**Science Whole School Progression of Knowledge**

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| **YEAR ONE** |
| **Context** | Animals and humans/seasons | Materials/Seasons | Plants/Seasons |
| **Vocabulary** | Backbone, reptile, mammal, amphibianCarnivore, herbivore, omnivore, sensesTouch, sight, taste, hearing, smell, habitat, micro-habitat, food chain, seasons, weather. | Material, waterproof, absorbent, see-through, not see-through, hard – softshiny – dull, bendy – stiff, rough – smooth. Wood, paper, plastic, fabric, glass, clay, metal, foil, water, cardboard, rock, rubber, brick, wool. | Leaf, flower, petal, fruit, root, seed, trunk, branch, stem, bark, oak, horse chestnut, hawthorn, ash, sycamore, hazel, holly, rose, daffodil, daisy, tulip, buttercup, dandelion,  |
| **Enquiry Questions** | Can you label the main parts of animals’ bodies?Can you group animals by their body type?Can you identify carnivores, omnivores and herbivores?Can you match animals to what they eat?Can you place animals in the fish, amphibian, reptile, bird and mammal groups?Can you identify some mammals?Can you explain what part of the body is to do with which sense?Can you label the main parts of the human body? | Can you choose a good material for a purpose?Can you investigate whether an object floats or sinks?Can you group objects and materials by their properties?Can you identify the materials some objects are made of?Can you investigate the best material for a purpose?Can you name some every day materials?Can you tell the difference between an object and a material?  | Can you identify bulbs and seeds?Can you identify common garden plants?can identify some common trees from their shapes, leaves and seeds?Can you identify some common wild plants?Can you label the main parts of a flowering plant?Can you label the main parts of different plants?Can you explain what the main parts of a flowering plant do?Can you identify plants in our local area? |
| **YEAR TWO** |
| **Context** | Animals Including Humans | Living things and their habitats | Plants |
| **Vocabulary** | Offspring, reproduction, growth, hygiene, germs, disease, survival, lamb, sheep, baby, toddler, child, teenager, adult, egg, chick, chicken, spawn, tadpole, frog, egg, caterpillar, pupa, buttefly. | Living, dead, habitat, micro-habitat (leaf litter, under stones, under logs, in shrubs), food chain, woodland, pond, sea shore, polar, ocean, rainforest,  | Seed, bulb, germinate, seedling, budflower, fruit, berry, root, light, water, space, temperature. |
| **Enquiry Questions** | Can you match the young of different animals to their adult form?Can you investigate how exercise produces changes in the body?Why is it important to be clean when eating food?How do different food groups help us to be healthy?Can you sequence and describe the life cycle of different animals?Can you sequence the different stages of human life?Can you explain what humans need to survive? | How do some animals adapt to their habitats?Can you match animals to their habitats?Can you create and describe food chains?Can you identify and name some animals and plants in local micro-habitats?Can you group things according to whether they are living or non-living?Can you name common animals and plants? | Can you investigate the needs of different plants?What do plants need to grow and stay healthy? |
| **Context** | Use of Everyday Materials |  |  |
| **Vocabulary** | Transparent, translucent, opaqueFlexible, rigid, reflective, non-reflectiveAbsorbent, wood, metal, plastic, glass, brick, rock, paper, cardboard, fabric, squashing, bending, twisting, stretching. |
| **Enquiry Questions** | Can you change the shape of an object?Can you name some different materials?Do materials have the same properties?Can you compare the properties of different materials?Can you group materials according to their properties?Can you identify the materials different objects are made from?Can you explain how inventors have made new materials? |
| **YEAR THREE** |
| **Context** | Animals Including Humans | Forces and Magnets | Light |
| **Vocabulary** | Nutrition, nutrients, carbohydrates, proteins, vitamins and minerals, fibreSkeleton, bones, muscles, joints, skull, jaw, collar bone, rib cage, spine, radius, pelvis, ulna, femur, knee cap, tibia, ankle bone, fibula. | Force, magnetic force, magnet, attractRepel, poles, contact force, non-contact force.  | Light, dark, light source, transparentTranslucent, opaque, shadow, reflectMirror, sun,  |
