



Woodside Primary Academy Progression Map



Subject: Science

Intent: The Science Education at Woodside provides children with vast opportunities to think independently and to raise questions about working scientifically. In doing this, they acquire a deep scientific knowledge and understanding as well as a love for scientific enquiry. Lessons fuel a passion for science and its application in past, present and future technologies, leading to all pupils having confidence and competence in the full range of practical skills. All children are facilitated to plan and carry out scientific investigations using our state-of-the-art science lab. During these lessons pupils gain the skills to undertake practical work in a variety of contexts. All staff at Woodside aim for their pupils to have high levels of originality, imagination or innovation in the application of scientific skills. We facilitate innovative, inquiry-based approaches to science, which directly promote the pupils' decision making and creativity. This learning is showcased in written and verbal explanations, including their ability to solve challenging problems and report their scientific findings.

| Autumn | EYFS | Key Stage 1 | | Key Stage 2 | | | |
|------------------|--|--|--|---|---|--|--|
| | Nursery 2-3 Nursery 3-4 Year R Taught across the term | Year 1 Autumn | Year 2 Autumn | Year 3 Autumn | Year 4 Autumn | Year 5 Autumn | Year 6 Autumn |
| Knowledge | <u>Nursery 2-3</u> To begin to understand how to investigate the garden area safely. <u>Nursery 3-4</u> To know what the words rough and smooth mean. <u>Year R</u> To know how to clean their teeth and begin to learn about how to eat healthily. | <u>Materials</u> To recall different materials and their properties 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. <u>Earth and Space</u> Name the four seasons and discuss features of them Talk about how the | <u>Light & Seeing</u> Name a variety of sources of light. Illustrate how light travels from a light source to our eyes. <u>Sound & Hearing</u> Name a variety of sources of sound. Recognise a variety of sounds. Observe how we hear sounds with our ears. <u>Animals and humans</u> Know the differences between amphibians, reptiles, mammals, birds, fish and invertebrates Show how carnivores, herbivores and omnivores are similar or different. <u>Evolution & Inheritance</u> | <u>Plants</u> 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 transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. | <u>Materials</u> Compare and group materials together, according to whether they are solids, liquids or gasses 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. <u>Plants</u> | <u>Movement, Forces and Magnets</u> How forces act on an object. Explain the effect of gravity. Measure forces in newtons using newton meters. Know how to conduct a fair test. Know and describe the effects of air resistance, water resistance and friction on objects. How gears are used to transfer forces Scientific vocabulary including forces, directions, fulcrum etc. <u>Materials</u> Solids, liquids and | <u>Light and Seeing</u> 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. <u>Sound and Hearing</u> |

| | | | | | | | |
|---------------|--|---|--|--|---|---|--|
| | | seasons affect them (clothes, weather, etc.) | | <u>Animals and humans</u> 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. | | gasses – characteristics, properties and Describe changes of state, Use scientific terminology in relation to evaporation and condensation Know the Solubility of materials in order to separate mixtures. | <u>Materials</u> |
| Skills | <u>Nursery 2-3</u> To be able to observe different plants and animals through exploration. <u>Nursery 3-4</u> To explore rough and smooth objects. To begin to explore different materials and their similar/different properties. <u>Year R</u> Children learn about oral hygiene and how to clean their teeth. Children learn how to identify healthy food and why it is healthy. | <u>Materials</u> Identifying materials and matching them to given properties. Distinguish between an object and the material from which it is made. <u>Earth and Space</u> Observe changes over time in the seasons. Take measurements of the length of a day over the seasons. Ask simple questions. | <u>Light & Seeing</u> Experiment with ways to block light from reaching our eyes. <u>Sound & Hearing</u> Illustrate that ears allow us to hear sounds. Categorise sounds. Suggest ways to protect our ears from loud sounds <u>Animals and humans</u> Compare and contrast different types of animals <u>Evolution & Inheritance</u> | <u>Plants</u> Experiment to see what plants need to grow Dissect a flower to see the parts of a flower. <u>Animals and humans</u> Identify bones in the body. Identify organs and some of the functions of them in the body. Describe the digestive system. | <u>Materials</u> Explain the properties of different materials using scientific language. Sort materials into groups according to their properties. Decide on what equipment to use and how to make observations. <u>Plants</u> | <u>Movement, Forces and Magnets</u> Construct a fair test to measure the effect of friction on an object, selecting equipment and method to use. Investigate the effect of air resistance Record measurements on a graph accurately. Use equipment accurately to measure time. <u>Materials</u> Investigation – changing temperature of melting ice Separating mixtures using knowledge of materials and solubility / particle size. Use equipment to measure temperature | <u>Light and Seeing</u> <u>Sound and Hearing</u> <u>Materials</u> Recognition when identifying and classifying will be helpful to answer questions. Decide what equipment tests and secondary sources of information to use to identify and classify things. Use secondary sources to classify things. Make their own keys and branching databases using 4 or more items. Use more than one piece of scientific |

