b></li> </ul> <p><b>Scientist Link –</b> Alexander Parkes (invented plastic); NASA (invented space blankets and memory foam)</p> | <p><b>TAPS – Seasonal Changes</b></p> <ul style="list-style-type: none"> <li>• Describe the general types of weather and changes in day length over the seasons.</li> <li>• Explain why we have daytime and night time.</li> <li>• Explain what types of clothing we would wear in each season.</li> <li>• Describe some other features of their surroundings, themselves, animals, plants that change over the season. <b>How does the _____ tree change over the year? OBSERVATION OVER TIME</b></li> <li>• Observe flowers, plants and trees that grow in our field in spring and explain why these only grow in spring and not winter. (Linking back to deciduous and ever green trees taught in Plants)</li> </ul> |
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Every Child a  
Confident Learner

| Year 1               | Plants                                                                                                                                          | Animals, including humans                                                                                                                                                                                                                                                                        | Everyday materials                                                                                                                                                                                                                                                                                                         | Seasonal Changes                                                                                                                                                               |
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| Retrieval Vocabulary | Observe, compare<br>Leaf, flower, blossom, petal, fruit, berry,<br>root, seed, trunk, branch, stem, bark, stalk,<br>bud                         | Observe, compare, identify, classify,<br>recording data<br>Head, body, eyes, ears, mouth, teeth, leg,<br>tail, wing, claw, fin, scales, feathers, fur,<br>beak, paws,<br>Children need to be able to name and<br>identify a range of animals in each group<br>e.g. name specific birds and fish. | Observe, compare, identify, classify,<br>recording data<br>Object, material, wood, plastic, glass,<br>metal, water, rock, brick, paper, fabric,<br>elastic, foil, card/cardboard, rubber, wool,<br>clay, hard, soft, stretchy, stiff, bendy,<br>floppy, waterproof, absorbent,<br>breaks/tears, rough, smooth, shiny, dull | Observe, compare, identify, classify,<br>recording data<br>Weather: sunny, rainy, windy, snowy<br>Seasons: winter, summer, spring, autumn,<br>Sun, sunrise, sunset, day length |
| New Vocabulary       | Identify, classify, recording data<br>Deciduous, evergreen<br>Names of trees in local area<br>Names of garden and wild flowers in local<br>area | Hooves, carnivore, herbivore, omnivore                                                                                                                                                                                                                                                           | Transparent, opaque and translucent                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                |

Every Child a  
Confident Learner

**Year 2****Working Scientifically (taken from the National Curriculum)**

Ask simple questions and recognise that they can be answered in different ways;

- Observe carefully, using simple equipment;
- Performing simple tests
- Identifying and classifying;
- Using their observations and ideas to suggest answers to their questions;
- Gathering and recording data to help in answering questions.

