

**St. Mary’s Church of England Primary School**

**Science Overview**

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|  |  |  | Autumn 1 |  | |  |
| Class 1 | Class 2 | Class 3 | Class 4 | Class 5 | | Class 6 |
| Seasonal changes | **Animals, including humans** | **Forces and magnets** | **States of Matter** | **Properties and changes of materials** | | **Light** |
| Observe changes across the four seasons  Observe and describe weather associated with the seasons and how the day length varies | Know that animals, including humans, have offspring which grown into adults.  Describe the basic needs of animals, including humans, for survival (water, food and air)   Understand the importance for humans of exercise, eating the right amounts of different types of food and hygiene | Compare how things move on different surfaces  Notice that some forces need contact between two objects but magnets forces can act at a distance  Observe how magnets attract or repel each other and attract some materials and not others Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials  Describe magnets as having two poles and can predict whether two magnets will attract or repel each other, depending on which poles are facing. | Compare and group materials together, according to whether they are solids, liquids or gases   Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius temperature. | Compare and group together materials based on, hardness, solubility, transparency, thermal and electrical conductivity and magnetism  Give reasons, based on evidence/fair tests for uses of materials  Demonstrate that dissolving, mixing and changes of state are reversible changes  Know that some changes result in new materials and are usually irreversible | | Recognise that light appears to travel in straight lines  Know that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye  Explain that we see things because light sources to our eyes or from light sources to objects and then to our eyes  Know that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. |
| Observe  Temperature  Season  Elements  Shadow  Rainfall  Precipitation  Climate | Adult young  Develop diet  reproduce Life cycle  Offspring Live young  Hygiene nutrition | Force Forward Direction Magnet  Strength Predict  Backwards Repel  Attract | Matter solids  Liquids gases  Melting boiling  Evaporation run off  Water vapour water cycle Condensation | Conductor  Dissolve  Evaporation  Flexible  Gas  Insulator  Irreversible  Liquid | Magnetic  Material  Opaque  Reversible  Solid  Soluble  Thermal  Transparent | Light  Periscope  Reflection  Refraction  Spectrum  Filter |

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|  |  |  | Autumn 2 |  | |  |
| Class 1 | Class 2 | Class 3 | Class 4 | Class 5 | | Class 6 |
| Animals, including humans | **All living things** | **Animals including humans** | **States of matter** | **Forces** | | **Light** |
| Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals | Explore and compare the differences between things that are living, dead and things that have never been alive  Know how animals obtain their food from plants and other animals, using the idea of a simple food chain  Identify and name different sources of food | 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  Identify that humans and some other animals have skeletons and muscles for support, protection and movement | Compare and group materials together, according to whether they are solids, liquids or gases   Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius temperature. | Identify forces acting on objects.  Explore the effect gravity has on objects and how it was discovered.  Investigate the effects of air and water resistance and friction.  To explore design mechanisms. | | Recognise that light appears to travel in straight lines  Know that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye  Explain that we see things because light sources to our eyes or from light sources to objects and then to our eyes  Know that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. |
| Sight Hearing  Touch Taste  Amphibians Fish  Birds Mammals  Reptiles Carnivore  Herbivore Omnivore | Living Dead  Alive Never alive Plants Animals Food chain  Carnivore Herbivore  Omnivore | Plants  Animal  Humans  Nutrition  Skeleton  muscles | Matter solids  Liquids gases  Melting boiling  Evaporation run off  Water Vapour Water cycle  Condensation | Air resistance  Force  Friction  Gears  Gravity  Levers | Water resistance  Push force  Pull force  Pulleys  Mass | Light  Periscope  Reflection  Refraction  Spectrum  Filter |

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|  |  |  | Spring 1 |  | |  |
| Class 1 | Class 2 | Class 3 | Class 4 | Class 5 | | Class 6 |
| Animals, including humans | **Uses of everyday materials** | **Light** | **Electricity** | **Earth and Space** | | **Electricity** |
| Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals | Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses  Find out how the shape of solid objects made from some materials can be changed by squashing, bending, twisting and stretching | Recognise that light in order to see things   Notice that light is reflected from surfaces   Recognise that light from the sun can be dangerous   Recognise that shadows are formed when the light from a light source is blocked by a solid object   Find patterns in the way that the size of shadows change | Identify common appliances that run on electricity  Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, bulbs, switches and buzzers  Identify whether or not a lamp will light in a simple series circuit, whether or not the lamp is part of a complete loop with a battery  Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit  Recognise some common conductors and insulators, and associate metals with being good conductors | Describe the movement of the Earth, and other planets, relative to the sun in the solar system  Describe the movement of the Moon relative to the Earth  Describe the sun, Earth and Moon as approximately spherical bodies  Understand and explain the Earth’s rotation to explain day and night | | To recognise and use symbols in a circuit diagram  To 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 |
| Sight Hearing  Touch Taste  Amphibians Birds  Fish Mammals  Reptiles Carnivore  Herbivore Omnivore | Materials Properties  Dull Rough  Rigid Flexible  Transparent Opaque  Absorbent Waterproof | Light  Dark  Reflect  Torch  Mirror | Electricity Circuit  Switch Battery  Plug Mains  Appliance Wire  Crocodile clip Buzzer  Cell Conductor  Insulator Current | Axis  Celestial  Dwarf planet  Geocentric  Heliocentric | Planet  Sun  Moon  Orbit | Components  Insulator  Conductor  Parallel circuit  Series circuit |

