**Science Curriculum Overview**

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| **Year 1** | | |
| **Autumn** | **Spring** | **Summer** |
| **Seasonal changes (continuous)**  Pupils should be taught to:  -observe changes across the 4 seasons  -observe and describe weather associated with the seasons and how day length varies  **Animals, including humans**  Pupils should be taught to:  -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-ty of common animals (fish, amphibians, reptiles, birds and mammals including pets)  -identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense | **Seasonal changes (continuous)**  Pupils should be taught to:  -observe changes across the 4 seasons  -observe and describe weather associated with the seasons and how day length varies  **Plants**  Pupils should be taught to:  -identify and name a variety of common wild and garden plants, including deciduous and ever-green trees  - identify and describe the basic structure of a variety of common flowering plants, including trees | **Seasonal changes (continuous)**  Pupils should be taught to:  - observe changes across the 4 seasons  - observe and describe weather associated with the seasons and how day length varies  **Everyday materials**  Pupils should be taught to:  -distinguish between an object and the material from which it is made  - identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock  -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  **Science Adventures – working scientifically** |
| **Year 2** | | |
| **Autumn** | **Spring** | **Summer** |
| |  | | --- | | **Everyday Materials**  Pupils should be taught to:  -identify and compare the suitability of a variety of everyday materials, including wood, met-al, plastic, glass, brick, rock, paper and card-board for particular uses  -find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching  **Living things and their habitats**  Pupils should be taught to:  -explore and compare the differences between things that are living, dead, and things that have never been alive  - identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they de-pend on each other  -identify and name a variety of plants and animals in their habitats, including microhabitats  -describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food | | **Plants**  Pupils should be taught to:  -observe and describe how seeds and bulbs grow into mature plants  - find out and describe how plants need water, light and a suitable temperature to grow and stay healthy | **Animals including Humans**  Pupils should be taught to:  - notice that animals, including humans, have offspring which grow into adults  -find out about and describe the basic needs of animals, including humans, for survival (water, food and air)  -describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene  **Science Adventures – working scientifically** |
| **Year 3** | | |
| **Autumn** | **Spring** | **Summer** |
| |  | | --- | | **Rocks**  Pupils should be taught to:  -compare and group together different kinds of rocks on the basis of their appearance and simple physical properties  -describe in simple terms how fossils are formed when things that have lived are trapped within rock  -recognise that soils are made from rocks and organic matter  **Forces and Magnets**  Pupils should be taught to:  -compare how things move on different surfaces  -notice that some forces need contact between 2 objects, but magnetic forces can act at a distance  -observe how magnets attract or repel each other and attract some materials and not others  -compare and group together a variety of every-day materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials  -describe magnets as having 2 poles  -predict whether 2 magnets will attract or repel each other, depending on which poles are facing | | **Light**  Pupils should be taught to:  -recognise that they need light in order to see things and that dark is the absence of light  -notice that light is reflected from surfaces  -recognise that light from the sun can be dangerous and that there are ways to protect their eyes  -recognise that shadows are formed when the light from a light source is blocked by an opaque object  -find patterns in the way that the size of shadows change  **Plants**  Pupils should be taught to:  -identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers  -explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant  - investigate the way in which water is trans-ported within plants  -explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal | |  | | --- | | **Animals including Humans**  Pupils should be taught to:  -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  **Science Adventures – working scientifically** | |
| **Year 4** | | |
| **Autumn** | **Spring** | **Summer** |
