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| **Navigation Primary Science Knowledge Map** | |
| **EYFS Science in continuous provision** | |
| **Indoor** | * Exploration of the natural world and similarities and differences – all festivals covered and other countries compared and contrasted to UK * Open ended questions and adults engage in play * Arctic/Antarctic topic * Mini beasts. Farm visit. * Life cycles – ducks, frogs and butterflies, plants |
| **Outdoor** | * Mud kitchen * All elements of weather planned for and resourced to allow children to experience the changing seasons. * Changing state of material covered through ice, cooking, potion making etc * Planting and caring for plants in outdoor provision * Exploration of the natural world * Children encouraged to create with a purpose in mind * Open ended questions and resources |
| **See EYFS Full Skills Curriculum document links**  *NB: yellow relates to nursery* | |
| Page 1 – Role Play  Page 2 – Small World  Page 3 – Sand  Page 5 - Water  Page 6 – Mark Making  Page 7 – Investigating  Page 8 - Snack  Page 10 – Pencil control  Page 15 & 16 – Communication  Page 17 – Block play  Page 21 – Colour mixing | |

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| **EYFS** | | | |
| Nursery | Communication and Language | | * Understand ‘why’ questions, like: “Why do you think the caterpillar got so fat?” |
| Personal, Social and Emotional Development | | * Make healthy choices about food, drink, activity and toothbrushing. |
| Understanding the World | | * Use all their senses in hands-on exploration of natural materials. * Explore collections of materials with similar and/or different properties. * Talk about what they see, using a wide vocabulary. * Begin to make sense of their own life-story and family’s history. * Explore how things work. * Plant seeds and care for growing plants. * Understand the key features of the life cycle of a plant and an animal. * Begin to understand the need to respect and care for the natural environment and all living things. * Explore and talk about different forces they can feel. * Talk about the differences between materials and changes they notice. |
| Reception | Communication and Language | | * Learn new vocabulary. * Ask questions to find out more and to check what has been   said to them.   * Articulate their ideas and thoughts in well-formed sentences. * Describe events in some detail. * Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. * Use new vocabulary in different contexts. |
| Personal, Social and Emotional Development | | * Know and talk about the different factors that support their overall health and wellbeing:   + regular physical activity   + healthy eating   + toothbrushing   + sensible amounts of ‘screen time’   + having a good sleep routine   + being a safe pedestrian |
| Understanding the World | | * Explore the natural world around them. * Describe what they see, hear and feel while they are outside. * Recognise some environments that are different to the one in which they live. * Understand the effect of changing seasons on the natural world around them. |
| ELG | Communication and Language | Listening, Attention and Understanding | * Make comments about what they have heard and ask questions to clarify their understanding. |
| Personal, Social and Emotional Development | Managing Self | * Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. |
| Understanding the World | The Natural World | * Explore the natural world around them, making observations and drawing pictures of animals and plants. * Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. * Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. |
| Working Scientifically | • Children can talk about the world around them.  • Children can talk about their immediate environment.  • Children can explore the natural world around them.  • Children make suggestions about how environments may vary from one another.  • Children can make simple observations and drawings of animals and plants.  • Children can make similarities and differences between the natural world around them and contrasting environments.  • Children can explain why some processes occur and can talk about changes in the natural world around them, including the seasons and changing states of matter. | | |

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|  | **Plants** | **Animals, including humans** | **Everyday materials** | **Seasonal changes** | **Working Scientifically** |
| **Y1** | I know how to identify and name a variety of common wild and garden plants, e.g. daffodil, rose, poppy.  I know how to identify deciduous and evergreen trees, e.g. holly, birch, horse chestnut, cedar and pine tree.  I know how to identify and describe the basic structure of a variety of common flowering plants, including trees.  I know names of trees and wild flowering plants in local area and garden.  I know how to use the following year 1 vocabulary: leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud. | I know how to identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.  I know how to identify and name a variety of common animals that are carnivores, herbivores and omnivores.  I know how to describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).  I know how to identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.  I know how to use the following year 1 vocabulary:  Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, reptile, amphibian, mammal, omnivore, carnivore, herbivore, all senses. | I know how to distinguish between an object and the material from which it is made.  I know how to identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.  I know how to describe the simple physical properties of a variety of everyday materials, e.g. wood - hard, glass - fragile.  