| | | | | | | | |
|-------------------|--|---|--|--|--|---|---|
| | | | | | | / separate materials - carrying out careful observations e.g., eye level to read thermometer. Present data in tables and graphs (age-appropriate maths) including drawing scales accurately | evidence to identify and classify things. Draw valid conclusions when sorting and classifying. Recognise the significance of sorting and classifying. Talk using scientific knowledge. Evaluate how keys worked |
| Vocabulary | <u>Nursery 2-3</u> Leaves trees grass inside outside garden classroom <u>Nursery 3-4</u> Rough and smooth. same, different <u>Year R</u> Teeth, brush, toothbrush, toothpaste, decay, clean, dirty and hygiene. | <u>Materials</u> material, plastic, metal, wood, glass, fabric, stone, match, object, sort, label, properties, hard, soft, rough, smooth, stretchy, shiny, transparent, opaque, flexible, rigid, waterproof, absorbent, suitability, uses, squash, bend, twist, stretch, <u>Earth and Space</u> morning, midday, afternoon, evening, night, midnight, earth, sunrise, sunset , year, autumn, summer, spring, winter, weather, temperature | <u>Light and Seeing</u> light, source , sun, candles, fire, electric lights, torches, the moon, stars, streetlights, eye, block <u>Sound and Hearing</u> Sound, source, hear, ears, loud, soft, natural, human-made, high-pitched, low-pitched, hearing impairment, deaf <u>Animals and humans</u> Mammal, amphibian, reptile, fish, bird, cold-blooded, warm-blooded, predator, prey, survival, balanced diet , fruit, vegetables, cereals , meat, dairy, carbohydrates, fats, oils, protein, sugar, touch, taste, see, hear, smell, senses, blind, | <u>Plants</u> Lavender, rose, sunflower, daffodil, heather, ferns, yucca, Wilma, nutrients, conditions , roots, stem, leaves, flowers, fruit, absorb, wilt, reproduce, pollinate, life cycle, nectar, pollinator, stamen, stigma, style, anther, pistil, ovary, ovule, petal, sepal, self-pollination , butterflies, beetles, wasps, hoverflies, moths, disperse, dispersal <u>Animals and humans</u> Nutrients, carbohydrates, proteins, fats, vitamins, minerals, fiber, water, mouth, oesophagus, stomach, small intestine, large intestine, anus, waste, producer, predator, prey, bones, spine, arm, | <u>Materials</u> Igneous, granite, basalt, obsidian, metamorphic, slate, marble , sedimentary, sandstone, limestone, chalk, mineral, quartz, topaz, feldspar, diamond, magma, origin , fossil, shale, remnant , clay, sandy, silty, chalky, loam, weathering , solid, liquid, gas, solid, liquid, gas, state, melting, freezing, solidifying, evaporating, condensing, <u>Plants</u> Photosynthesis, carbon dioxide , absorb, conduct, chlorophyll , nutrient, moss, cactus , adapt, maintenance, transportation, stamen, stigma, style, anther, ovary, ovule, | <u>Movement, Forces and Magnets</u> Gravity, friction, drag force, resistance, air resistance, water resistance, contact, gear, lever, pulley, spring, transfer, direction, torque, pivot , push, pull, mechanism , machine, effort , lift, dissolve, soluble, insoluble, solution , reverse, evaporate, separate, filter , mixture, sieve , conductor, insulator, reversible, irreversible, state, melt, cool, burn, ash, oxidation, rust <u>Materials</u> hardness, transparency, conductivity | <u>Light and Seeing</u> Light, source, travel, surface, reflect, reflective, variable, constant, protractor, angle , predict, periscope , mirror, aperture, diffraction , invisible, lunar, waxing, waning, phases of the moon, refraction, density <u>Sound and Hearing</u> Pitch, volume, vibration, frequency, amplitude , wave, molecules <u>Materials</u> Conductivity, solution, filter, boil, evaporate, soluble, insoluble, solvent , evaporate, substance, Bunsen burner, waterproof, absorbency, |

| | | | | | | | |
|--|--|--|--|--|--|---|---|
| | | | deaf, offspring, dependent, independent <u>Evolution and Inheritance</u> Human, resemble, similar, different, eye colour, skin tone | leg, hip, skull, ribcage, shoulder blades, humerus, radius, ulna, femur, patella, pelvis, scapula, ball and socket, hinge, pectoral, abdominal, gluteus maximus, biceps, triceps, quadriceps, incisors, canines, molars | pistil, petal, sepal, pollen, pollinate, nectar, pollinator, bee, seed, bulb, dissect | (electrical, thermal) solubility, solution, dissolve, filter, evaporate, sieve, reversible, irreversible | suitability, Condense, sublimation, reversible, irreversible |
|--|--|--|--|--|--|---|---|