| **Enquiry Questions** | Do all animals eat the same food?Do all animals have the same skeleton?Can you create a food chain and explain what it shows?Can you explain how many portions of the different food groups we should eat each day?Can you create a food web and explain what it shows?Can you explain how muscles work?Can you explain the functions of the human skeleton and identify its main bones?Can you identify which type of skeleton an animal has? | Which materials are magnetic?How do magnets interact with one another?How do magnetic forces act through different materials?How do magnets make things move on different surfaces?Which magnet is the most powerful? | Can you explain how shadows are formed?How does moving a light source change the size of an objects shadow?Can you identify whether an object is a light source or a reflector?Can you identify a light source?Can you make a sundial and explain how it works?How is the sun dangerous and how can we protect ourselves?Can you group objects according to whether they are transparent, translucent or opaque? |
| **Context** | Plants | Rocks |  |
| **Vocabulary** | Roots, stem/trunk, leaves, photosynthesis, pollen, pollinationseed formation, seed dispersal, germination, pollination, seed dispersal, air, water, room, light, nutrients,  | Rock, fossil, soil, minerals, peat, chalky, sandy, clay, sedimentary, metamorphic, Igneous,  |
| **Scientific Enquiry Questions** | Can you describe the life cycle of a flowering plant?Can you identify the main parts of a plant?Can you explain the different functions of a plant?Can you explain the different methods of pollination?What can affect plant growth?Can you explain the different methods of food dispersal?What are the needs of different plants?How is water transported in plants? | What are fossils?How are fossils formed?Can you investigate the properties of rocks?What are soils made from?Can you describe the properties of different rocks?How are different rocks used?What is soil made of and how does it change over time?How all rocks the same? (Hardness) |
| **YEAR FOUR** |
| **Context** | Animals Including Humans | Electricity | Living things and their habitats |
| **Vocabulary** | digestive system, digestion, mouth, teeth, oesophagus, intestine, rectum, anus, incisors, premolars, molars, canine, herbivore, carnivore, omnivore, producer, consumer, predator, preyfood chain. | Electricity, electrical applianceMains, electrical circuit, cell and battery, electrical componentSwitch, conductor, insulator, cell, switch, bulb, wire,  | Classification, classification key, environment, habitat, migrateHibernate, vertebrates, invertebrates,  |
| **Scientific Enquiry****Questions** | Can you identify and locate the main organs of the human digestive system?Can you create a food chain and explain what it shows?Can you create a food web and explain what it shows?How can we look after our teeth?How does the human digestive system work?Can you explain the structure of a tooth?Can you identify different types of teeth and explain what they do? | Which materials are conductors and which are insulators?Can you create a simple electrical circuit?Can you identify electrical components and their symbols?Can you identify machines that need electricity to make them work?Can you explain how an electrical switch works?How can electricity be dangerous?Can you predict whether a circuit will work and how can it be fixed? | Can you create a classification key?Can you group animals according to whether they are fish, reptiles, amphibians, birds or mammals?Can you group organisms indifferent ways?Can you investigate how a habitat changes throughout the year?Can you use a classification key to identify familiar organisms?Can you use a classification key to identify invertebrates?What is deforestation and what are its negative effects? |
| **Context** | Sound | States of Matter |  |
| **Vocabulary** | Sound, sound source, vibrations, pitchVolume, sound insulation,. | change of state, melting, freezing, melting point, boiling point, evaporationcondensation, water cycle, temperature, solid, liquid, gas,  |
| **Scientific Enquiry****Questions** | What’s the relationship between distance and volume?How are sounds made and how do we hear things?Can you order sounds according to their pitch?How can you affect the volume of a percussion instrument?Can you make a tuned string instrument?Can you place sounds in order of pitch and volume?How well does sound travel through different materials? | How do materials change state?How is an evaporation rate affected by temperature?How do the melting points of different materials differ?Can you research the melting and boiling points of different materials?Can you explain and show the water cycle? (solar still)Can you group substances according to whether they are liquids, solids and gases?Which materials are better thermal insulators? |
| **YEAR FIVE** |
| **Context** | Animals Including Humans | Earth and Space | Forces |
| **Vocabulary** | Foetus, gestation, life expectancy, baby, toddler, child, teenager, adult,  | Earth, Sun, Moon, planets, solar system, star, rotate, orbit, day, night. | Force, gravity, force meter, Newton (N)air resistance, water resistance, frictionmechanisms, lever, pulley, gear, push, pull. |