I know how to compare and group together a variety of everyday materials on the basis of their simple physical properties such as strong, transparent, flexible.  I know how to use the following year 1 vocabulary:  Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through. | I know how to observe changes across the four seasons, such as weather and temperature.  I know how to observe and describe weather associated with the seasons and how day length varies.  I know how to use the following year 1 vocabulary:  weather (sunny, rainy, windy, snowy etc) Seasons (winter, summer, spring, autumn) sun, sunrise, sunset, day length. | I know how to ask simple questions and recognise that they can be answered in different ways.  I know how to observe closely using simple equipment.  I know how to perform simple tests.  I know how to identify and classify.  I know how to use my observations and ideas to suggest answers to simple questions.  I know how to gather and record data to help in answering questions. |
|  | **Plants** | **Animals, including humans** | **Everyday materials** | **Living things and their habitats** | **Working Scientifically** |
| **Y2** | I know how to observe and describe how seeds and bulbs grow into mature plants.  I know how to find out and describe that plants need water, light and a suitable temperature to grow and stay healthy.  I know how to use the following year 2 vocabulary:  leaf, flower, blossom, bud, petal, berry, root, seed, stalk, trunk, branch, stem, bark, fruit, light, shade, sun, warm, cool, water, grow, healthy, germinate, climate, nutrients. | I know that animals, including humans, have offspring which grow into adults.  I know how to find out about and describe the basic needs of animals, including humans, for survival (water, food and air).  I know how to describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene.  I know how to use the following year 2 vocabulary:  ffspring, grow, adults, nutrition, reproduce, survival, water, food, air, exercise, hygiene, survival, exercise. | I know how to identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.  I know how to find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.  I know how to use the following year 2 vocabulary:  wood, plastic, glass, metal, water, rock, brick, paper, fabric, card, rubber, suitable/unsuitable, use/useful, hard/soft, stretchy/stiff. Rigid/flexible, waterproof/absorbent, strong/weak, rough/smooth, transparent/opaque, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching. | I know how to explore and compare the differences between things that are living, dead and things that have never been alive.  I know 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.  I know how to identify and name a variety of plants and animals in their habitats, including micro-habitats.  I know how to 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.  I know how to use the following year 2 vocabulary:  Living, dead, never been alive, suited, suitable, basic need, food chain, shelter, move, feed, names of local habitats e.g. pond, woodland, names of micro-habitats e.g. under logs, in bushes etc. | I know how to ask simple questions and recognise that they can be answered in different ways.  I know how to observe closely using simple equipment.  I know how to perform simple tests.  I know how to identify and classify.  I know how to use my observations and ideas to suggest answers to simple questions.  I know how to gather and record data to help in answering questions. |

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|  | **Plants** | **Animals including humans** | **Rocks** | **Light** | **Forces and magnets** | **Working Scientifically** |
| **Y3** | I know how to identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.  I know how to 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 know how to investigate the way in which water is transported within plants.  I know the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.  I know how to use the following year 3 vocabulary:  photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal, wind dispersal, animal dispersal, water dispersal, pollen, roots, stem, trunk, leaves, absorb, nutrients, reproduce, germination, stamen, style. | I know how 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.  I know how to identify that humans and some other animals have skeletons and muscles for support, protection.  I know how to use the following year 3 vocabulary:  Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, skull, ribs, spine, muscles, joints.  and movement. | I know how to compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.  I know how to describe in simple terms that fossils are formed when things that have lived are trapped within rock.  I know how to recognise that soils are made from rocks and organic matter.  I know how to use the following year 3 vocabulary:  Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb, water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil. | I know how to recognise that we need light in order to see things and that dark is the absence of light.  I know that light is reflected from surfaces.  I know that light from the sun can be dangerous and that there are ways to protect our eyes.  I know how to recognise that shadows are formed when the light from a light source is blocked by a solid object.  I know how to find patterns in the way that the size of shadows change.  I know how to use the following year 3 vocabulary:  light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous. | I know how to compare how things move on different surfaces.  I know that some forces need contact between two objects, but magnetic forces can act at a distance.  I know how magnets attract or repel each other and attract some materials and not others.  I know how to 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.  