



Seaton St Paul's C of E Junior School

Science Skills Progression Document

| Aspect of Science | Year 3 | Year 4 | Year 5 | Year 6 |
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| Healthy Lifestyle | Explain the importance and characteristics of a healthy, balanced diet. (Healthy Lunch - DT) | Describe what damages teeth and how to look after them. (Digestive System) | Explain why personal hygiene is important during puberty. (Human Reproduction and Ageing) | Explain the impact of positive and negative lifestyle choices on the body. (Circulatory System) |
| Human body | Describe how humans need the skeleton and muscles for support, protection and movement. (Skeletal and Muscular Systems) | Describe the purpose of the digestive system, its main parts and each of their functions. (Digestive System) | Describe the process of human reproduction. (Human Reproduction and Ageing) | Name and describe the purpose of the circulatory system and the functions of the heart, blood vessels and blood. (Circulatory System) |
| Staying safe | Explain why light from the Sun can be dangerous. (Light and Shadow) | Explain the precautions needed for working safely with electrical circuits. (Electrical Circuits and Components) | Explain the precautions needed for working safely when heating, burning, cooling and mixing materials. (Properties and Materials) | Explain the dangers of using lasers and ways to use them safely. (Light Theory) |
| Changes | Describe simply how fossils are formed, using words, pictures or a model. (Rocks, Relics and Rumbles - Geography) | Observe and explain that some materials change state when they are heated or cooled and measure or research the temperature in degrees Celsius at which materials change state. (States of Matter) | Identify, demonstrate and compare reversible and irreversible changes. (Properties and Materials) | Describe some significant changes that have happened on Earth and the evidence, such as fossils, that support this. (Evolution and Inheritance) |

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| Earth | Investigate soils from the local environment, making comparisons and identifying features. (Our Planet, Our World - Geography) | Describe the water cycle using words or diagrams and explain the part played by evaporation and condensation. (Misty Mountain Winding River - Geography) | Describe or model the movement of the planets in our Solar System, including Earth, relative to the Sun. (Earth and Space) | Explain that, due to how light travels, we can see things because they give out or reflect light into the eye. (Light Theory) |
| Phenomena | Explain, using words or diagrams, how shadows are formed when a light source is blocked by an opaque object. Describe the differences between dark and light and how we need light to be able to see. (Light and Shadow) | Compare and find patterns in the pitch of a sound, using a range of equipment, such as musical instruments. Explain how sounds are made and heard using diagrams, models, written methods or verbally. (Sound) | Use the idea of Earth's rotation to explain day and night, and the Sun's apparent movement across the sky. (Earth and Space) | Describe, using scientific language, phenomena associated with refraction of light. (Light Theory) |
| Pattern seeking | Find patterns in the way shadows change during the day. (Light and Shadow) | Compare and find patterns in the volume of a sound, using a range of equipment, such as musical instruments. (Sound) | Identify the effect of the movement of planets on our lives. (Earth and Space) | Explain, using words, diagrams or a model, why shadows have the same shape as the objects that cast them and how shadows can be changed. (Light Theory) |
| Forces | Explain that an object will not move unless a push or pull force is applied, describing forces in action and whether the force requires direct contact or whether the force can act at a distance (magnetic force). (Forces and Magnets) | Predict and describe whether a circuit will work based on whether or not the circuit is a complete loop and has a battery or cell. (Electrical Circuits and Conductors) | Explain that objects fall to Earth due to the force of gravity. (Forces and Mechanisms) | Explain how the brightness of a lamp or volume of a buzzer is affected by the number and voltage of cells used in a circuit. (Electrical Circuits and Components) |
| Modelling | Make working models with simple mechanisms or electrical circuits. (Making it Move - DT) | Construct operational simple series circuits using a range of components and switches for control. (Electrical Circuits and Conductors) | Describe and demonstrate how simple levers, gears and pulleys assist the movement of objects. (Forces and Mechanisms) | Create circuits using a range of components and record diagrammatically using the recognised symbols for electrical components. (Electrical Circuits and Components) |

