Science Curriculum Map

Key Government Documents	
Statutory Framework EYFS 2021 ELG: The Natural World	*Children at the expected level of development will:* ● *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.*
National Curriculum 2021 Key Stages 1 & 2: Aims	The national curriculum for science aims to ensure that all pupils: ● develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics ● develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them ● are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future

Unit & Term	**LO: Skills to be covered: What should the children be able to do? activities to learn through**	**LO: Knowledge to be covered: What should the children know?**	**LO: Vocabulary to be covered: Language children should be familiar with**
Autumn Term - FS	**I can explore my natural world and make observations and drawings of plants** ***-Seasons: Autumn - bark & leaf rubbings, drawing of a tree*** ***-Forest school*** ***-Harvest*** **I can explore my natural world and make observations about humans** **Activities to learn through:** ***-Harvest - Healthy School*** **I can test & compare the suitability of materials for a particular purpose** ***-Scarecrows wedding*** ***-Incy Wincy*** ***-Supertato*** **I can make a prediction** ***-Browning Apples*** ***-Humpty Dumpty*** ***-Baking - Vegetable soup, apple pressing*** ***-Planting Spring bulbs*** **I can sort and group things** ***-World Recycling Week*** ***-trees: sorting their leaves by colour, shape and size*** *-natural objects: acorns, conkers* **Ongoing outdoor activities:**	**Plants** -I can discuss how an area has changed through the seasons. -I can talk about how a leaf has different shapes and textures -I can talk about key features in my local environment. -I can talk about what happens to a bulb after it is planted. -I describe the shape and colours of leaves. -I can explain why we need to eat lots of vegetables and fruit. -I know that leaves and roots of plants can be vegetables. (lettuce/carrots) while fruit contains seeds. -I can name an oak, willow, fig and apple tree. **Animals including humans** -I know healthy and unhealthy foods. -I know I need sleep, exercise and good hygiene to stay healthy. -I can use my senses to explore. **Materials** -I can recognise and name different materials: *wood, paper, rock, metal, plastic, glass.* -I can know where some materials come from. -I can describe different materials *wet, dry, waterproof* and building on my knowledge of waterproof materials make a home to keep Incy dry. -I can talk about the properties of materials and their suitability for use. -I can talk about why it's important to recycle in order to look after our planet. **Predictions and changing states of matter** -I can talk about why the fruit with juice on turns browner slower than the fruit with water.	*vegetables & name them, fruit & name them, seed, leaves, roots, stem, bulb, shoot, flower* *red, orange, yellow, brown, green.* *apple, fig, oak, willow* *healthy, hygiene, exercise* *senses: sight, hearing, taste, touch, smell* *material*, wood, paper, rock, metal, plastic, glass. *bendy, dull, hard, lumpy, rigid, rough, shiny, smooth, soft, strong, stretchy, strong, stiff, wet, dry, waterproof.* *factory, furnace.* recycle, planet, decomposing, reusable