I know how to describe magnets as having two poles.  I know how to predict whether two magnets will attract or repel each other, depending on how the poles are facing.  I know how to use the following year 3 vocabulary:  force, push, pull, twist, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole. | I know how to ask relevant questions and use different types of scientific enquiries to answer them.  I know how to set up simple practical enquiries, comparative and fair tests.  I know how to make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.  I know how to gather, record, classify and present data in a variety of ways to help in answering questions.  I know how to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.  I know how to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.  I know how to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.  I know how to identify differences, similarities or changes related to simple scientific ideas and processes.  I know how to use straightforward scientific evidence to answer questions or to support my findings. |
|  | **Living things and their habitat** | **Animals including humans** | **States of matter** | **Sound** | **Electricity** | **Working Scientifically** |
| **Y4** | I know that living things can be grouped in a variety of ways, e.g. classifying vertebrates into mammals, amphibians, reptiles, birds and fish.  I know how to explore and use classification keys to help group, identify and name a variety of living things in my local and wider environment.  I know that environments can change and that this can sometimes pose dangers to living things, e.g. climate change, habitats, endangerment.  I know how to use the following Y4 vocabulary: classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate, fish, amphibian, reptile, bird, mammal, vertebrate, invertebrate, shelter, food, protection. | I know how to describe the simple functions of the basic parts of the digestive system in humans, e.g. teeth to break up food, oesophagus, stomach, small intestine to filter nutrients, large intestine to filter water, rectum and anus.  I know how to identify the different types of teeth in humans and their simple functions, e.g. incisors to bite, canines to rip/tear, molars to grind.  I know how to construct and interpret a variety of food chains, identifying producers, predators and prey.  I know how to use the following Y4 vocabulary: digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, incisor, canine, herbivore, omnivore. | I know how to compare and group materials together, according to whether they are solids, liquids or gases.  I know that some materials change state when they are heated or cooled, and how to measure or research the temperature at which this happens in degrees Celsius (°C).  I know how to identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.  I know how to use the following Y4 vocabulary: solid, liquid, gas, state, change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle, matter, water vapor, steam, degrees Celsius, melt, melting point, freeze, freezing point, solidify, boil, boiling point, evaporate, evaporation, condense, condensation, precipitation. | I know how sounds are made, associating sound with vibrations.  I know how to recognise that vibrations from sounds travel through a medium to the ear, e.g. air, water.  I know how to find patterns between the pitch of a sound and features of the object that produced it, e.g. larger, thicker and longer producing low sounds.  I know how to find patterns between the volume of a sound and the strength of the vibrations that produced it.  I know that sounds get fainter as the distance from the sound source increases.  I know how to use the following Y4 vocabulary: sound, source, vibrate, vibration, travel, pitch, volume, faint, loud, insulation. | I know some common appliances that run on electricity, e.g. computers, cookers, phones, batteries.  I know how to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.  I know how to 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.  I know that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.  I know how to recognise some common conductors (metals) and insulators (rubber and plastic), and associate metals with being good conductors.  I know how to use the following Y4 vocabulary: electrical, appliance, mains, plug, circuit, component, cell, battery, positive, negative, connect/connectors, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, current. | I know how to ask relevant questions and use different types of scientific enquiries to answer them.  I know how to set up simple practical enquiries, comparative and fair tests.  I know how to make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.  I know how to gather, record, classify and present data in a variety of ways to help in answering questions.  I know how to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.  I know how to report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.  I know how to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.  I know how to identify differences, similarities or changes related to simple scientific ideas and processes.  I know how to use straightforward scientific evidence to answer questions or to support my findings. |
|  | **Living things and their habitats** | **Animals including humans** | **Properties and changes of materials** | **Earth and space** | **Forces** | **Working Scientifically** |