| **Electricity**  Pupils should be taught to:  -identify common appliances that run on electricity  -construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers  -identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery  -recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit  -recognise some common conductors and insulators, and associate metals with being good conductors  **Sound**  Pupils should be taught to:  -identify how sounds are made, associating some of them with something vibrating  -recognise that vibrations from sounds travel through a medium to the ear  - 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 from the sound source increases  -recognise that sounds get fainter as the distance gets farther away | **Animals including Humans**  Pupils should be taught to:  -describe the simple functions of the basic parts of the digestive system in humans  -identify the different types of teeth in humans and their simple functions  -construct and interpret a variety of food chains, identifying producers, predators and prey    **Living things and their habitats**  Pupils should be taught to:  -recognise that living things can be grouped in a variety of ways  -explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment  -recognise that environments can change and that this can pose dangers to living things | **States of Matter**  Pupils should be taught to:  -compare and group materials together, according to whether they are solids, liquids or gases  -observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)  - identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature  **Science Adventures – working scientifically** |
| **Year 5** | | |
| **Autumn** | **Spring** | **Summer** |
| **Earth and Space**  Pupils should be taught to:  -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  -use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky  **Forces**  Pupils should be taught to:  -explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object  -identify the effects of air resistance, water resistance and friction, that act between moving surfaces  -recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect | **Properties and Changes of Materials**  Pupils should be taught to:  -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  -know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution  -use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating  -give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic  -demonstrate that dissolving, mixing and changes of state are reversible changes  -explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda  **Animals including Humans**  Pupils should be taught to:  -describe the changes as humans develop to old age   |  |  |  | | --- | --- | --- | | |  | | --- | |  | |  | | **Living things and their habitats**  Pupils should be taught to:  -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  **Science Adventures – working scientifically** |

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| **Year 6** | | |
| **Autumn** | **Spring** | **Summer** |
| **Animals including humans**  Pupils should be taught to:  -identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood  -recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function  -describe the ways in which nutrients and water are transported within animals, including human  **Light**  Pupils should be taught to:  -recognise that light appears to travel in straight lines  -use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye  -explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes use the idea that light travels in straight lines --to explain why shadows have the same shape as the objects that cast them   |  | | --- | |  | | |  |  |  | | --- | --- | --- | | **Living things and their habitats**  Pupils should be taught to:  -describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals  -give reasons for classifying plants and animals based on specific characteristics.   |  | | --- | | **Electricity**  Pupils should be taught to:  -associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit  -compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches  -use recognised symbols when representing a simple circuit in a diagram. | |  | | **Evolution and inheritance**  Pupils should be taught to:  -recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago  -recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents  -identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.  **Science Adventures – working scientifically** |

**Science vocabulary progression – see knowledge organisers**

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|  | Working scientifically | Animals including humans | Materials/ Rocks/ states of matter | Seasonal changes/ Earth and space | Living things and their habitats | Plants | Light and Sound | Forces and Magnets | Electricity | Evolution and inheritance |
| Year 1 | Question  Answer  Observe  Observing  Equipment  Identify  Classify  Sort  Group  Record  Diagram  Chart  Map  Data  Compare  Contrast  Describe  Biology  Chemistry  Physics  Why…?  What…?  How…? | Fish  Amphibians  Reptiles  gills  Birds  Mammals  Pets  Carnivores  Meat  Herbivores  Plants  Omnivores  Vertebrate  Invertebrates  Senses  Backbone  Warm blooded  Cold blooded  Environment  Temperature  wild  farm  Human  Head  Brain  Neck  Arms  Elbows  Legs  Knees  Face  Ears  Eyes  Hair  mouth  teeth | Material  Wood  Plastic  Glass  Metal  Water  Wood  Manmade  natural  Rock  Hard/soft  Stretchy  Stiff  Shiny/dull  Rough  Smooth  Bendy  Waterproof  Absorbent  Brick  Paper  Fabrics  Elastic  Foil  Opaque  transparent | Season  Summer  Winter  Autumn  Spring  Day  Daytime  Weather  Wind  Rain  Snow  Hail  Sleet  Fog  Sun  Hot  Warm  cold |  | Common  Wild  Plants  Garden  Deciduous  Evergreen  Trees  Weed  Wild  herb  Trunk  Branches  Leaf  Root  Plant  Bud  Flowers  Blossom  Petals  Stem  Fruit  Vegetable  vegetation  Bulb  seed |  |  |  |  |
| Year 2 |  | Offspring  Grow  Adults  Nutrition  Reproduce  Survival  Water  Food  Air  Exercise  Balanced diet  Musle  Medicine  Disease  Bones  Bar chart  Pictogram  pet  Hygiene | Twisting  Squashing  Bending  Coins  Cans  Cars  Table  Legs  Matches  Floors  plastic |  | Living  Depend  biomes  Habitats  Micro-habitats  Food  Food chain  Sun-grass-cow-human  Alive  Healthy  Logs  Leaf  Litter  Stony  Bushes  Shelter  Seashore  Woodland  Ocean  Rainforest  Conditions  Hot/ warm/ cold  Dry/ damp/ wet  Bright/ shade/ dark  offspring | Water  Light  Temperature  Suitable  Grow  Healthy  Germination  Reproduce  Crop  Nutrients  petal |  |  |  |  |