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| Gather and record data | Gather and record findings in a variety of ways (diagrams, tables, charts and graphs) with increasing accuracy. (Skeletal and Muscular System) | Gather, record, classify and present observations and measurements in a variety of ways (pictorial representations, timelines, diagrams, keys, tables, charts and graphs). (Digestive System) | Gather and record data and results of increasing complexity, selecting from a range of methods (scientific diagrams, labels, classification keys, tables, graphs and models). (Sow, Grow and Farm – Geography) | Choose an appropriate approach to recording accurate results, including scientific diagrams, labels, timelines, classification keys, tables, models and graphs (bar, line and scatter), linking to mathematical knowledge. (Evolution and Inheritance) |
| Report and conclude | Use suitable vocabulary to talk or write about what they have done, what the purpose was and, with help, draw a simple conclusion based on evidence collected, beginning to identify next steps or improvements. (Forces and Magnets) | Use scientific vocabulary to report and answer questions about their findings based on evidence collected, draw simple conclusions and identify next steps, improvements and further questions. (Digestive System) | Use scientific vocabulary to report and answer questions about their findings based on evidence collected, draw simple conclusions and identify next steps, improvements and further questions. (Human Reproduction and Ageing) | Report on and validate their findings, answer questions and justify their methods, opinions and conclusions, and use their results to suggest improvements to their methodology, separate facts from opinions, pose further questions and make predictions for what they might observe. (Circulatory System) |
| Questioning | Ask questions about the world around them and explain that they can be answered in different ways. (Forces and Magnets) | Ask relevant scientific questions, independently, about the world around them and begin to identify how they can answer them. (Sound) | Ask a wide range of relevant scientific questions that broaden their understanding of the world around them and identify how they can answer them. (Earth and Space) | Ask and answer deeper and broader scientific questions about the local and wider world that build on and extend their own and others' experiences and knowledge. (Light Theory) |
| Investigation | Set up and carry out some simple, comparative and fair tests, making predictions for what might happen. (Plant Nutrition and Reproduction) | Begin to independently plan, set up and carry out a range of comparative and fair tests, making predictions and following a method accurately. (States of Matter) | Plan and carry out a range of enquiries, including writing methods, identifying variables and making predictions based on prior knowledge and understanding. (Earth and Space) | Plan and carry out a range of enquiries, including writing methods, identifying and controlling variables, deciding on equipment and data to collect and making predictions based on prior |

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| | | | | knowledge and understanding. (Light Theory) |
| Measurement | Take measurements in standard units, using a range of simple equipment. (Forces and Magnets) | Take accurate measurements in standard units, using a range of simple equipment. (States of Matter) | Take increasingly accurate measurements in standard units, using a range of simple equipment. (Forces and Mechanisms) | Take accurate, precise and repeated measurements in standard units, using a range of chosen equipment. (Electrical Circuits and Components) |
| Observation | Make increasingly careful observations, identifying similarities, differences and changes and making simple connections. (Forces and Magnets) | Begin to choose which observations to make and for how long and make systematic, careful observations and comparisons, identifying changes and connections. (Digestive System) | Within a group, decide which observations to make, when and for how long, and make systematic and careful observations, using them to make comparisons, identify changes, classify and make links between cause and effect. (Properties and Changes of Materials) | Independently decide which observations to make, when and for how long and make systematic and careful observations, using them to make comparisons, identify changes, classify and make links between cause and effect. (Electrical Circuits and Components) |
| Properties and uses | Compare and group rocks based on their appearance, properties or uses. (Rocks, Relics and Rumbles – Geography) | Describe materials as electrical conductors or insulators. (Electrical Circuits and Conductors) | Describe, using evidence from comparative or fair tests, why a material has been chosen for a specific use, including metals, wood and glass. (Properties and Changes of Materials) | Describe, using diagrams, how light behaves when reflected off a mirror (plane, convex or concave) and when passing through a lens (concave or convex). (Light Theory) |
| Identification and classification | Group and sort materials as being reflective or non-reflective. (Light and Shadow) | Group and sort materials into solids, liquids or gases. (States of Matter) | Compare and group everyday materials by their properties, including hardness, solubility, transparency, conductivity (electrical and thermal) and magnetism. (Properties and Materials) | Investigate and identify good thermal insulators, describing their common features. (Electrical Circuits and Components) |