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|  |  | |  | | Spring 2 | |  | |  |
| Class 1 | Class 2 | | Class 3 | | Class 4 | | Class 5 | | Class 6 |
| Plants | **Habitats** | | **Rocks** | | **Sound** | | **Living things and their habitats** | | **Electricity** |
| 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. | To observe closely using simple equipment; to perform simple tests; to gather and record data to help in answering questions; to use their observations and ideas to suggest answers to questions  To identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.  Identify and name a variety of plants and animals in their habitats, including microhabitats. | | Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.  Describe in simple terms how fossils are formed when things that have lived re trapped within rock.  Recognise that soils are made from rocks and organic matter. | | Identify how sounds are made, associating some of them with something vibrating.  Recognise that vibrations from sounds travel through a medium to the eat.  Recognise that sounds get fainter as the distance from the sound source increases.  Find patterns between the pitch of a sound and features of the object that produced it.  Find patterns between the volume of a sound and the strength of the vibrations that produced it. | | Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.  Describe the life process of reproduction in some plants and animals. | | To recognise and use symbols in a circuit diagram  To 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 |
| Wild plants weed  Garden plants bulb  Deciduous seed  Evergreen fruit  Roots Leaves flowers petals  Stem | Habitat Microhabitat  Leaf litter Shelter  Seashore Woodland | Ocean conditions Rainforest  Desert adapt  Environment | Igneous  Sedimentary  Metamorphic  Permeable  Impermeable  Fossil  Top soil | Sub soil  Base rock | Frequency  Sign language  Muffled  Fair test  Prediction  Volume  particles | Sound waves sound vibrations | Sexual  Asexual  Reproduction  Monotreme  Marsupial  Placental |  | Components  Insulator  Conductor  Parallel circuit  Series circuit |

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| Summer 1 | | | | | | | | | | |
| Class 1 | Class 2 | | Class 3 | | Class 4 | | Class 5 | | Class 6 | |
| Everyday Materials | **Plants** | | **Working scientifically** | | **Animals/Living things and their habitats** | | **Animals, including humans** | | **Evolution and Inheritance** | |
| I can distinguish between an object and the material from which it is made.  I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.  I can describe the simple physical properties of a variety of everyday materials.  I can compare and group together a variety of everyday materials on the basis of their simple physical properties. | I can observe and describe how seeds and bulbs grow into mature plants.  I can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. | | I can ask relevant questions and use different types of scientific enquiries to answer them.  I can set up simple practical enquiries, comparative and fair tests.  I can make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers  I can gather, record, classify and present data in a variety of ways to help in answering questions.   I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables | | I can recognise that living things can be grouped in a variety of ways.  I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.  I can recognise that environments can change and that this can sometimes pose dangers to living things.   I can describe the simple functions of the basic parts of the digestive system in humans.  I can identify the different types of teeth in humans and their simple functions.  I can construct and interpret a variety of food chains, identifying producers, predators and prey. | | I can describe the changes as humans develop to old age. | | I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.  I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.  I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. | |
|  |  |  |  |  | Vertebrate  Invertebrate  Classification  Habitat  Environment  Deforestation | Food chain Herbivore Omnivore deciduous |  |  | Adaptation  Body fossil  Breeding Evolution  Inherit  Selective  breeding | Reproduction Trace fossil Environment Fossil Offspring |

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| Summer 2 | | | | | | | | | |
| Class 1 | Class 2 | | Class 3 | | Class 4 | | Class 5 | | Class 6 |
| Everyday Materials | **Working scientifically** | | **Plants** | | **Working scientifically Eating and digestion** | | **Famous scientists and working scientifically** | | **Animals including humans**  **Things and their habitats** |
| I can distinguish between an object and the material from which it is made.  I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.  I can describe the simple physical properties of a variety of everyday materials.  I can compare and group together a variety of everyday materials on the basis of their simple physical properties. | I can ask simple questions and recognise that they can be answered in different ways.  I can observe closely, using simple equipment.  I can perform simple tests  identify and classify.  I can use their observations and ideas to suggest answers to questions.  I can gather and record data to help in answering questions. | | I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.  I can 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.  I can investigate the way in which water is transported within plants.  I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. | | asking relevant questions and using different types of scientific enquiries to answer them  setting up simple practical enquiries, comparative and fair tests  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  identifying differences, similarities or changes related to simple scientific ideas and processes  using straightforward scientific evidence to answer questions or to support their findings  describe the simple functions of the basic parts of the digestive system in humans  identify the different types of teeth in humans and their simple functions | |  | | I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.  I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.  I can describe the ways in which nutrients and water are transported within animals, including humans.  I can describe and give reasons of 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. |
|  |  |  |  |  | Organisms  Carnivores herbivores  Omnivores  Incisor | Canine  premolar molar digestion waste saliva |  |  | Arteries Blood  Blood vessel Veins  Villi Alveoli  Nutrients Vitamins  Circulatory system Organs |