|                               | <b>Plants</b>                                                                                                                                                                   | <b>Animals, including humans</b>                                                                                                                                                                                                                                                                                   | <b>Use of everyday materials</b>                                                                                                                                                                                                                                                                          | <b>Living things and their habitats</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Knowledge and concepts</b> | Observe and describe how seeds and bulbs grow into mature plants;<br>Find out and describe how plants need water, light and suitable temperature to grow and stay healthy.      | Notice that animals, including humans, have offspring, which grow into adults;<br>Find out about and describe the basic needs of animals, including humans for survival (water, food and air);<br>Describe the importance for humans of exercise, eating the right amount of different types of food, and hygiene. | Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, rock, brick, paper and cardboard for particular uses;<br>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. | Explore and compare differences between things that are living, dead and things that have never been alive;<br>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;<br>Identify and name a variety of plants and animals in their habitats, including micro-habitats;<br>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. |
|                               | <b>Observation over time</b><br>Observing the changes from seed/bulb into mature plants. Make close observations and measurements of their plants growing from seeds and bulbs. |                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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| Year 2                                                 | Plants                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Animals, including humans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Use of everyday materials                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Living things and their habitats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| Sequence of learning, including working Scientifically | <p><b>TAPS – Plant Growth</b></p> <ul style="list-style-type: none"> <li>Identify and describe the basic structure of a variety of common flowering plants, including trees.</li> <li>Observe and describe how seeds and bulbs grow into mature plants.</li> </ul> <p><b>OBSERVE OVER TIME</b></p> <ul style="list-style-type: none"> <li>Closely observe a range of different seeds and bulbs.</li> <li>Describe what plants and flowers need to survive and parts of a flower.</li> <li>Describe the basic needs of plants for survival and the impact of changing these. <b>Does a plant need light to be healthy? PATTERN SEEKING. Does a plant need water to grow healthily? PATTERN SEEKING. Will a plant grow if it is not warm? PATTERN SEEKING How can we look after plants? RESEARCH USING SECONDARY SOURCES</b></li> </ul> <p><b>Scientist Link</b> – Leo Grindon (local botanist)</p> | <p><b>TAPS – Hand spans</b></p> <ul style="list-style-type: none"> <li>Year 1 Recap - Identify carnivores, herbivores and omnivores, compare the structure of a variety of common animals, Identify, name, draw and label the basic parts of the human body.</li> <li>Investigate and describe the basic needs of animals for survival. <b>What do animals and humans need to survive? RESEARCH USING SECONDARY SOURCES</b></li> <li>Observe that animals, including humans, have offspring which grow into adults. <b>How do caterpillars change as they grow? OBSERVATION OVER TIME</b></li> <li>Identify that animals, including humans, have offspring which grow into adults. <b>Which offspring belong to which animal? IDENTIFYING, CLASSIFYING and GROUPING</b></li> <li>Describe the importance of hygiene for humans. <b>Why should humans have good hygiene? RESEARCH USING SECONDARY SOURCES</b></li> <li>Describe the importance to humans of eating the right amounts of different types of food. <b>How can humans have a balanced diet? RESEARCH USING SECONDARY SOURCES</b></li> <li>Understand that humans need to exercise to be healthy. <b>Why do humans need to exercise? RESEARCH USING SECONDARY SOURCES</b></li> <li>Explain how to take care of myself and the importance of hygiene to stay healthy. <b>How can humans stay healthy? RESEARCH USING SECONDARY SOURCES</b></li> <li>Compare size of hands with age to find a link. <b>Do the older people have the bigger hands? PATTERN SEEKING</b></li> </ul> <p><b>Scientist Link</b> – Ignaz Semmelweis (pioneer of antiseptic procedures)</p> | <p><b>TAPS – Material Hunt</b></p> <ul style="list-style-type: none"> <li>Make close observations of different materials.</li> <li>Sort and classify materials based on properties.</li> <li>Select objects and identify the materials they are made from and describe their properties.</li> <li>Identify the suitability of a range of materials by testing materials for a bag. <b>Which materials are suitable for making a bag? COMPARATIVE TESTING</b> <ul style="list-style-type: none"> <li>Testing whether material is waterproof</li> <li>Testing the strength</li> </ul> </li> <li>Identify the suitability of a range of materials by designing a suit for a superhero: <b>Which materials are suitable for making a superhero suit? COMPARATIVE TESTING</b> <ul style="list-style-type: none"> <li>Testing flexibility and strength</li> </ul> </li> <li>Identify the suitability of a range of materials by designing new curtains for a tired teacher <b>Which materials are suitable for making curtains? COMPARATIVE TESTING</b> <ul style="list-style-type: none"> <li>Testing whether materials are opaque or transparent</li> </ul> </li> <li>Based on knowledge of properties, select appropriate materials for a particular object and purpose.</li> <li>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. <b>Which materials can change shape? PATTERN SEEKING</b></li> </ul> <p><b>Scientist Link</b> – Charles Macintosh (invented waterproof material)</p> | <p><b>TAPS – Nature Spotters</b></p> <ul style="list-style-type: none"> <li>Compare the differences between things that are living, dead and never lived. <b>How do we know if something is living? RESEARCH USING SECONDARY SOURCES</b></li> <li>Identify and name a variety of plants and animals in their habitats, including microhabitats.</li> <li>Investigate and describe how a habitat provides the basic needs of things living there. <b>Which microhabitat will minibeasts prefer? PATTERN SEEKING</b></li> <li>Identify and name different sources of food.</li> <li>Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain.</li> <li>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.</li> </ul> <p><b>Scientist Link</b> – David Attenborough (biologist, naturalist and conservationist)</p> |
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| Year 2               | Plants                                                                                                                                                                                                                                                                                                                              | Animals, including humans                                                                                                                                                                                                          | Use of everyday materials                                                                                                                                                                                                                                                                                                                                                              | Living things and their habitats                                                                                                         |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Retrieval Vocabulary | Observe, compare, identify, classify, recording data, predict, conclude<br>Light, shade, sun, warm, cool, water, grow, healthy, leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, deciduous, evergreen<br>Name of trees in local area<br>Name of garden and wild flowers in local area | Observe, compare, identify, classify, recording data, perform simple tests, predict, conclude<br>Growth, child, young/old stages Life cycles: chick/hen, baby/child/adult, caterpillar/butterfly<br>Carnivore, herbivore, omnivore | Observe, compare, identify, classify, recording data, perform simple tests, predict, conclude<br>Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, Transparent, opaque and translucent | Observe, compare, identify, classify, recording data, perform simple tests, predict, conclude<br>Names of local habitats: pond, woodland |
| New Vocabulary       | Perform simple tests<br>Survive                                                                                                                                                                                                                                                                                                     | Offspring, reproduction, growth, exercise, heartbeat, breathing, hygiene, germs, disease, nutrition<br>Food types: meat, fish, vegetables, bread, rice, pasta                                                                      | Flexible/rigid, strong/weak reflective/non-reflective<br>Squashing, bending, twisting, stretching, pushing and pulling                                                                                                                                                                                                                                                                 | Living, dead, never been alive, suited, suitable, basic needs, food chain, shelter, names of micro-habitats: under logs, in bushes       |

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**Year 3****Working Scientifically (taken from the National Curriculum)**