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| Parts and functions | Investigate how water is transported within plants. Name and describe the functions of the different parts of flowering plants (root, stem, leaves and flowers). (Plants and Nutrition) | Identify the four different types of teeth in humans and other animals, and describe their functions. (Digestive System) | Label and draw the parts of a flower involved in sexual reproduction in plants (stamen, filament, anther, pollen, carpel, stigma, style, ovary, ovule and sepal). (Sow Grow and Farm - Geography) | Identify that living things produce offspring of the same kind, although the offspring are not identical to either parent. Describe how animals and plants can be bred to produce offspring with specific and desired characteristics (selective breeding). (Evolution and Inheritance) |
| Nutrition | Compare and contrast the diets of different animals. (Skeletal and Muscular System) | Construct and interpret a variety of food chains and webs to show interdependence and how energy is passed over time. (Digestive System) | Describe, using their knowledge of food chains and webs, what could happen if a habitat had a living thing removed or introduced. (Sow, Grow and Farm - Geography) | Explain that the circulatory system in animals transports oxygen, water and nutrients around the body. (Evolution and Inheritance) |
| Identification and classification | Identify and group animals that have no skeleton, an internal skeleton (endoskeleton) and an external skeleton (exoskeleton). (Skeletal and Muscular System) | Compare, sort and group living things from a range of environments, in a variety of ways, based on observable features and behaviour. (Grouping and Classifying) | Group and sort plants by how they reproduce. (Human Reproduction and Ageing) | Use and construct classification systems to identify animals and plants from a range of habitats. Classify living things, including microorganisms, animals and plants, into groups according to common observable characteristics and based on similarities and differences. (Evolution and Inheritance) |
| Habitats | Describe how environments can change due to natural influences and how living things need to be able to adapt to these changes. | Describe how environments can change due to human and natural influences and the impact this can have on living things. | Research and describe different farming practices in the UK and how these can have positive and negative effects on natural habitats. | Research unfamiliar animals and plants from a range of habitats, deciding upon and explaining where they |

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| | (Plant Nutrition and Reproduction) | (Digestive System) | (Sow Grow and Farm - Geography) | belong in the classification system. (Evolution and Inheritance) |
| Phenomena | Compare how objects move over surfaces made from different materials. (Forces and Magnets) | Compare how the volume of a sound changes at different distances from the source. (Sound) | Compare and describe, using a range of toys, models and natural objects, the effects of water resistance, air resistance and friction. (Forces and Mechanisms) | Compare and give reasons for variations in how components in electrical circuits function (brightness of lamps; volume of buzzers and function of on or off switches). (Electrical Circuits and Components) |
| Physical things | Investigate and compare a range of magnets (bar, horseshoe and floating) and explain that magnets have two poles (north and south) and that opposite poles attract each other, while like poles repel each other. (Forces and Magnets) | Compare common household equipment and appliances that are and are not powered by electricity. (Electrical Circuits and Conductors) | Compare the life cycles of animals, including a mammal, an amphibian, an insect and a bird. (Human Reproduction and Ageing) | Explain that living things have changed over time, using specific examples and evidence. (Evolution and Inheritance) |
| Living things | Draw and label the life cycle of a flowering plant. (Plant Nutrition and Reproduction) | Explain how unfamiliar habitats, such as mountain or ocean, can change over time and what influences these changes. (Misty Mountain Winding River – Geography) | Describe the changes as humans develop from birth to old age. (Human Reproduction and Ageing) | Explain that living things have changed over time, using specific examples and evidence. (Evolution and Inheritance) |