| Spring | EYFS | Key Stage 1 | | Key Stage 2 | | | |
|-----------|--|---|---|---|---|---|---|
| | Nursery 2-3 Nursery 3-4 Year R Taught across the term | Year 1 Spring | Year 2 Spring | Year 3 Spring | Year 4 Spring | Year 5 Spring | Year 6 Spring |
| Knowledge | <u>Nursery 2-3</u> To know the names of a variety of different animals. <u>Nursery 3-4</u> To know how to use all their senses in hands-on exploration of natural materials and how to plant and take care of growing seeds. <u>Year R</u> To be able to distinguish between the seasons. | <u>Animals including humans</u> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Name the different parts of a human body – linking to senses Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <u>Living Things</u> Describe things as living, dead or never having been alive. Know the names of animals and the habitats they live in. Know, at a simple level, why animals are | <u>Materials</u> Know how objects can be grouped based on the materials they are made from. Understand how some objects are made from their original material. Know the properties of materials (wood, plastic, glass, metal, glass, rock) and group materials according to their properties. Understand how materials are chosen for purposes on the basis of their properties. Know how materials can change shape. <u>Earth & Space</u> Observe the apparent movement of the Sun during the day. Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. | <u>Electrical Circuits</u> 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. <u>Movement, Forces and Magnets</u> To compare how things move on different surfaces. To sort and name magnetic and non-magnetic materials. To investigate the strength of magnets. | <u>Electrical Circuits</u> Understand differences between appliances that run on higher and lower voltage, and the advantages and disadvantages of different power sources. Construct series circuits with a range of components and compare them. Solve problems with faulty circuits and predict and identify the effects of changing components in circuits. Understand why a switch affects the function of a circuit and explore the effect of more than one switch in a circuit. Recognise some common conductors and insulators, and associate metals with being good conductors <u>Sound and Hearing</u> Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations | <u>Living things</u> 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. Describe how living things are classified into broad groups according to common observable characteristics. Give reasons for classifying plants and animals based on specific characteristics <u>Evolution & Inheritance</u> 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. | <u>Movement, Forces and Magnets</u> Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effect of drag forces, such as air resistance, water resistance and friction that act between moving surfaces. Describe, in terms of drag forces, why moving objects that are not driven tend to slow down. Understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs. Understand that some mechanisms including levers, pulleys and gears, allow a smaller force to have a greater effect. <u>Evolution and inheritance</u> Recognise that living things have changed over time and that fossils provide information about living |

| | | | | | | | |
|--|--|--|--|--|---|--|---|
| | | <p>suited to their habitats.</p> <p>Know what animals eat.</p> <p>Begin to understand food chains.</p> | <p><u>Movement, Forces and Magnets</u></p> <p>Notice and describe how things move, using simple comparisons such as faster and slower.</p> <p>Compare how different things move.</p> | <p>To explore the magnetic poles. I can explain that magnets attract some materials.</p> <p><u>Living Things</u></p> <p>Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use classification keys.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to specific habitats.</p> | <p>from sounds travel through a medium to the ear.</p> <p>Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>Recognise that sounds get fainter as the distance from the sound source increases.</p> <p><u>Light and Seeing</u></p> <p>Recognise that they need light in order to see things and that dark is the absence of light.</p> <p>Notice that light is reflected from surfaces.</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object.</p> <p>Find patterns in the way that the size of shadows change.</p> | <p>Understand the theory of evolution.</p> <p><u>Animals and humans</u></p> <p>Describe the changes as humans develop to old age.</p> <p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>Recognise the importance of diet, exercise, drugs and lifestyle on the way the human body functions.</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p> | <p>things that inhabited the Earth millions of years ago.</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p> <p><u>Animals and humans</u></p> <p>Describe the changes as humans develop to old age.</p> <p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>Recognise the importance of diet, exercise, drugs and lifestyle on the way the human body functions.</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p> |
|--|--|--|--|--|---|--|---|