| Year 3 | Research  Relevant  Enquiry  Comparative  Fair test  Systematic  Careful  Observation  Accurate  Measurements  Present  Drawings  Labelled  Keys  Bar charts  Tables  Explanation  Conclusion  Predictions  Data logger  Thermometer  Data  Gather  Differences  Similarities  Changes  Evidence  Improve  Secondary sources  Guides  Construct  Interpret  Results  Findings  Does…?  Do…? | Nutrition  Vitamins  Minerals  Fat  Protein  Carbohydrates  Fibre  Water  Skeletons  Support  Protection  Skull  Brain  Ribs  Heart  Movement  Joint  Muscles  Movement  Pull  Contract  Relax  diet | Absorb  Bedrock  Decaying  Grain  Igneous  Imprint  Leaf litter  Magma  Man-made  Metamorphic  Mineral  Molten  Natural  Nutrients  Palaeontology  Permeable  Porous  Prehistoric  Preserve  Pressure  Properties  Rock  Sediment  Soil  Surface  Surrounding  Volcano  weathered |  |  | Structure  Flowering plant  Petal  Function  Nutrition  Support  Reproduction  Photosynthesis  Air  Light  Water  Nutrients  Soil  Needs  Requirements  Fertiliser  Life cycle  Flowers  Seed formation  Dispersal | Light  Dark  Reflect  Surface  Natural  star  Sun  Moon  Shadow  Blocked  Solid  Artificial  Torch  Candle  Lamp  Sunlight  Dangerous  Protect eyes  Angle  Bright  Dim  Emits  Electricity  Mirror  Translucent  Product  Sunglasses  source | Force  Push  Pull  Surface  Magnet  Magnetic  Non magnetic  Attract  Repel  Poles  North  South  Friction  Bendy  Gravity  Metal  Motion  Field  Resistance  Twist  Squash  Position |  |  |
| Year 4 |  | digestive system  digestion  Mouth  Tongue  Mixes  Moistens  Saliva  Teeth  Plaque  Enamel  decay  Incisors  Canines  Molars  Premolars  Oesophagus  Transports  Stomach  Acid  Enzymes  intestine  Absorbs Vitamins  Compacts  Carnivores  Herbivores  omnivores  Brush  Floss | Appearance  Physical properties  Ice  Melting  Melting point  Freezing  Freezing point  Liquid  Evaporate  Condense  Gas  Changing state  Particles  Precipitation  Process  vibrations  Heating  cooling  Degrees Celsius  Thermometer  Water cycle  Condensation  Temperature  Water vapour |  | Environment  Vertebrate  Invertebrates  Food chain  Classification  Criteria  Biomes  Excretion  Food chain  Habitat  Carnivore  Omnivore  Herbivore  Life processes  Microhabitat  Organism  Reproduction  Respiration  Sensitivity  Urban  Vegetation  Plants  Non-flowering  Deforestation |  | Vibrations  Air  Ear  Hear  Sound  Volume  Decibel  Electricity  Energy  Power  Sound waves  Source  Transparent  Travel  Pitch  Faint  Loud  Ear drum |  | Appliances  Electricity  Circuit  Electrical  Cell  Wire  Bulb  Buzzer  Danger  Safety  Sign  Insulator  Wood  Rubber  Plastic  Glass  Conductor  Metal  Water  Switch  Open  Closes  Battery  Component  Current  Device  Energy  Fuel  Generate mains  Motor  power |  |
| Year 5 | Plan  Variables  Measurements  Accuracy  Precision  Repeat readings  Scientific diagrams  Scatter graphs  Lie graphs  Pie charts  Hypothesis  Causal relations  Degree of trust  Support  Refute ideas  Quantitive measurements | Human development  Baby-toddler-child-teenager-adult  Puberty  Gestation  Length  Mass  Grow  Grows  Growth  Growing  Life span | Soluble  insoluble  Transparency  Conductive (electrical and thermal)  magnetic  Dissolve  Liquid  Solution  Separate  Filtering  Sieving  Reversible  Mixing  Irreversible  Burning  Rusting  Magnetism  Chemical  Circuit  Condensation  Evaporation  Gas  Insulator  Melting  Permeable  Impermeable  Variable  properties | Earth  Sun  Moon  Planets  Star  Solar system  Mercury  Venus  Mars  Jupiter  Saturn  Uranus  Neptune  Pluto  Movement  Rotate  Orbit  Axis  Asteroid  Comet  Galaxy  Gravity  shadow  Sphere  Light  Heat  Eclipse  Satellite  Universe  Solar  Leap year | Life cycles  Life process  Reproduction  Plants  Pollination  Seed  dispersal  flower  flowering  Nectar  Pollen  Stigma  structure  Style  Ovary  Ovule  Anther  Filament  Petal  Germination  Gamete  Bulb  Cell  Dissect  Embryo  Fertilisation  Mature  Metamorphosis  structure |  |  | Link to Earth  Gravity  Air resistance  Water resistance  Friction  Surface  Force  Effect  Move  Accelerate  Decelerate  Stop  Change direction  Brake  Mechanism  Pulley  Gear  Spring  Theory of gravitation  Galileo  Isaac Newton |  |  |
| Year 6 |  | Internal organs  Heart  Lungs  Liver  Kidney  Brain  Skeleton  Muscle  Muscular  Digest  Digestion  Digestive  Circulatory system  Blood vessels  Blood  Blood type  Impact  Diet  Exercise  Drug  Lifestyle  Nutrients  Water  Damage  Alcohol  Substance  Oxygen  Carbon dioxide  Cells  White blood cell  Red blood cell  Plasma  Platelets  Pulse  Pulse rate |  |  | Micro-organisms  Classification  Classify  Similarities  differences |  | Angle  Dark  Dim  Electricity  Emits  Light  Mirror  Opaque  Reflects  Shadows  Source  Surface  Torches  Translucent  Transparent |  | Ammeter  Appliances  Battery  Bulb  Buzzer  Cell  Circuit  Component  Conductor  Device  Electricity  Energy  Fuel  Generate  Insulator  Mains  Power  Wires  Resistor  Resistance  Voltage  Brightness  Volume  Switches – open/closed  Series circuit  Circuit diagram  Motor  symbols | Ancestor  Biodiversity  Biome  Breeding  Extinct  Generation  Maladaptation  Mutation  Natural selection  Reproduction  Species  Survive  Theory  Change  Fossils  Offspring  Vary  Not identical  Characteristics  Variation  Evolution  Adaptation  Inherit  Inheritance  Charles Darwin  Alfred Wallace  Environment  Habitat  Palaeontologists  Mary Anning |