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

|                               | <b>Plants</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Animals, including humans</b>                                                                                                                                                                                                                                                       | <b>Rocks</b>                                                                                                                                                                                                                                                                               | <b>Light</b>                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Forces and magnets</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| <b>Knowledge and concepts</b> | Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers<br>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<br>Investigate the way in which water is transported within plants<br>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. | 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<br>Identify that humans and some other animals have skeletons and muscles for support, protection and movement. | Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties<br>Describe in simple terms how fossils are formed when things that have lived are trapped within rock<br>Recognise that soils are made from rocks and organic matter. | Recognise that they need light in order to see things and that dark is the absence of light<br>Notice that light is reflected from surfaces<br>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes<br>Recognise that shadows are formed when the light from a light source is blocked by a solid object<br>Find patterns in the way that the size of shadows changes. | Compare how things move on different surfaces<br>Notice that some forces need contact between two objects, but magnetic forces can act at a distance<br>Observe how magnets attract or repel each other and attract some materials and not others<br>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<br>Describe magnets as having two poles<br>Predict whether two magnets will attract or repel each other, depending on which poles are facing. |
|                               | <b>Observation over time</b><br>Observe how shadows change over the course of a day.<br>Observe the effect of removing plants leaves and roots over time.<br>Observe the effect of different conditions (no light, no soil, no water, control) on the growth of a plant over 4 weeks.                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Year 3                                                 | Plants                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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                                                                                                                                                                                                                                                                                      | Rocks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Forces and magnets                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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| Sequence of learning, including working Scientifically | <p><b>TAPS – Function of Stem</b></p> <ul style="list-style-type: none"> <li>Observe what happens to plants over time when the leaves or roots are removed. <b>What happens to a plant when the leaves are removed?</b> OBSERVATION OVER TIME</li> <li>Observe the effect of putting cut white carnations or celery in coloured water. <b>What happens to celery when it is left in a glass of coloured water?</b> OBSERVATION OVER TIME</li> <li>Investigate what happens to plants when they are put in different conditions e.g. in darkness, in the cold, deprived of air, different types of soil, different fertilisers, varying amount of space. <b>What happens to plants when they are kept in darkness?</b> COMPARATIVE AND FAIR TEST OBSERVATION OVER TIME</li> <li>Observe and dissect flowers carefully to identify the pollen.</li> <li>Observe seeds being blown from the trees e.g. sycamore seeds</li> <li>Research different types of seed dispersal (wind, animals, water and insects) <b>What are the different ways that seeds disperse?</b> RESEARCH USING SECONDARY SOURCES</li> <li>Classify seeds in a range of ways including by how they are dispersed. <b>How can we use dispersal to classify seeds?</b> IDENTIFYING AND CLASSIFYING</li> <li>Sort and classify plants based on their adaptations to different environments. <b>How do plants survive in their environment?</b> IDENTIFYING AND CLASSIFYING</li> <li>Research adaptations using secondary sources. <b>RESEARCH LINKED TO PREVIOUS ENQUIRY</b></li> <li>Create a new species of flowering plant.</li> <li>Spot flowers, seeds, berries and fruits outside throughout the year. Observe flowers being visited by pollinators e.g. bees and butterflies in the summer. <b>What colour flowers do pollinating insects prefer?</b> PATTERN SEEKING</li> </ul> <p><b>Scientist Link</b> – Barbara Jeppe (botanical illustrators)</p> | <p><b>TAPS – Skeleton Qs</b></p> <ul style="list-style-type: none"> <li>Classify food in a range of ways. <b>How can we group the food that we eat?</b> IDENTIFYING AND CLASSIFYING</li> <li>Use food labels to explore the nutritional content of a range of food items.</li> <li>Use secondary sources to find out the types of food that contain the different nutrients. <b>Why do different types of vitamins keep us healthy and which foods can we find them in?</b> RESEARCH USING SECONDARY SOURCES</li> <li>Use food labels to answer enquiry questions e.g. How much fat do different types of pizza contain? How much sugar is in soft drinks?</li> <li>Plan a daily diet contain a good balance of nutrients.</li> <li>Explore the nutrients contained in fast food.</li> <li>Use secondary sources to research the parts and functions of the skeleton. <b>What is the function of a human skeleton?</b> RESEARCH USING SECONDARY SOURCES</li> <li>Investigate pattern seeking questions such as:</li> <li><b>Can people with longer legs run faster? Do male humans have larger skulls than female humans?</b> PATTERN SEEKING</li> <li>Compare, contrast and classify skeletons of different animals. <b>Are there similarities between the skeletons of different animals?</b> IDENTIFYING AND CLASSIFYING</li> </ul> <p><b>Scientist Link</b> – Wilhem Rontgen (“accidentally” discovered X-rays)</p> | <p><b>TAPS – Rocks Report</b></p> <ul style="list-style-type: none"> <li>Observe rocks closely.