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	Pipes & flow; Floating & sinking; Mud kitchen; Ramps; Balance bikes; Magnifying glasses; magnets	-I can talk about how the water in the experiment has changed (it is salty water, which is denser than water and creates more buoyancy). -I can talk about how things change from liquid to solid when baked and why this happens. **Similarities and differences between the natural world and contrasting environments** -I can name animals and plants and their habitats in my local area. -I can talk about how the weather changes throughout the year and the effect this has on our local environment: the trees, leaves, flowers, our clothing and activities, how animals behave.	season, autumn, cloudy, rainy, sunny, showers, windy, warm, hot, cold.
Spring Term - FS	**I can make observations, drawings and ask questions about animals** ***-Snow and ice*** ***-Blue Penguin / Antarctica*** ***-Visit our local farm*** ***-Tadpoles*** **I can sort and group things** -Animals and their young **I can observe a changing state of matter** ***-Snow and ice - frozen balloons*** **I can explore my natural world and make observations and drawings about plants** ***-Seasons: Winter and Spring*** ***-Forest school*** ***-Draw and label a hyacinth bulb*** **I can make a prediction** ***-frozen balloons*** ***-Baking - Cook potatoes & make butter from cream*** ***-Growing flowers & vegetables*** **Ongoing outdoor activities:** Pipes & flow, Floating & sinking, Mud kitchen, Ramps, Balance bikes, Magnifying glasses, magnets	**Animals** -I can talk about animals who live in snowy habitats, explaining what they eat (carnivores) and how they are adapted to stay warm. -I can name farm animals and their young. -I know that farm animals are herbivores. -I know that farmers care for their animals by providing food, water, shelter, medicines if they are unwell. -can talk about what farm animals provide for us (milk, meat and wool). -know that humans are omnivores - eating farm animals and grain. -I can talk about the stages in the life cycle of a tadpole and how they adapt to living in and out of water. **Plants** -I can talk about what a seed needs to grow - sunlight, water and soil for nutrients and anchorage. -I can label the parts of a flower: roots, stem, leaves and petals. -I can discuss that food grows on a farm (crops e.g. wheat), in allotments and in our gardens. **Predictions and changing states of matter** -I can talk about freezing and melting. -I can talk about how things change from liquid to solid when baked and why this happens. **Similarities and differences between the natural world and contrasting environments** -I can talk about how my environment is different from Antarctica and begin to explain why. -I can talk about how the weather changes throughout the year and the effect this has on our local environment, the trees, leaves, flowers, our clothing and activities, how animals behave.	farm, calf, chick, lamb, foal, piglet, pig, hen, cow, horse, sheep, herbivore, omnivore egg, frogspawn, tadpole, froglet, frog, lifecycle, amphibian seed, seedling, tuber, water, sunlight, soil, carrot, potato, tomato, sunflower, baking, cooking, baking, nutrients, liquid, solid Antarctica, carnivore, freezing, frozen, ice, melting, sea levels, warm, penguin, fat layer, feathers. Weather, warm, sunlight, dark, light, cold, warm, overvast, rainbow, icy, frosty, snow, sleet, Spring, Winter, thunder, lightning temperature, months of the year, seasons, Temperature, celsius, spring, rainbow, overcast, puddles hibernate

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Summer Term -FS	**I can use my senses to talk about things I have noticed around me:** ***-Hungry Caterpillar*** ***-Taste test*** ***-Summer*** **I can make observations, drawings and ask questions about animals** ***-Caterpillars*** ***-Yucky Worms*** ***-World Bee Day*** **I can describe the similarities and differences within the natural world** ***-Under the Sea/The Seaside*** **I can describe the similarities and differences between contrasting environments** ***-Categorising animals from different habitats*** **I can explore my natural world and make observations, drawings & ask questions about plants** ***-Forest school*** ***-Trees - draw and label*** **I can make a prediction** ***-Dinosaur's Day Out*** ***-Baking - potatoes and butter, strawberry tarts*** **Ongoing processes outside:** Pipes & flow; Floating & sinking; Mud kitchen; Ramps; Balance bikes; Magnifying glasses; magnets	**Animals** -I can discuss how my body is the same / different from a bee (both have heart, brain, legs, only bee's have wings). -I can talk about the different stages in the life cycle of a butterfly. -I know that minibeasts are suited to their environment, they have features that enable them to live (e.g. camouflage, hard exoskeleton, build webs). **Similarities and differences within the natural world and between contrasting environments** -I can talk about how the weather changes throughout the year and the effect this has on our local environment, the trees, leaves, flowers, our clothing and activities, how animals behave. -I know the order of the 4 seasons and begin to know the difference between the seasons and the months. -I know that some trees lose their leaves in winter while others don't. -I know that sea creatures have different features that are adapted to their habitat. -I can identify and sort different animals from different habitats. **Plants** -I can label the parts of a tree: roots, trunk, branch, leaves. -I can name an oak, willow, fig and apple tree. -I can name a daisy, buttercup, clover and a dandelion. **Predictions and changing states of matter** -I can explain how things change from liquid to solid when baked and why this happens. **Senses** -I know that my tongue is used for taste and my nose is used for smell. **Materials** -I can describe the texture of some natural and non-natural materials. -I can talk about how the movement of objects will be different depending on the surface they are moving on.	Parts of a bee, hive, types of bees (Queen / worker etc) minibeast, caterpillar egg, butterfly, cocoon, metamorphosis, earthworm, spider, ants, woodlouse, ladybirds, camouflage Weather, warm, sunlight, dark, light, cold, hot, warm, overvast, rainbow, icy, frosty, snow, sleet, Spring, Winter, thunder, lightning temperature, months of the year, seasons. habitat, suited, adapted daisy, clover, dandelion, buttercup,weed, wildflower, willow, oak, fig, apple, twig, roots, trunk, branch, leaves *senses: sight, hearing, taste, touch, smell*