| Skills | Nursery 2-3 Label and name animals | Animals and humans | Materials | Electrical Circuits | Electrical Circuits | Living things | Movement, Forces and Magnets |
|--------|--|--|---|--|---|--|--|
| | Nursery 3-4 Understand the key features of the life cycle of a plant and an animal. | Ask simple questions about animals and humans. Observe animals closely to identify the features of animal groups. Perform simple tests to see how we use our senses and how the body is affected by exercise. Use observations and ideas to suggest answers to questions. Gather and record data about food that they eat and their daily routines to help in answering questions about healthy diets and lifestyles. Identify and classify animal groups such as carnivore, herbivore, omnivore and birds, fish, mammals, reptiles, amphibians and invertebrates <u>Living Things</u> Ask simple questions about living things Observe a range of things to determine the features of living, dead and never alive. Identify and classify. | Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Test materials for a particular purpose for example making boats or a jacket. <u>Earth & Space</u> Identify and classify objects according to the seasons they are associated with. Use observations and ideas to suggest answers to questions Gather and record data to help in answering questions about day length. <u>Movement, Forces and Magnets</u> Observe the movement of objects in responses to pushes and pulls. Perform simple tests to compare the movement of objects. | Construct circuits and complete incomplete circuits. Ask relevant questions about electrical circuits. Record findings using simple scientific language, drawings and labelled diagrams Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests. <u>Movement, Forces and Magnets</u> Compare how things move on different surfaces. Notice that some forces need contact between two 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 everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials. Describe magnets as | Set up simple, practical enquiries and compare electrical circuits with different components. Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests. Identify differences, similarities or changes related to simple, scientific ideas and processes. Use straightforward, scientific evidence to answer questions or to support their findings. <u>Sound and Hearing</u> Decide on what equipment to use and how to make observations. Record and present information gathered from an investigation. Use scientific language to explain findings. <u>Light and Seeing</u> Ask relevant questions. Set up simple, practical enquiries and comparative and fair tests. Gather, record, classify and present data in a variety of | Record data and results of increasing complexity using classification keys. Report findings from enquiries, including oral and written explanations involving causal relationships in the context of life cycles. Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments related to life cycles and reproduction. <u>Evolution & Inheritance</u> Record data and results of increasing complexity using scientific diagrams and labels, tables, bar and line graphs, and models related to similarities and differences between parents and their offspring. Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions in the context of fossils and what can be learned from them. Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute | Drag Forces Interpret data of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models. Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments. Gears Levers and Pulleys Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. Present findings in written form, displays and other presentations. Use test results to make predictions to set up further comparative and fair tests. Gravity Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models. <u>Evolution and inheritance</u> |

| | | | | | | | |
|--|--|---|--|---|---|--|---|
| | | Use observations and ideas to suggest answers to questions about animals, diet and habitat. | | <p>having two poles.</p> <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p> <p><u>Living Things</u></p> <p>Gather, record, classify and present data about living things in a variety of ways to help in answering questions.</p> <p>Identify differences, similarities or changes between living things and environments related to simple, scientific ideas and processes.</p> | <p>ways to help in answering questions.</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.</p> <p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.</p> <p>Identify differences, similarities or changes related to simple, scientific ideas and processes.</p> <p>Use straightforward, scientific evidence to answer questions or to support their findings.</p> | <p>ideas or arguments in the context of evolution.</p> <p><u>Animals and humans</u></p> <p>Heart Rate investigation:</p> <p>Plan enquiries, including recognising and controlling variables where necessary.</p> <p>Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work.</p> <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision.</p> <p>Record data and results of increasing complexity using tables, bar and line graphs.</p> <p>Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions.</p> <p>How Humans Change as they Grow:</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models.</p> <p>Circulatory System:</p> <p>Use simple models to describe scientific ideas, identifying scientific</p> | <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models.</p> <p>Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work.</p> <p>Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments.</p> <p><u>Animals and humans</u></p> <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision.</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models.</p> <p>Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions.</p> <p>Present findings in written form, displays and other presentations. Use test results to make predictions to set up</p> |
|--|--|---|--|---|---|--|---|

| | | | | | | | |
|-------------------|---|---|--|---|--|--|---|
| | | | | | | evidence that has been used to support or refute ideas or arguments. | further comparative and fair tests. Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments. |
| Vocabulary | <u>Nursery 2-3</u> Cat, dog, fish, pet animal farm, pig sheep duck, cow & goat <u>Nursery 3-4</u> Decay, seed, soil, plant, water, sun, grow <u>Year R</u> Spring, Summer, Autumn and Winter. Weather, rain, sun, snow, fog, cloudy, hail, storm and frost. | <u>Animals and Humans</u> Birds: Pigeon, crow, blue tit, robin, ducks, swan, owl, eagle, Fish: Sea horse, star fish, goldfish, stingray, shark, pufferfish, clown fish, Amphibians: Frogs, toads, salamanders, newts, caecilians Reptiles: Crocodiles, snakes, lizards, turtles, tortoise, gecko, chameleon Mammals: Cats, dogs, monkeys, dolphins, whales, bats Invertebrates: Worms, slugs, | <u>Materials</u> material, plastic, wood, fabric, glass, paper, cardboard, rubber, metal, natural, human-made , properties, hard, soft, rigid, strong, opaque, waterproof, transparent, smooth, flexible, heavy, lightweight , absorbent, squash, bend, twist <u>Earth & Space</u> Sun, motion, axis, movement, orbit, shadow, sundial, hemisphere , spring, summer, autumn, winter, daylight <u>Movement, Forces and Magnets</u> Force, motion , push, pull, gentle, hard, steep, slope , object, affect, gravity, surface | <u>Electrical Circuits</u> Electricity, power source, voltage, mains, battery, solar, appliance, circuit, components, bulb, buzzer, motor, cell, switch, conductor, insulator <u>Movement, Forces and Magnets</u> Friction , gravity, force, push, pull, contact, contact force, non-contact force, magnetic, attract, repel, magnetic poles (north/south) <u>Living Things</u> Birds, fish, amphibians, reptiles, mammals, insects, arachnids, vertebrates, invertebrates , flowering, non- | <u>Electrical Circuits</u> Electricity, power source, voltage, mains, battery, solar, appliance, circuit, components, bulb, buzzer, motor, cell, switch, conductor, insulator <u>Sound and Hearing</u> Vibration, range, source, resonate, amplify, tension , pitch, sound box, wave, eardrum, ear canal, outer ear <u>Light and Seeing</u> light, darkness, luminous, reflective, fluorescent, ultraviolet, cornea, retina, translucent , transparent, shadow | <u>Living things</u> life cycle, reproduction, sexual, asexual, sperm, egg , offspring, germination, metamorphosis, fertilisation, microorganism , animal, characteristic , vertebrate, invertebrate, plant, fungus , taxonomy, order, organism, species <u>Evolution & Inheritance</u> fossilisation, decompose, sediment, identical, offspring, adaptation, evolution, generation, inheritance, variation, survival <u>Animals and humans</u> | <u>Movement, Forces and Magnets</u> gravity. forces, faster, slower, weight, mass, drag, air resistance, motion, surface area, streamlined, lever, gear, pulley, transfer, forces, motion, <u>Evolution and inheritance</u> body fossils, trace fossils, sediment, rock, taxonomists, offspring, adaptation, evolution, characteristic, reproduction, genetics, survival, environment, climate <u>Animals and humans</u> Foetus, baby, child, adolescent, adult, old person, function, circulatory system, heart, valve , blood |