| **Y5** | I know how the life cycles of a mammal, an amphibian, an insect and a bird are different.  I know how to describe the life process of reproduction in some flowering and non-flowering plants and some animals.  I know how to use the following Y5 vocabulary: life cycle, live, young, fertilises, egg, runners, reproduce, sperm, metamorphosis gestation, cuttings, plantlets, bulb, sexual/asexual reproduction | I know how humans change and develop from birth to old age.  I know how to use the following Y5 vocabulary: adolescent, adult, asexual reproduction, sexual reproduction, fertilization, death, teenager, elderly, toddler, reproduction, foetus, growth, puberty, menstrual cycle, gestation. | I know that properties, including hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets can be used to compare and group materials.  I know that some materials, such as salt and sugar, will dissolve in liquid to form a solution, and describe how to recover a substance from a solution (solution, dissolve, insoluble, liquid).  I know how to use my knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating (separate, mixture, solution, suspension, soluble, insoluble, dissolve, evaporate, solid, liquid, filter, sieve, magnet, attract, particles).  I know why materials are used for everyday purposes based on findings from comparative and fair testing (including metals, wood and plastic demonstrate that dissolving, mixing and changes of state are reversible changes).  I know 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. (Reversible, irreversible, physical, chemical, reaction, reactant, rusting, burning, product). | I know how the Earth, and other planets in the solar system, move in relation to the Sun.  I know how the Moon moves in relation to the Earth.  I know that the Sun, Earth and Moon are approximately spherical bodies.  I know that day and night occur as a result of the Earth’s rotation and can explain the apparent movement of the sun across the sky.  I know how to use the following Y5 vocabulary: Earth, sun, moon, Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune, Pluto (dwarf planet), spherical, solar system, rotates, star, orbit, planets, axis, night, day, season, galaxy, meteorite, celestial. | I know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.  I know the effects of air resistance, water resistance and friction, that act between moving surfaces.  I know that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.  I know how to use the following Y5 vocabulary: force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears, Newton, up thrust, opposing, streamline, brake, cog, weight, mass. | I know how to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.  I know how to take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.  I know how to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.  I know how to use test results to make predictions to set up further comparative and fair tests.  I know how to report and present findings from enquiries, including conclusions, causal relationships and explanations of my results, in oral and written forms such as displays and other presentations.  I know how to identify scientific evidence that has been used to support or refute ideas or arguments. |
|  | **Living things and their habitats** | **Animals including humans** | **Evolution and inheritance** | **Light** | **Electricity** | **Working Scientifically** |
| **Y6** | I know how to describe 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.  I know how to give reasons for classifying plants and animals based on specific characteristics, e.g. legs, tail, habitats.  I know how to use the following Y6 vocabulary: vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering. | I know how to identify and name the main parts of the human circulatory system and describe the functions of the heart, lungs, blood vessels and blood.  I know how to recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function, e.g. weight, health.  I know how to describe the ways in which nutrients and water are transported within animals, including humans, e.g. delivered by blood cells.  I know how to use the following Y6 vocabulary: heart, pulse, rate, pumps, blood, blood vessel, transported, lungs, oxygen, nutrients, circulatory system, drugs, lifestyle. | I know how 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.  I know how to recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.  I know how to identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution, e.g. camels have long eyelashes and humps to store water, arctic fox has large ears.  I know how to use the following Y6 vocabulary: offspring, sexual reproduction, vary, variation, characteristics, suited, environment, inherited, species, fossils, adaptation, inherited characteristic, gene, natural selection. | I know how to recognise that light appears to travel in straight lines.  I know how to 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.  I know how to 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.  I know how to use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.  I know how to use the following Y6 vocabulary: transparent, translucent, opaque, surface, shadow, reflect, mirror, sunlight, refraction, medium, dense. | I know how to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.  I know how 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.  I know how to use recognised symbols when representing a simple circuit in a diagram, e.g. open and closed switch, wires, bulb, buzzer.  I know how to use the following Y6 vocabulary: complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage. | I know how to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.  I know how to take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.  I know how to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.  I know how to use test results to make predictions to set up further comparative and fair tests.  I know how to report and present findings from enquiries, including conclusions, causal relationships and explanations of my results, in oral and written forms such as displays and other presentations.  I know how to identify scientific evidence that has been used to support or refute ideas or arguments. |