</li> <li>Discuss and classify rocks in a range of ways based on their appearance (colours, texture, shape, size) <b>How can we group rocks?</b> IDENTIFYING AND CLASSIFYING</li> <li>Devise a test to investigate the hardness of a range of rocks. <b>What happens to rocks when they are tumbled?</b> OBSERVATION OVER TIME</li> <li>Devise a test to investigate how much water different rocks absorb. <b>Which type of rock absorbs the most amount of water?</b> COMPARATIVE AND FAIR TESTING, OBSERVATION OVER TIME</li> <li>Observe how rocks change over time e.g. gravestones or old building.</li> <li>Research using secondary sources how fossils are formed. <b>What are fossils and how are they formed?</b> RESEARCH USING SECONDARY SOURCES</li> <li>Observe soils closely, comparing colours, textures and environment.</li> <li>Classify soils in a range of ways based on their appearance colours, textures, size of parts in the soil. <b>How can we group different types of soil?</b> IDENTIFYING AND CLASSIFYING</li> <li>Devise a test to investigate the water retention of soils. <b>Which soil absorbs the most water?</b> COMPARATIVE AND FAIR TESTING</li> <li>Observe how soil can be separated through sedimentation.</li> <li>Use funnels and filter paper to separate soil.</li> </ul> <p><b>Scientist Link</b> – Mary Anning, (palaeontologists)</p> <p><b>Who was Mary Anning and what did she discover?</b> RESEARCH USING SECONDARY SOURCES</p> | <p><b>TAPS – Make Shadows</b></p> <ul style="list-style-type: none"> <li>Explain why different objects are more or less visible in different lighting and for different object surfaces e.g. shiny vs matt.</li> <li>Investigate reflective properties of classroom objects.</li> <li>Explain how shadows vary as the distance between a light source and an object is changed. <b>How does the distance between the object and the screen affect the size of the shadow?</b> COMPARATIVE AND FAIR TESTING</li> <li>Observation over time - observe how shadows change over the course of a day. <b>At which time of day is our shadow the longest?</b> OBSERVATION OVER TIME</li> </ul> | <p><b>TAPS – Magnet Tests</b></p> <ul style="list-style-type: none"> <li>Carry out investigations to explore how objects move on different surfaces e.g. spinning tops/coins, rolling balls/cars, clockwork toys, soles of shoes etc. <b>Which surface is best to stop you slipping?</b> COMPARATIVE AND FAIR TESTING</li> <li>Explore what materials are attracted to a magnet.</li> <li>Classify materials according to whether they are magnetic. <b>Which materials are magnetic?</b> IDENTIFYING AND CLASSIFYING</li> <li>Explore the way that magnets behave in relation to each other.</li> <li>Use a marked magnet to find the unmarked poles on other types of magnets.</li> <li>Explore how magnets work at a distance e.g. through the table, in water, jumping paper clip up off the table.</li> <li>Devise an investigation to test the strength of magnets. <b>Which magnet is the strongest? OR Are bigger magnets stronger?</b> COMPARATIVE AND FAIR TESTING</li> </ul> <p><b>Scientist Link</b> – Magnes and William Gilbert (discovery of magnets)</p> <p><b>Who were Magnes and William Gilbert and what did they discover?</b> RESEARCH USING SECONDARY SOURCES</p> |
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| Year 3               | Plants                                                                                                                                                                                                                                                       | Animals, including humans                                                                                                                                                                                                                                                                                                                                              | Rocks                                                                                                                                                                               | Light                                                                                                                                                                                                                    | Forces and magnets                                                                                                                                                                                                        |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Retrieval Vocabulary | Observe, compare, identify, classify, recording data, predict, conclude<br>Light, shade, sun, warm, cool, water, grow, healthy, leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, deciduous, evergreen, survive | Observe, compare, identify, classify, recording data, perform simple tests, predict, conclude, practical enquiries, comparative and fair tests, systematic, variable<br>Growth, child, young/old stages, offspring, reproduction, growth, exercise, heartbeat, breathing, hygiene, germs, disease, nutrition<br>food types: meat, fish, vegetables, bread, rice, pasta | Observe, compare, identify, classify, recording data, perform simple tests, predict, conclude, practical enquiries, comparative and fair tests, systematic, variable                | Observe, compare, identify, classify, recording data, perform simple tests, predict, conclude, practical enquiries, comparative and fair tests, systematic, variable<br>Light, shadow, transparent, translucent, opaque, | Observe, compare, identify, classify, recording data, perform simple tests, predict, conclude, practical enquiries, comparative and fair tests, systematic, variable                                                      |
| New Vocabulary       | Practical enquiries, comparative and fair tests, systematic, thermometer, data logger, variable<br>Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal                       | Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, skull, ribs, spine, muscles, joints, pulse                                                                                                                                                                                    | Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil | Light source, dark, absence of light, shiny, matt, surface, reflect, mirror, sunlight, dangerous                                                                                                                         | Force, 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 |