| | | | | | | | |
|--|--|---|--|--|--|---|--|
| | | <p>jellyfish, spiders, lobsters, snails, squid,</p> <p>backbone, lungs, webbed feet, beak, feathers, wings gills, fins, scales</p> <p>Herbivore, omnivore, carnivore, diet,</p> <p>eyes, nose, ears, mouth, head, thumb, fingers, toes, legs, knees, ankles, neck, shoulders, arms, wrists, foot, hair, elbow</p> <p>survival, air, food, water, shelter</p> <p>diet, food groups</p> <p>sleep, exercise, rest,</p> | | <p>flowering, grasses, ferns, mosses, trees, classification key, rainforest, Antarctic, woodland, river, desert, deforestation, litter</p> | | <p>womb, foetus, baby, adolescent, puberty, veins, arteries, capillaries, nutrients (carbohydrates, proteins, fats, fibre, water, vitamins, minerals), oxygen, carbon dioxide, lungs, blood, blood vessels, white/red blood cells, drugs, immune system</p> | <p>vessel, vein, artery, capillaries, transport, ventricle, atrium, septum, oxygenated, deoxygenated, lungs, gills, cardiovascular, obesity, tooth decay, blood pressure, diabetes, lifestyle, drug, cholesterol, heart disease, hypertension, hypotension</p> |
|--|--|---|--|--|--|---|--|

| Summer | EYFS | Key Stage 1 | | Key Stage 2 | | | |
|-----------|---|--|--|--|---|---|---|
| | Nursery 2-3 Nursery 3-4 Year R Taught across the term | Year 1 Summer | Year 2 Summer | Year 3 Summer | Year 4 Summer | Year 5 Summer | Year 6 Summer |
| Knowledge | <u>Nursery 2-3</u> To know how different instruments make different sounds. | <u>Plants</u> Link to dinosaurs- Naming plants Nature walks 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. <u>Seasons</u> (Continuous) | <u>Plants</u> 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. <u>Living things and their habitats</u> Explore and compare the differences between things that are living, dead, and things that have never been alive Identify that most living | <u>Rocks and fossils</u> Identify those 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. <u>Light</u> Recognise that they need light in order to | <u>Living things</u> Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help groups identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things. <u>Animals and humans</u> Describe the simple | <u>Earth and space</u> Name, order and know key facts about planets in the solar system and how they relate to each other in size and features. Explain day, night, movement of the sun across the sky, shadows, phases of moon and seasons using appropriate vocabulary. Know that a star is a glowing ball of gas and that these are grouped in constellations. Know about moon | <u>Living things</u> 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. <u>Electricity</u> Associate the brightness of a lamp |
| | <u>Nursery 3-4</u> To be able to identify differences between materials as they change state. <u>Year R</u> To know how environments can be different. | | | | | | |

| | | | | | | | |
|--|--|---|--|--|---|--------------------------------|--|
| | | <p>Name the four seasons and discuss features of them.</p> <p>Talk about how the seasons affect them (clothes, weather, etc.)</p> | <p>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.</p> <p>Identify and name a variety of plants and animals in their habitats, including microhabitats.</p> <p>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.</p> | <p>see things and that dark is the absence of light.</p> <p>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</p> <p>Find patterns in the way that the size of shadows change.</p> | <p>functions of the basic parts of the digestive system in humans</p> <p>Identify the different types of teeth in humans and their simple functions</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p> | landings and space exploration | <p>or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <p>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.</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p> |
|--|--|---|--|--|---|--------------------------------|--|