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Year 1 Autumn Term	**Working Scientifically (WS)** WS-1: ask and answer questions -What is a mammal? WS-2: plan & carry out investigations WS-3: gather data and record Testing our senses carousel WS-4: suggest answers WS-5: evaluate results WS-6: use scientific language (see vocabulary column) **Scientific Enquiry (SE)** SE-1: observe closely over time the life of a tree over seasons SE-2: notice patterns & relationships SE-3: group & classify sorting and grouping animals, seeds, seasonal changes SE-4: comparative testing Are we better at smelling +/- sight? SE-5: use secondary sources Researching animals	**Animal classification** -I can understand that animals can be classified into groups with specific characteristics. -I can identify the key characteristics of mammals. -I can name some different mammals. *Focus study of class animals; investigation of a whale - can we find out what makes it a mammal and how is it the same/different to other mammals?* **Ourselves - Body parts & senses** -I Know the parts of the human body, external (& internal). -I know the function of key body parts, e.g. elbow, fingers, (heart, the spine, the brain). -I know our 5 senses & link them to correct body parts. **Seasons - Autumn** -I can name the four seasons and begin to talk about where these come in a year. -I know key characteristics of Autumn (animals, plants, weather, human activity & clothing).	mammals (vertebrates); herbivore, carnivore, omnivore; hair or fur, live young, milk, warm blooded, lungs, nocturnal, hibernation external body parts (e.g. head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth), skeleton, tongue, nose, eyes, skin, ears; taste, smell, sight, touch, hearing; autumn, season, month, September, October, November, deciduous, evergreen, weather,
Year 1 Spring Term	**Working Scientifically (WS)** WS-1: ask and answer questions testing materials WS-2: plan & carry out investigations testing materials WS-3: gather data and record recording using a table, taking measurements WS-4: suggest answers testing material - predicting WS-5: evaluate results testing materials for a purpose WS-6: use scientific language (see vocabulary column) **Scientific Enquiry (SE)**	**Seasons- Winter (spr1) & Spring (spr2)** -I know key characteristics of winter and spring. -I know seasonal changes (weather, animals & plant life, human activity & clothing). -I can begin to identify which months fall within each season & appreciate what a season is compared to a month. **Animal Classification - birds & fish** -I know key characteristics of birds and fish. -I can compare the characteristics of different animals. -I can name some common British birds, fish.	**season,** winter, month, December, January, February, deciduous, evergreen, temperature, weather spring, buds, blossom, March, April, May **birds**: beek, wings, egg in a shell, feathers, vertebrate; (warm blooded, breathe air) named birds: robin, sparrow, pigeon, blackbird, magpie, owl, penguin ?? **materials:** wood, plastic, glass, metal, water, and rock; hard/soft; stretchy/stiff; shiny/dull;

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	SE-1: observe closely over time - life cycle of frog - life of a tree over seasons SE-2: notice patterns & relationships SE-3: group & classify SE-4: comparative testing testing different materials for a specific purpose SE-5: use secondary sources	**Materials** -I can distinguish between an object and the material from which it is made. -I can name some common materials and their physical properties. **Being a scientist (Science Week)** -I can explore different roles of a scientist in our society. -I can apply some scientific skills to practical experiments and investigations.	rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent **Fish:** fins, tail, scales, gills, vertebrate **scientist,** observe, sort, investigate, plan, test
Year 1 Summer Term	**Working Scientifically (WS)** WS-1: ask and answer questions WS-2: plan & carry out investigations growing a seed in different conditions WS-3: gather data and record measuring growth of a seedling WS-4: suggest answers making predictions about seed growth WS-5: evaluate results WS-6: use scientific language **Scientific Enquiry (SE)** SE-1: observe closely over time growth of a bean (bean diary) grow and harvest our own plants and vegetables life of a tree over the seasons SE-2: notice patterns & relationships studying patterns in plants (e.g. leaf shape, petal formations) SE-3: group & classify leaves by shape seasonal features animals by type of eater SE-4: comparative testing what conditions plants need to survive SE-5: use secondary sources using plant and tree identification guides	**Animal Classification - amphibians (sum1), reptiles & types of eater (sum2)** -I know key characteristics of amphibians and reptiles. -I can identify and group animals into mammals, birds, fish, amphibians and reptiles. -I can identify and name animals that are herbivores, carnivores and omnivores. **Seasons - Summer** -I can identify the key characteristics of summer. -I can name and order the four seasons. -I can identify and sort characteristics associated with each season. **Plants & Growing** -I know the key parts of a plant. -I know key parts of a tree. -I know what plants need to grow and be healthy. -I know specific names of some common plants (including trees, wildflowers, cultivated flowers). -I know that trees that are evergreen / deciduous. -I have harvested our own vegetables.	**reptile:** scaly skin, eggs in shells, lungs, cold-blooded, crocodile, snake, tortoise, turtle, lizard **amphibians:** frogspawn, tadpoles, froglet; gills & lungs, moist skin, metamorphosis **season:** summer, June July, August, temperature, warm, sunny, daylight hours **plants:** leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem, soil, shoot, bark, bough, wildflower, deciduous, evergreen **Cultivated flowers:** daffodil, tulip, crocus, snowdrop, cherry blossom. **Wild flowers:** goosegrass, daisy, buttercup, dandelion, stinging nettle, clover. **Deciduous trees**: oak, willow, sycamore, cherry, apple, lime, (walnut). **Evergreen trees**: holly, cypress