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**Year 4****Working Scientifically (taken from the National Curriculum)**

asking relevant questions and using different types of scientific enquiries to answer them

- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

|                               | <b>Living things and their habitats</b>                                                                                                                                                                                                                                                                       | <b>Animals, including humans</b>                                                                                                                                                                                                                                 | <b>States of matter</b>                                                                                                                                                                                                                                                                                                                                                                               | <b>Sound</b>                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Electricity</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <b>Knowledge and concepts</b> | Recognise that living things can be grouped in a variety of ways<br>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment<br>Recognise that environments can change and that this can sometimes pose dangers to living things. | Describe the simple functions of the basic parts of the digestive system in humans<br>Identify the different types of teeth in humans and their simple functions<br>Construct and interpret a variety of food chains, identifying producers, predators and prey. | Compare and group materials together, according to whether they are solids, liquids or gases<br>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)<br>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. | Identify how sounds are made, associating some of them with something vibrating<br>Recognise that vibrations from sounds travel through a medium to the ear<br>Find patterns between the pitch of a sound and features of the object that produced it<br>Find patterns between the volume of a sound and the strength of the vibrations that produced it<br>Recognise that sounds get fainter as the distance from the sound source increases. | Identify common appliances that run on electricity<br>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers<br>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<br>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit<br>Recognise some common conductors and insulators, and associate metals with being good conductors. |
|                               | <b>Observation over time</b><br>Observe how habitats change over the course of the year.<br>Observe the effect of liquids on teeth over time.                                                                                                                                                                 |                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| Year 4                                                 | Living things and their habitats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              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| Sequence of learning, including working Scientifically | <p><b>TAPS- Local survey</b></p> <ul style="list-style-type: none"> <li>Identify and compare a variety of common animals</li> <li><b>How can we group animals?</b></li> <li>IDENTIFYING AND CLASSIFYING.</li> <li>Identify and compare a variety of common animals and their habitats. <b>How are different animals suited to their habitat?</b></li> <li>RESEARCH USING SECONDARY SOURCES</li> <li>Observe plants and animals in different habitats throughout the year on the field. <b>How do habitats change over time?</b> OBSERVATION OVER TIME</li> <li>Compare and contrast the living things observed using classification keys and identifying features. <b>Why do we use classification keys?</b> RESEARCH USING SECONDARY SOURCES</li> <li>Use classification keys to name unknown living things.</li> <li>Classify living things found in different habitats based on their features.</li> <li>Create a simple identification key based on observable features. <b>How can we classify leaves?</b> IDENTIFY AND CLASSIFY</li> <li>Use observations of local areas to explore human impact on the local environment e.g. litter, air/water/plastic pollution. (Autumn B DT lesson 2 – walk around the local area to see human impact regarding littering and plastic pollution)</li> <li>Use secondary sources to find out about how environments may naturally change.</li> <li>Use secondary sources to find out about human impact, both positive and negative, on environments. <b>How does a changing environment effect living things?</b> RESEARCH USING SECONDARY SOURCES</li> </ul> <p><b>Scientist Link</b> – Maria Sibylla Merian (scientific illustrator); Carl Linnaeus (classification)</p> | <p><b>TAPS- Teeth (eggs) in liquid</b></p> <ul style="list-style-type: none"> <li>Research the function of the parts of the digestive system. RESEARCH USING SECONDARY SOURCES</li> <li>Create a model of the digestive system using household objects. <b>What happens to our food when we eat?</b> OBSERVATION</li> <li>Explore eating different types of food, to identify which teeth are being used for cutting, tearing and grinding (chewing.) <b>Which teeth do we use to eat different foods?</b> IDENTIFYING AND CLASSIFYING</li> <li>Active tasting lesson to identify the types of teeth used and their purpose.</li> <li>Explore the effect of drinks on teeth using egg shells. <b>What is the effect of different liquids on our teeth?</b> OBSERVATION OVER TIME</li> <li>Classify animals as herbivores, carnivores or omnivores according to the type of teeth they have in their skulls. <b>Can we classify animals based on their teeth?</b> IDENTIFYING AND CLASSIFYING</li> <li>Use food chains to identify producers, predators and prey within a habitat.</li> </ul> | <p><b>TAPS- Drying materials</b></p> <ul style="list-style-type: none"> <li>Observe closely and classify a range of solids.</li> <li>Observe closely and classify a range of liquids. <b>How can we classify different items?</b> IDENTIFYING AND CLASSIFYING</li> <li>Explore making gases visible eg squeezing sponges under water to see bubbles, and showing their effect eg using straws to blow objects, trees moving in the wind.