| Skills | <u>Nursery 2-3</u> To investigate different pieces of musical equipment and comment on what is happening. | <u>Plants</u> Identify and name common plants (trees) Explore and answer questions about plants. Describe and compare the structure of a variety of common animals. | <u>Plants</u> Observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb or observing similar plants at different stages of growth; Setting up a comparative test to show that plants need light and water to stay healthy. Identify simple patterns and talk about them. NB: We cover the topic 'Climates' in Geography. This reinforces their knowledge of seasonality and pattern seeking. | <u>Rocks and fossils</u> To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. To know how soil is formed. To know about the permeability of different soils. | <u>Living things</u> Sort animals into a range of complex groups according to their own criteria, for example vertebrate / invertebrate. Use scientific language to explain findings. Use information sources to find information. | <u>Earth and space</u> Conducting fair tests to see how light and shadows form on a sphere. Use scientific language to explain the heliocentric vs geocentric models of the solar system and find evidence to support findings. Create diagrams explaining how the solar system works including moon phases to present findings. | <u>Living things</u> Give reasons for classifying plants and animals based on specific characteristics. Report findings using oral and written explanations, explaining causal relationships and conclusions. Present findings in written form, displays and other presentations. |
|--------|--|--|---|---|---|---|---|
| | <u>Nursery 3-4</u> Changing materials from one state to another. For example, cooking, heating and cooling. <u>Year R</u> Recognise that some environments are different from the ones in which they live. Verbalise and describe what they hear, see and feel whilst outside. | <u>Seasons (Continuous)</u> Observe the changes in the seasons. Pattern seeking- temperatures, weather types. | <u>Living things and their habitats</u> Collecting data. Analyse by comparing numerical data. Use scientific language to describe causal relationships. Use simple books and electronic media to find things out. | <u>Light</u> To recognise that we need light in order to see things and that dark is the absence of light. To know how light is reflected. To know that light is reflected from surfaces. To recognise that they need light in order to see things and that dark is the absence of light. To find patterns when investigating how shadows change size. | <u>Animals and humans</u> Identify and compare food groups; sorting foods into the correct group. Plan a fair test; make predictions Draw simple conclusions from a fair test. | | <u>Electricity</u> Recognise the different parts of an electrical circuit and be able to name them. Recognise when variables need to be controlled or cannot be controlled and when a fair test is the best way to answer a question. Plan a fair test selecting the most suitable variables to measure, change and keep the same. Use equipment accurately to collect observations. Record data appropriately and accurately. Use test results to make predictions to set up further comparative |

| | | | | | | | |
|--|--|--|--|--|--|--|---|
| | | | | | | | <p>and fair tests.</p> <p>Recognise the patterns in results.</p> <p>Draw valid conclusions based on the data.</p> |
|--|--|--|--|--|--|--|---|

| | | | | | | | |
|-------------------|--|--|--|---|--|---|---|
| Vocabulary | <p><u>Nursery 2-3</u> Noisy, loud, fast, slow</p> <p><u>Nursery 3-4</u> Cook, heat, ingredients, hot, cold, change, mix, ice and sun.</p> <p><u>Year R</u> City, beach, farm, countryside, country, forest, desert and sea.</p> <p>Cold, wet, hot, dry, muddy, soft, hard, smooth and rough.</p> | <p><u>Plants</u> deciduous, evergreen, tree, leaf, flower (blossom), petals, fruit, bulb, seed, roots, stem, trunk, branches</p> | <p><u>Plants</u> Flower, stem, roots, leaf, petal, evergreen, deciduous, soil, seed, water, sunlight, wild, environment, achillea, geranium, rudbeckia, helianthus, abelia, acanthus, acer, African violet, agave, garden, ash, aspen, beech, hawthorne</p> <p><u>Living things and their habitats</u> Living, dead, move, grow, reproduce, humans, plants, minerals, habitat, suitable, survive, climate, warm, cold, shelter, Antarctic, woodland, pond, desert, food source, diet, food chain, energy</p> | <p><u>Materials</u> Granite, sandstone, marble, slate, limestone, chalk, sedimentary, sandstone, limestone, chalk, sediment, igneous, granite, basalt, obsidian, fossil, mineral, quartz, topaz, feldspar, diamond, fossil, soil, sandy, chalky, clay, loam, solid, liquid, gas, state, melting, freezing, solidifying, evaporating, condensing,</p> <p><u>Light</u> light source, reflection, block, shadow</p> | <p><u>Living things</u> Vertebrates, invertebrates, flowering plants, non-flowering plants, taxonomy, classification, deforestation, population, ecological, environment, ecosystem</p> <p><u>Animals and humans</u> Nutrients, carbohydrates, cells, tissue, organs, malnutrition, dehydration, supplement, mouth, oesophagus, stomach, small intestine, large intestine, anus, nutrition, absorb, roots, stem, leaves, photosynthesis, flower, producer, primary consumer, secondary consumer, apex predator, prey, energy, sunlight, relax, contract, muscle group, pectoral, abdominal, glutes, quadriceps, biceps, triceps, (muscle) fibres, incisor, canine, molar, diet</p> | <p><u>Earth and space</u> Gas, star, sun, orbit, planet, solar system, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, heliocentric, hypothesis, axis, celestial, geocentric, hemisphere, tilt, spherical, lunar, waxing, waning, new moon, gibbous, full moon, half-moon, phase</p> | <p><u>Living things</u> Reproduction, characteristic, classification, organism, microorganism</p> <p><u>Electricity</u> Voltage, battery, circuit, current, resistance,</p> |
|-------------------|--|--|--|---|--|---|---|