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Autumn Term -Year 2	working scientifically (WS) WS-1: ask and answer questions -Predict whether materials will rot or not when buried WS-2: plan & carry out investigations -Perform experiment & record results to test the flexibility of materials. WS-3: gather data and record -Use a tally to record different metals on a metal hunt; -Test & record on a table - properties of materials for a raincoat. WS-4: suggest answers -Discuss suitability of a materials for a raincoat WS-5: evaluate results WS-6: use scientific language (see vocabulary column) **Scientific Enquiry** (SE) SE-1: observe closely over time -Careful observation of iron rusting over time. SE-2: notice patterns & relationships SE-3: group & classify -Sort items according to alive, dead, never alive; -Group & classify plastics by their SPI code. SE-4: comparative testing -Careful observation of iron rusting over time; -Demonstration experiment: absorption of water by building materials. SE-5: use secondary sources -Research plastics according to their SPI code, then use information to draw conclusions.	Class animal -I know key characteristics of a mammal. -I know the terms lifecycle, food chain, habitat (introduction). Materials, properties & suitability for use -know properties of a given material (review Year 1). -I can name some metals & their key generic properties. *Robot & Bluebird* -I know that some materials are flexible (they can bend, stretch, twist and squash). -I can explain the un / suitability of different materials for a raincoat.- *Robot & Bluebird* -I can explain the un/ suitability of different materials for building. - *Fire of London* -I understand absorption vs waterproof. - *Fire of London* -I can explain the un/suitability of materials for their use (e.g. a chocolate chair). Introduce: alive,dead and never alive, survival, habitat & life cycle *(Pattan's Pumpkin)* -I know what it is to be alive, dead or never alive. -I can name key world habitats. -I know that in order to survive, living things need to be adapted to their habitat. -I know what a life cycle is (in relation to a plant). Uses of Materials - plastic -I know that there are different forms of plastic & many different uses. -I know some generic properties of plastic -I know that plastic is man-made, from oil	mammal & characteristics: vertebrate, hair, live young; adapted to habitat, lifecycle, food chain; carnivore, predator, prey; **material** vs **object**, **materials:** wood, paper, metal, plastic, wax, wool, cotton, silk, cardboard, rubber **properties**: heavy light; hard soft; smooth rough; shiny dull; flexible rigid - stretch bend twist squash; absorbent waterproof; transparent translucent opaque etc (metal: iron copper aluminium gold silver) tally, chart, record answers; predict, plan an investigation, observe over time; suggest answers; flexible: stretch bend twist squash; suitable properties, waterproof, absorbent, strong sk: experiment, test, table, observe, suggest building materials: wood, steel, slate, brick suitable properties vs unsuitable …. is / is not a suitable material for a…. because … alive, dead, never alive, (breathe; sensitivity, move; nutrition, excrete, grow, reproduce); **habitat**, polar, grassland, forest, marine; **survival**, food, protection from weather & predators; **life cycle**, seed, germination, seedling, mature, flowers; plastic, recycle, reuse, reduce; **properties**: waterproof, shiny, strong, non-biodegradable, does not rot, man-made plastic, recycle, reuse, reduce