</li> <li>Classify materials according to whether they are solids, liquids and gases.</li> <li>Observe a range of materials melting eg ice, chocolate, butter</li> <li>Investigate how to melt ice more quickly. <b>How does the mass of a block of ice affect how long it takes to melt?</b> COMPARATIVE AND FAIR TESTING</li> <li>Investigate the melting point of different materials eg ice, margarine, butter, chocolate.</li> <li>Explore freezing different liquids eg tomato ketchup, oil, shampoo. <b>Do all liquids melt at the same speed?</b> OBSERVATION OVER TIME</li> <li>Use a thermometer to measure temperatures eg icy water (melting), tap water, hot water, boiling water (demonstration.)</li> <li>Observe water evaporating and condensing eg on cups of icy water and hot water.</li> <li>Set up investigations to explore changing the rate of evaporation eg washing, puddles, handprints on paper towels, liquids in containers. <b>Which is the best location for drying a paper towel?</b> COMPARATIVE AND FAIR TESTING, OBSERVATION OVER TIME</li> <li>Use secondary sources to find out about the water cycle. <b>What is the water cycle?</b> RESEARCH USING SECONDARY SOURCES</li> </ul> <p><b>Scientist Link</b> – Jabir ibn Hayyan (classification)</p> | <p><b>TAPS- String telephone</b></p> <ul style="list-style-type: none"> <li>Make sounds with a range of objects such as musical instruments and other household objects.</li> <li>Use objects that change in feature to change pitch and volume such as length of guitar string, bottles of water or tuning forks.</li> <li>Measure sounds over different distances and through different insulation materials. <b>Which material is the best at muffling sound?</b> COMPARATIVE AND FAIR TESTING</li> <li>Explore how sound travels through different mediums: solids (string telephones), liquids (video of dolphin underwater and link to swimming) and gases (air).</li> <li>Explore loudness of sound related to distance from the sound source. <b>How does the volume of a drum change as you move further away from it?</b> COMPARATIVE AND FAIR TESTING</li> </ul> | <p><b>TAPS- Does it conduct electricity?</b></p> <ul style="list-style-type: none"> <li>Identify and sort common appliances that run on electricity (through mains and battery power). <b>How can we sort these common appliances?</b> IDENTIFYING AND CLASSIFYING</li> <li>Construct a simple series circuit – First predicting what the components are/are for.</li> <li>Explore and identify components needed for a circuit.</li> <li>Draw a pictorial diagram of a circuit.</li> <li>Explore what is needed for a bulb to light when there are more components (switches).</li> <li>Predict if the bulb will light with an open/closed switch.</li> <li>Explore the effect of when a switch opens/closes, the circuit breaks and the battery is removed through drama.</li> <li>Explore how to connect a switch and investigate how they function.</li> <li>Construct a range of circuits with switches and buzzers</li> <li>Explore which materials can be used instead of wires to make a circuit. <b>Which materials will be suitable wires?</b> PATTERN SEEKING</li> <li>Classify the materials that were suitable/not suitable for wires. <b>Which materials are suitable as wires?</b> IDENTIFYING AND CLASSIFYING</li> <li>Apply their knowledge of conductors and insulators and trialling different materials. <b>Can you group the insulators and conductors?</b> IDENTIFYING AND CLASSIFYING</li> </ul> <p><b>Scientist Link</b> – Benjamin Franklin (exploration of electricity)<br/> <b>Who was Benjamin Franklin and why was he important?</b> RESEARCH USING SECONDARY SOURCES</p> |
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| Year 4               | Living things and their habitats                                                                                                                                        | Animals, including humans                                                                                                                                                                                                  | States of matter                                                                                                                                                            | Sound                                                                                                                                                                 | Electricity                                                                                                                                                                                                                                                                                                |
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| Retrieval Vocabulary | Observe, compare, identify, classify, recording data, predict, conclude, practical enquiries, comparative and fair tests, systematic, data loggers, variable<br>Habitat | Observe, compare, identify, classify, recording data, predict, conclude, practical enquiries, comparative and fair tests, systematic, data loggers, variable<br>Herbivore, carnivore, omnivore, predator, prey, food chain | Observe, compare, identify, classify, recording data, predict, conclude, practical enquiries, comparative and fair tests, systematic, data loggers, variable<br>Temperature | Observe, compare, identify, classify, recording data, predict, conclude, practical enquiries, comparative and fair tests, systematic, data loggers, variable<br>Sound | Observe, compare, identify, classify, recording data, predict, conclude, practical enquiries, comparative and fair tests, systematic, data loggers, variable                                                                                                                                               |
| New Vocabulary       | Classification, classification keys, environment, human impact, positive, negative, migrate, hibernate                                                                  | Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, producer, cutting, tearing, grinding          | Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle, thermometer                                       | Source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation, mediums                                                                       | Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, open circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol |

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**Year 5****Working Scientifically (taken from the National Curriculum)**