| | | | | | | | |
|--|--|--|--|--|--|--|--|
| | | | | | | | |
|--|--|--|--|--|--|--|--|

| Impact (End Points) & Working Scientifically Skills | | | | | | |
|---|--|--|---|--|--|--|
| EYFS | Key Stage 1 | | Key Stage 2 | | | |
| Year R | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| <p>Children are able to identify similarities and differences in relation to places, objects, materials and living things.</p> <p>They are able to discuss the features of their own environment and how environments might vary from one another.</p> <p>They make observations of animals and plants and explain why some things occur and talk about changes.</p> <p>Children can draw pictures of animals and plants, drawing on their experiences.</p> | <p>Children should be able to name, label and sort animals, plants and body parts into groups.</p> <p>They should be able to perform simple tests, gather data and discuss what they find out.</p> <p><u>Working Scientifically</u></p> <p>Ask simple questions.</p> <p>Verbally Know what a question is and why they're important in science.</p> <p>Observe closely, using simple equipment.</p> <p>Use equipment and verbally say observations.</p> | <p>Children should be able to experience and observe phenomena, looking more closely at the world around them.</p> <p>They should be curious and ask questions about what they notice.</p> <p>They should be developing their scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things and carrying out simple tests.</p> <p><u>Working Scientifically</u></p> <p>Ask simple questions.</p> | <p>Children should be able to label the parts of a plant and have a secure knowledge of what a plant needs to survive.</p> <p>Undertake observations over a period of time, make predictions, present data and analyse findings.</p> <p>Explain how water transportation occurs.</p> <p>Children should be able to confidently compare and group together different kinds of rocks & fossils based on their appearance and physical features.</p> | <p>Children should be able to explain how sound is made up of vibrations.</p> <p>Children have an understanding of different materials and their state of matter.</p> <p>Children have a deeper understanding of animals within their habitat and a food chain.</p> <p>Children should be able to scientific vocabulary to plan, carry out their own investigations.</p> <p><u>Working Scientifically</u></p> <p>Ask relevant questions.</p> <p>From research, ask key questions.</p> <p>Open/vs closed questions.</p> | <p>Children use their knowledge of the solar system to explain regularly experienced natural processes such as day and night and gravity.</p> <p>They can explain similarities and differences between the life cycles of plants, animals and humans using appropriate scientific vocabulary.</p> <p><u>Working Scientifically</u></p> <p>Plan enquiries, including recognising and controlling variables where necessary.</p> <p>Introduce variables and how to control them.</p> | <p>Children use their scientific skills and vocabulary to plan, carry out and evaluate appropriate investigations to explore the wider world.</p> <p><u>Working Scientifically</u></p> <p>Plan enquiries, including recognising and controlling variables where necessary.</p> <p>Children start to recognise when variables have and haven't been controlled.</p> <p>Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work.</p> <p>Know how to use new apparatus such as a newton meter and suggest ways to take reading.</p> |