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Spring Term - Year 2	Working Scientifically (WS) WS-1: ask and answer questions WS-2: plan & carry out investigations - set up an experiment to grow microbes(mould) (child initiated). WS-3: gather data and record -observe & record results of mould experiment; -daily diary of school dinners, sorted on a chart by food groups. WS-4: suggest answers -diary of school dinners- decide if a balanced meal. WS-5: evaluate results WS-6: use scientific language (see vocabulary column) **Scientific Enquiry** (SE) SE-1: observe closely over time -Collect & grow microbes. SE-2: notice patterns & relationships SE-3: group & classify SE-4: comparative testing -Observe changes before / after exercise - how to measure & record. SE-5: use secondary sources -Use food packaging labels to find some key nutrients in different foods; -Research: 'My job as a scientist'; -Research into stages of the human life cycle.	Healthy Me & germs -I know some living things are too small to see and are called microbes; some of them (called germs) can make us ill. -I know the importance of personal hygiene including brushing teeth to prevent ill health. Healthy Me & diet -I know the meaning and importance of a balanced diet. -I can name food groups & give examples -I know that food contains nutrients (protein, carbohydrates & fats, vitamins & minerals) and the importance of different nutrients to our bodies. (gds) -I know some key nutrients in different foods. (gds) Frogs habitat & life cycle -I know the key features of an amphibian.(yr1) -I know what a life cycle is (e.g. of a frog). -I know how a frog is adapted to its habitat. -I know the frog's habitat provides it with all that it needs to survive. Science Week -I have ideas of what a scientist is. -I know that there are many types of scientists. -I can imagine life as a scientist. Human life cycle / Healthy Me & exercise -I know key features of the human life cycle. -I know the importance of exercise to stay healthy.	microbes, alive, nutrients, water, air; healthy, personal hygiene balanced diet; food groups: dairy, proteins, fruit & veg, grains; nutrients; protein, carbohydrate, fats, vitamins & minerals; vertebrate, gills, lungs, moist skin, lays soft eggs; life cycle, habitat, adapted; scientist, science scientific skills, types of investigation; human life cycle; baby toddler, child, teenager, adult, mature, old age
Summer Term - year 2	Working Scientifically (WS) WS-1: ask and answer questions -Does a potato tuber need soil to grow? -Ask questions about earthworms as dig for them. WS-2: plan & carry out investigations -Choose my own seed (collected from my own fruit), plant it and care for it -Dig up & make observations of earthworms in their habitat & create a microhabitat for them -a comparative test, germinating cress- (child-initiated)	Plants -I know that seeds need water but not light to germinate (cress experiment). -I know what a plant needs to survive & be healthy (growing my seed). -I know that a tuber is not a seed but it grows into a new plant (potatoes). Habitats & Microhabitats - earthworms -I know what a microhabitat is.	working scientifically: tally, chart, record answers; predict, plan an investigation, observe over time; suggest answers; experiment, test, table, observe, suggest germinate, soil, root, shoot, stem, seedling; mature; seed, bulb, (tuber); microhabitat, habitat, adapted, suited;

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	WS-3: gather data and record -Record the growth of my own seed on class chart -Statistics: Collect class data - tally, make a graph WS-4: suggest answers -Explain what is observed in earthworm dig WS-5: evaluate results -Evaluate the growth of our seeds (from fruit) -Evaluate our predictions of whether materials will rot or not when buried in the earth WS-6: use scientific language (see vocabulary column) **Scientific Enquiry** (SE) SE-1: observe closely over time -Plant own seeds, observe & record growth over time. -Observe life cycle of Painted Lady butterfly. SE-2: notice patterns & relationships -Statistics: class data: discuss patterns on graph. SE-3: group & classify SE-4: comparative testing -Demonstration: comparative test - growing potato tuber +/- soil. SE-5: use secondary sources -Research the different plant habitats around the world.	-I know how earthworms are adapted to their habitat. -I know what a food chain is. -I know what a life cycle is. Habitats & Microhabitats - plants -I know key plant habitats around the world. (prior to visit to Kew Gardens) -I know that plants are adapted to their habitat. Statistics - I know the importance of maths in science when collecting data. Lifecycles -I know what a life cycle is. -I can compare the life cycles of a butterfly, frog and human. Properties of materials -I know plastic does not rot when buried in the ground for 6 months, but organic materials do. -I am aware of the environmental issues of plastic.	earthworm; food chain; energy, herbivore, omnivore, carnivore; (producer, consumer); life cycle, egg, hatch, young, mature; desert, tropical & temperate rainforest, polar, alpine; data, tally, chart, graph lifecycle, egg, caterpillar, pupa / chrysalis, adult, mature; reduce, reuse, recycle; rot, (decompose, biodegradable) types of investigation: observation over time; noticing patterns; grouping and classifying; comparative test; researching using secondary source