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking 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
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting 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
- identifying scientific evidence that has been used to support or refute ideas or arguments.

|                               | <b>Living things and their habitats</b>                                                                                                                              | <b>Animals, including humans</b>                   | <b>Properties and changes of materials</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Earth and space</b>                                                                                                                                                                                                                                                                                                                                | <b>Forces</b>                                                                                                                                                                                                                                                                                                                                                              |
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| <b>Knowledge and concepts</b> | Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird<br>Describe the life process of reproduction in some plants and animals. | Describe the changes as humans develop to old age. | 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<br>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution<br>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating<br>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic<br>Demonstrate that dissolving, mixing and changes of state are reversible changes<br>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. | Describe the movement of the Earth, and other planets, relative to the Sun in the solar system<br>Describe the movement of the Moon relative to the Earth<br>Describe the Sun, Earth and Moon as approximately spherical bodies<br>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. | Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object<br>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces<br>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. |
|                               | <b>Observation over time</b><br>Observe what happens when you take cutting from a range of plants.<br>Observe how bulbs multiply over time.                          |                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                            |

| Year 5                                                 | Living things and their habitats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Animals, including humans                                                                                                                                                                                                                                                                                                                                                                                                          | Properties and changes of materials                                                                                                                                                                                                                                                                                                                                                              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| Sequence of learning, including working Scientifically | <p><b>TAPS – Life Cycles</b></p> <ul style="list-style-type: none"> <li>Use secondary sources and, where possible, first hand observations to find out about the life cycle of a range of animals. <b>What life cycles do different animals have?</b> RESEARCH USING SECONDARY SOURCES</li> <li>Compare the gestation times for mammals and look for patterns eg in relation to size of animal or length of dependency after birth. <b>Do bigger animals have a longer gestation time?</b> PATTERN SEEKING</li> <li>Look for patterns between the size of an animal and its expected life span. <b>Do bigger animals have a longer life span?</b> PATTERN SEEKING</li> <li>Grow and observe plants that reproduce asexually eg strawberries, spider plant, potatoes.</li> <li>Take cuttings from a range of plants eg African violet, mint</li> <li>Plant bulbs and then harvest to see how they multiply. <b>How does a _____ change as it germinates?</b> OBSERVATION OVER TIME</li> <li>Use secondary sources to find out about pollination. <b>What are the different types of pollution and what are their effects on living things?</b> OBSERVATION OVER TIME</li> </ul> | <p><b>TAPS – Growth Survey</b></p> <ul style="list-style-type: none"> <li>This unit is likely to be taught through direct instruction due to its sensitive nature.</li> <li>Describe the changes as humans develop to old age. <b>Are the oldest children in our school the tallest?</b> PATTERN SEEKING</li> <li>Show changes as humans develop as babies.</li> </ul> <p><b>Scientist Link</b> – Jane Goodall (primatologist)</p> | <p><b>TAPS – Dissolving or Sugar Cubes</b></p> <ul style="list-style-type: none"> <li>Recap prior knowledge through sorting of objects. <b>Can you group these materials based on whether they are transparent or not?</b> CLASSIFYING, IDENTIFYING AND GROUPING</li> <li>Explore and define a range of properties.</li> <li>Investigate the properties of different materials in order to recommend materials for particular functions depending on these properties eg test waterproofness. <b>Which materials are waterproof?</b> COMPARATIVE TEST and thermal insulation to identify a suitable material to keep a hot drink warm. <b>How does the material of my cup affect the temperature of my cup of tea?</b> FAIR TEST</li> <li>Explore adding a range of solids to water and other liquids eg cooking oil, sugar, salt, bicarbonate of soda.</li> <li>Investigate rates of dissolving by carrying out comparative and fair test. <b>How does _____ affect how quickly sugar dissolves?</b> (TAPS assessment) FAIR TEST</li> <li>Separate mixtures by sieving, filtering and evaporation, choosing the most suitable method and equipment for each mixture.</li> <li>Explore a range of non-reversible changes eg rusting, adding fizzy tablets to water, burning.</li> <li>Carry out comparative and fair tests involving non-reversible changes. <b>What causes rusting to happen quickest?</b> COMPARATIVE TEST</li> </ul> <p><b>Scientist Link</b> – Xilingshi (discovered how to produce silk from worms); Spencer Silver (invented Post-It Note adhesive); Ruth Benerito (invented wrinkle free material)</p> | <p><b>TAPS – Solar System Research</b></p> <ul style="list-style-type: none"> <li>Use secondary sources to help create a model eg role play or using balls, to show the movement of the Earth around the Sun and the Moon around the Earth. <b>How does the Earth, and Moon move around the Sun?</b> RESEARCH USING SECONDARY SOURCES</li> <li>Use secondary sources to help make a model to show why day and night occur. <b>Why does the Earth experience day and night?</b> RESEARCH USING SECONDARY SOURCES</li> <li>Make first-hand observations of how shadows caused by the Sun change through the day (wet weather plan – use torches indoors). <b>How does the time of day affect shadows?</b> FAIR TEST</li> <li>Make a sundial.</li> <li>Research time zones.</li> <li>Consider the views of scientists in the past and evidence used to deduce shapes and movements of the Earth, Moon and planets before space travel. <b>How have our ideas about the solar system changed over time?</b> RESEARCH USING SECONDARY SOURCES</li> </ul> <p><b>Scientist Link</b> – Dr Becky Smethurst and Prof Brian Cox (astrophysicists); Mae C Jemison (first female black astronaut); Katherine Johnson (mathematician for NASA)</p> | <p><b>TAPS – Spinners</b></p> <ul style="list-style-type: none"> <li>Recapping prior knowledge through discussion of forces.</li> <li>Investigate the effect of friction in a range of contexts eg trainers, bath mats, mats for a helter-skelter. <b>Which material would be best to use for a helter-skelter mat?</b> COMPARATIVE TEST</li> <li>Investigate the effects of water resistance in a range of contexts e.g. dropping shapes through water, pulling shapes eg boats along the surface of water. <b>Do all objects fall through water in the same way?</b> PATTERN SEEKING</li> <li>Investigate the effects of air resistance in a range of contexts eg parachutes, spinners, sails on boats. <b>How does the length of wing/number of paper clips/size of paper affect the time it takes to fall?</b> FAIR TEST</li> <li>Explore how levers, pulleys and gears work.</li> <li>Research how the work of scientists such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation. RESEARCH USING SECONDARY SOURCES</li> </ul> <p><b>Scientist Link</b> – Isaac Newton (studied gravity); Galileo Galilei (studied speed, velocity, gravity) Da Vinci (engineering and invention)</p> |
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| Year 5               | Living things and their habitats                                                                                                                                                                                                                        | Animals, including humans                                                                                                                                                                                                                                                                   | Properties and changes of materials                                                                                                                                                                                                                                                                                                                                                                                                                       | Earth and space                                                                                                                                                                                                                                                                             | Forces                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| Retrieval Vocabulary | Observe, compare, identify, classify, recording data, predict, conclude, practical enquiries, comparative and fair tests, systematic, variable<br>Live young, bulb                                                                                      | Observe, compare, identify, classify, recording data, predict, conclude, practical enquiries, comparative and fair tests, systematic, variable, repeat readings, classification keys, tables, scatter graphs, bar and line graphs, causal relationships, degree of trust, support or refute | Observe, compare, identify, classify, recording data, predict, conclude, practical enquiries, comparative and fair tests, systematic, variable, repeat readings, classification keys, tables, scatter graphs, bar and line graphs, causal relationships, degree of trust, support or refute<br>Change of state, electrical insulator/conductor, reversible/non-reversible, soft, hard, stretchy, rigid, flexible, waterproof, melting, solid, liquid, gas | Observe, compare, identify, classify, recording data, predict, conclude, practical enquiries, comparative and fair tests, systematic, variable, repeat readings, classification keys, tables, scatter graphs, bar and line graphs, causal relationships, degree of trust, support or refute | Observe, compare, identify, classify, recording data, predict, conclude, practical enquiries, comparative and fair tests, systematic, variable, repeat readings, classification keys, tables, scatter graphs, bar and line graphs, causal relationships, degree of trust, support or refute<br>Force, 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 |
| New Vocabulary       | Repeat readings, classification keys, tables, scatter graphs, bar and line graphs, causal relationships, degree of trust, support or refute<br>Reproduce, sperm, fertilises, metamorphosis, asexual, plantlets, runners, cuttings, gestation, life span | Puberty                                                                                                                                                                                                                                                                                     | Thermal insulator/conductor, mixture, dissolve, solution, soluble, insoluble, filter, sieve, burning, rusting, new material, absorbent, thermal conductivity<br>dissolve, solution, soluble.                                                                                                                                                                                                                                                              | Earth, Sun, Moon, Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune, spherical, Solar system, rotates, star, orbits, planets, axis                                                                                                                                                     | Gravity, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears                                                                                                                                                                                                                                                                                                                                                                                                                 |