| | | | | | | |
|--|--|---|---|--|--|--|
| | <p>Perform simple tests.</p> <p>Teacher to give test for them to conduct.</p> <p>Teaching what an experiment is.</p> <p>Identify and classify.</p> <p>Single circle venn diagram. Does it swim? Yes or no.</p> <p>Use observations and ideas to suggest answers to questions.</p> <p>Basic conclusion from experiment. What did we find? What did you see?</p> <p>Gather and record data to help in answering questions.</p> <p>Basic charts with tick/cross setup.</p> <p>Verbally answering key questions.</p> | <p>Written</p> <p>Why/how questions 5 Ws.</p> <p>Observe closely, using simple equipment.</p> <p>Selecting equipment to conduct experiments with.</p> <p>Recording observations</p> <p>Perform simple tests.</p> <p>Teacher to scaffold experiment with more child-led opportunities.</p> <p>Identify and classify.</p> <p>Using two venn diagrams that overlap.</p> <p>Use observations and ideas to suggest answers to questions.</p> <p>Answering own questions from experiments deciding if experiments fully answered the question or not.</p> <p>Gather and record data to help in answering questions.</p> <p>Record slightly more complex data such as numerical data or using vocabulary to describe differences and findings.</p> | <p>To sort, name and identify magnetic and non-magnetic objects. To understand light & shadows, patterns and reflection</p> <p><u>Working Scientifically</u></p> <p>Ask relevant questions.</p> <p>From previous knowledge, ask questions.</p> <p>Identify differences, similarities or changes related to simple, scientific ideas and processes.</p> <p>Use straightforward, scientific evidence to answer questions or to support their findings.</p> <p>Compare and contrast based on observations/research.</p> <p>Set up simple, practical enquiries and comparative and fair tests.</p> <p>Introduce what a comparative/fair test is with teacher structure.</p> <p>Make accurate measurements using standard units, using a range of equipment, e.g., thermometers and data loggers.</p> <p>Introduce which equipment measures what and scaffold how to take measurements with equipment accurately.</p> <p>Gather, record, classify and present data in a variety of</p> | <p>Identify differences, similarities or changes related to simple, scientific ideas and processes.</p> <p>Use straightforward, scientific evidence to answer questions or to support their findings.</p> <p>Compare and contrast based on observations/research</p> <p>Persuasive language to show that key question has been answered.</p> <p>Set up simple, practical enquiries and comparative and fair tests.</p> <p>Introduce what a comparative/fair test is with teacher structure</p> <p>Make accurate measurements using standard units, using a range of equipment, e.g., thermometers and data loggers</p> <p>Starting to independently select equipment to measure with and take accurate readings.</p> <p>Gather, record, classify and present data in a variety of ways to help in answering questions.</p> <p>Select the most appropriate ways to present data and decide how this answers key questions best.</p> <p>Record findings using simple scientific language, drawings, labeled diagrams, bar charts and tables.</p> | <p>Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work.</p> <p>Building on Yr 3 & 4, by selecting appropriate equipment. For example, selecting a thermometer for temperature.</p> <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision.</p> <p>Ensuring that readings are taken accurately, identifying common errors with readings.</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models.</p> <p>Building on Yr 3 & 4, selecting how to record data and present it on graphs, charts etc.</p> <p>Ensuring that graphs and charts follow the Yr 5 maths curriculum with appropriate labels.</p> <p>Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions.</p> <p>Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions.</p> <p>Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions.</p> <p>Present findings in written form, displays and other presentations</p> <p>Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions.</p> <p>Present findings in written form, displays and other presentations.</p> <p>In a variety of ways and building on Yr 4, Present findings in written</p> | <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision.</p> <p>Ensure that readings are taken accurately, identifying common errors with readings and repeating readings if they are inaccurate.</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models.</p> <p>Building on Yr 5, selecting how to record data and present it on graphs, charts etc.</p> <p>Ensure that graphs and charts follow the Yr 6 maths curriculum with appropriate labels.</p> <p>Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions.</p> <p>Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions.</p> <p>Present findings in written form, displays and other presentations</p> <p>In a variety of ways and building on Yr 5, Present findings in written form, displays and other presentations using higher level vocabulary. Use test results to make predictions to set up further comparative and fair tests.</p> <p>Independently, use test results to make predictions to set up further comparative and fair tests.</p> |
|--|--|---|---|--|--|--|

| | | | | | | |
|--|--|--|---|---|---|---|
| | | | <p>ways to help in answering questions.</p> <p>Record information in a variety of ways (tables, charts, graphs) with a teacher scaffold.</p> <p>Record findings using simple scientific language, drawings, labeled diagrams, bar charts and tables.</p> <p>Record findings using simple scientific language, drawings, labeled diagrams, bar charts and tables (teacher scaffold).</p> <p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Present data orally and in a variety of ways (more teacher led initially with skills explicitly taught)</p> <p>Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.</p> <p>Draw conclusion collaboratively with next steps for experiments discussed, making predictions</p> | <p>Decide how to record findings using simple scientific language, drawings, labeled diagrams, bar charts and tables independently.</p> <p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Present data orally and in a variety of ways with children selecting this independently. Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.</p> <p>Drawing conclusion collaboratively and independently with next steps for experiments discussed, making predictions</p> | <p>form, displays and other presentations.</p> <p>Use test results to make predictions to set up further comparative and fair tests.</p> <p>With teacher scaffold, use test results to make predictions to set up further comparative and fair tests.</p> <p>Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments</p> <p>Answering key questions using results, graphs, data, charts and persuasive language to support or refute arguments</p> | <p>Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments</p> <p>Answer key questions using results, graphs, data, charts and persuasive language to support or refute arguments.</p> <p>Meta-cognition to decide which evidence is the most impactful.</p> |
|--|--|--|---|---|---|---|