| **Scientific Enquiry****Questions** | Can you create a timeline showing the development of a child?When should you be allowed to do different things?How does the foetus develop?Can you compare the gestation periods of different animals?What are the differences between men and women?Can you create a timeline of human life? | Can you compare the size of the planets in the solar system?How are day and night caused?How does the moon move?Can you make a sundial and explain how it works?Can you research and compare the different planets?Can you explain how the solar system was formed?Why does the moons appearance appear to change when viewed from Earth?How does the Earth and other planets move?  | What are the effects of air resistance?Can you make and calibrate a force meter and explain how it works?How does a gear train work?Why do objects fall to Earth?What are the effects of friction on every day materials?How does a lever work?How does a pulley work?What is water resistance? |
| **Context** | Living Things and Their Habitats | Properties and Changes of Materials |  |
| **Vocabulary** | life cycle, reproduction, sexual reproduction, asexual reproduction, fertilise, metamorphosis, photosynthesis, pollen, pollination, seed dispersal, germination, mammal, amphibian, insect, bird. | thermal insulator, thermal conductorelectrical insulator, electrical conductordissolve, solution, soluble, insolublesieve, filter, evaporation, reversible change, non-reversible change, sieving, filtering, evaporating, burning, rusting, mixing. |
| **Enquiry****Questions** | Can you compare the lifecycles of different amphibians?How do animals reproduce?Can you compare the lifecycles of different birds?Can you compare the lifecycles of mammals, amphibians, insects and birds?How do flowering plants reproduce?Can you compare the lifecycles of different insects?Can you compare the lifecycles of different mammals? | Can you investigate the hardness of materials?What are the advantages of new materials and how were they invented?Can you group materials according to their properties?Can you identify if a change is reversible and explain how?How can different mixtures be separated?Can you recover a solution from a substance?Which materials are soluble in water?Why are materials used for different purposes? |
| **YEAR SIX** |
| **Context** | Animals Including Humans | Electricity | Evolution and Inheritance |
| **Vocabulary** | Pulse, blood vessels, lungs, circulatory system, oxygen, carbon dioxide. | Circuit, circuit symbol, circuit, diagram, cell, component, batterySwitch, voltage.  | Evolution, offspring, inherit, variationadapted, species, ancestor, natural selection |
| **Enquiry****Questions** | What are the functions of blood and blood vessels?How does diet and exercise affect body weight?Investigate the effect of exercise on heart rate.What type of exercise do we enjoy?What are the effects of smoking?Can you identify the main parts of the circulatory system and explain their functions.How does the human heart work? | What happens when you change the voltage of cells or the number of bulbs in a circuit?What happens when you change the number or voltage of cells in a circuit?Can you describe the function of electrical components and match them to their symbols?Can you use symbols to create circuit diagrams?Can you predict whether an electrical circuit will function and suggest ways to improve it? | How do some animals adapt to their environment?How did Darwin develop the theory of natural selection?What features do we inherit from our parents?Who was Mary Anning?Can you explain the process of evolution by natural selection?Can you model the process of evolution by natural selection?How do plants adapt to their environment?What does the fossil record tell us about the past? |
| **Context** | Light | Living Things and Their Habitats |  |
| **Vocabulary** | light source, light ray, emit, reflect, shadow, periscope, prism, spectrum. | Vertebrate, invertebrate, arachnid, Crustacean, microorganism, bacteria, fungi, algae, protozoa,  |
| **Scientific Enquiry****Questions** | How do we see light sources and non light sources?By moving an object how does it change the shadow?How does a periscope work?How are the size and shape of a shadow determined?Where is the best positon for a rear view mirror?Can you reflect the light to follow a path?Can you identify the main parts of the human eye and explain their functions?What is white light made from? | How did Linnaeus develop a classification system?Can you use taxonomy to explain how organisms are related to one another?Can you identify arthropods using a classification key?Can you identify some common British trees using a classification key?Can you identify invertebrates in the local environment?Can you make a dichotomous key and use it to classify organisms?Can you identify trees in the local environment?Can you classify vertebrates and invertebrates? |