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**Year 6****Working Scientifically (taken from the National Curriculum)**

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking 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
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting 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
- identifying scientific evidence that has been used to support or refute ideas or arguments.

|                               | <b>Living things and their habitats</b>                                                                                                                                                                                                                                                   | <b>Animals, including humans</b>                                                                                                                                                                                                                                                                                                       | <b>Evolution and inheritance</b>                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Light</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Electricity</b>                                                                                                                                                                                                                                                                                                                                                     |
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| <b>Knowledge and concepts</b> | 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<br>Give reasons for classifying plants and animals based on specific characteristics. | Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood<br>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function<br>Describe the ways in which nutrients and water are transported within animals, including humans. | Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago<br>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents<br>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. | Recognise that light appears to travel in straight lines<br>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<br>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<br>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. | Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit<br>Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches<br>Use recognised symbols when representing a simple circuit in a diagram. |
|                               | <b>Observation over time</b><br>Measuring heights at the beginning of each half term. Children record height in tables and enter onto graph.<br>Observe over time individual pulse rate.                                                                                                  |                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                        |

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| Year 6                                                 | Living things and their habitats                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Animals, including humans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Evolution and inheritance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Light                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Electricity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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| Sequence of learning, including working Scientifically | <p><b>TAPS – OUTDOOR KEYS</b></p> <ul style="list-style-type: none"> <li>Use secondary sources to learn about the formal classification system devised by Carl Linnaeus and why it is important. <b>How would you make a classification key for _____ or _____?</b> IDENTIFYING, CLASSIFYING AND GROUPING</li> <li>Use first hand observation to identify characteristics shared by the animals in a group. <b>Is there a pattern between _____ and _____?</b> PATTERN SEEKING</li> <li>Use secondary sources to research the characteristics of animals that belong to a group.</li> <li>Use information about the characteristics of an unknown animal or plant to assign it to a group.</li> <li>Classify plants and animals presenting this in a range of ways – Venn diagrams, Carroll diagrams and keys.</li> <li>Create an imaginary animal which has features from one or more groups.</li> </ul> <p><b>Scientist Link</b> – Carl Linnaeus (classification)</p> | <p><b>TAPS – HEARTRATE POSE</b></p> <ul style="list-style-type: none"> <li>Create a role play model for the circulatory system.</li> <li>Investigate the heart and its parts by dissection. <b>Which parts of the body make up the circulation system, and where are they found?</b> IDENTIFY CLASSIFY AND GROUP</li> <li>Looking at the different components of blood (pupils make their own).</li> <li>Carry out a range of pulse rate investigations: The effect of different activities on my pulse rate. <b>How does the length of time we exercise for affect our heart rate?</b> FAIR TEST</li> <li>Explore which groups of people may have higher or lower resting pulse rates. <b>Is there a pattern between _____ and _____?</b> PATTERN SEEKING</li> <li><b>How long does it take my pulse rate to return to my resting pulse rate?</b> OBSERVATION OVER TIME (recovery rate)</li> <li>-PATTERN SEEKING exploring recovery rate for different groups of people.</li> <li>Learn about the impact of exercise, diet, drugs and lifestyle on the body. This is likely to be taught through direct instruction due to its sensitive nature.</li> </ul> <p><b>Scientist Link</b> – William Harvey (anatomy and physiology); Elsie Widdowson (dietician / nutritionist during WW1)</p> | <p><b>TAPS – FOSSIL HABITATS</b></p> <ul style="list-style-type: none"> <li>Design a new plant or animal to live in a particular habitat.</li> <li>Use models to demonstrate evolution e.g. Darwin's finches bird beak activity.</li> <li>Use secondary sources to find out about how the population of peppered moths changed during the industrial revolution. <b>How did peppered moths change during the industrial revolution?</b> RESEARCH USING SECONDARY SOURCES</li> <li>Make observations of fossils to identify living things that lived on Earth millions of years ago.</li> <li>Identify features in animals and plants that are passed on to offspring.</li> <li>Explore this process by considering the artificial breeding of animals or plants e.g. dogs.</li> <li>Compare the ideas of Charles Darwin and Alfred Wallace on evolution. <b>What is the theory of evolution?</b> RESEARCH USING SECONDARY SOURCES</li> </ul> <p><b>Scientist Link</b> – Alice Roberts (biological anthropologist); Charles Darwin and Alfred Wallace (theory of evolution)</p> | <p><b>TAPS – INVESTIGATING SHADOWS</b></p> <ul style="list-style-type: none"> <li>Observe objects in different lighting conditions – using light from sources that can be moved, reflected and blocked in different ways.</li> <li>Observe shadows of different objects as the object and the light source are moved so that the distance between them and their distance from the surface where the light is falling changes. <b>How does the _____ of the _____ affect the _____ of the shadow?</b> FAIR TEST</li> <li>Predict or explain some uses or behaviours of light, reflection and shadows such as periscope design, shadow puppets, bending of light in water. <b>Which material is the most reflective?</b> COMPARATIVE TEST</li> </ul> <p><b>Scientist Link</b> – Ibn al-Haytham (studied vision, optics and light)</p> <p><b>Sound</b><br/>Recap Y4 learning</p> | <p><b>TAPS – BULB BRIGHTNESS</b></p> <ul style="list-style-type: none"> <li>Recap previous year group knowledge of components of a circuit.</li> <li>Investigating cells by making a circuit out of a lemon. <b>Which type of fruit makes the best fruity battery?</b> COMPARATIVE TEST</li> <li>Investigate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. <b>Does the number/voltage of cells affect the brightness of the lamp?</b> FAIR TEST</li> <li><b>Does the temperature of a light bulb go up the longer it is on?</b> OBSERVATION OVER TIME</li> <li>Drawing circuits using recognised symbols when representing a simple circuit in a diagram.</li> <li>Explain how a circuit operates to achieve particular operations, such as control the light for a torch with different brightness or make a motor go faster or slower.</li> <li>Carry out fair tests (salt water, lemons) exploring changes in circuits. <b>Does the amount of salt in water affect the brightness of the lamp?</b> FAIR TEST</li> <li>Make circuits that can be controlled as part of a D&amp;T project.</li> </ul> <p><b>Scientist Link</b> – Michael Faraday (invented the electrical motor)</p> |
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| Year 6               | Living things and their habitats                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Animals, including humans                                                                                                                                                                                                                                                                                                                                                                                                                      | Evolution and inheritance                                                                                                                                                                                                                                                                                                                                                            | Light                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Electricity                                                                                                                                                                                                                                                                                                                                                                                                    |
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| Retrieval Vocabulary | Observe, compare, identify, classify, recording data, predict, conclude, practical enquiries, comparative and fair tests, systematic, variable, repeat readings, classification keys, tables, scatter graphs, bar and line graphs, causal relationships, degree of trust, support or refute<br>Fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, classification/classification key, characteristic, carnivore, herbivore, omnivore, Venn diagram | Observe, compare, identify, classify, recording data, predict, conclude, practical enquiries, comparative and fair tests, systematic, variable, repeat readings, classification keys, tables, scatter graphs, bar and line graphs, causal relationships, degree of trust, support or refute<br>Exercise, breathing, hygiene, germs, disease, diet, nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water | Observe, compare, identify, classify, recording data, predict, conclude, practical enquiries, comparative and fair tests, systematic, variable, repeat readings, classification keys, tables, scatter graphs, bar and line graphs, causal relationships, degree of trust, support or refute<br>Offspring, reproduction, vary, characteristics, suited, adapted, environment, fossils | Observe, compare, identify, classify, recording data, predict, conclude, practical enquiries, comparative and fair tests, systematic, variable, repeat readings, classification keys, tables, scatter graphs, bar and line graphs, causal relationships, degree of trust, support or refute<br>source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation, mediums<br>Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, Surface, Shadow, Reflect, mirror, sunlight, dangerous | Observe, compare, identify, classify, recording data, predict, conclude, practical enquiries, comparative and fair tests, systematic, variable, repeat readings, classification keys, tables, scatter graphs, bar and line graphs, causal relationships, degree of trust, support or refute<br>Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage |
| New Vocabulary       | Vertebrates, flowering and non-flowering, Carroll diagram                                                                                                                                                                                                                                                                                                                                                                                                                                  | Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, cycle, circulatory system, drugs and lifestyle                                                                                                                                                                                                                                                                                                    | Evolution, inherited, species, artificial breeding                                                                                                                                                                                                                                                                                                                                   | Straight lines, light rays                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                |

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