

# Science Overview 2022-2023

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	Transition Explore weather, animals, plants, senses What the human body needs (oral hygiene, keeping fit, food)	Weather  Season changes The 5 senses	Explore winter – weather, animals, plants, senses animals – woodland (Gruffalo/Goldilocks) Explore different habitats and settings e.g. river, snowstorm, cave	Explore Spring Weather, animals, plants senses, new life Growing beans – how do they change? What do they need? Grow plants, changes in nature	Seasonal changes Pets/companion animals – how to look after them/what do they need/babies Farm animals – where do they live/their babies/their care/their jobs Vets and other jobs with animals Minibeasts/ minibeast hunts	Explore summer – weather, animals, plants, senses Seaside holidays – sea creatures and rock pools Safari/jungle animals  Animal habitats around the world
SEASONS/WEATHER/AD-HOC INVESTIGATIONS TO FOLLOW CHN’S INTERESTS						
Year 1	Seasons and Materials  Describe weather associated with the 4 seasons create a weather diary use simple equipment to make observations. use weather tools to collect data  group objects based on the material they are made of, their purposes, properties and how they are made		Animals including humans  compare living and not-living things identify and name a variety of different animals compare a variety of different animals identify and name carnivores, herbivores and omnivores name and label parts of the human body		Plants understand what plants need to grow (sow seeds) ask simple questions and make a prediction (which one will grow best?)make simple observations (plants growing) use observations to answer questions (what have we found out – which ones grew best and why) identify and name different flowering plants and trees understand differences in plants between seasons (deciduous tree at different times of the year) identify how plants can reproduce (life cycle / seeds / seed dispersal)	
HE	Outside area – garden centre role play / Growing beans / Avocado plant / walking to school					
Year 2	Living things and their habitats Identify things that are living, dead and never lived. Match animals to their habitats Identify features and diet of an animal (omnivore, herbivore, carnivore) Explain a simple food chain.	Animals including humans Identify healthy and less healthy foods Understand personal hygiene (germs and how they spread) : Identify basic needs of survival (wants/needs Recognise how a human changes as it gets older recognise similarities and differences between parents and offspring	Everyday Materials  Describe materials that are around them and compare their suitability for different uses Explore how material can be changed (squashing, bending, twisting and stretching and heating and cooling) Investigate what happens to different materials		Plants Explore and find patterns with different plants and where and how they grow (including shady areas) Observe how plants begin to grow from a seed into a fully grown plant Label parts of a plant (Stem, leaves, roots, flower, shoot) Understand about plants we eat	
HE	Growing vegetables in trugs / avocado plant / walking to school					

<b>Year 3</b>	<b>Animals including humans</b> understand the meaning of a balanced diet and food groups key features of a skeleton and muscles animal nutrition animal skeletons	<b>Forces</b>  Understand what a force is Investigate magnets	<b>Light and shadow</b> Understand what a light source is Explain how shadows are formed Understand how some materials reflect light better Understand how to be safe in the sun	<b>Plants</b> Know what plants need to grow Investigate how water is transported in plants Understand a plant life cycle and how they reproduce	<b>Rocks</b> Identify the features of different rocks Investigate the permeability of rocks Understand how fossils form
HE	Growing sunflowers /dog visit / walking to school / fish				
<b>Year 4</b>	<b>Living things and their habitats</b> Understand what makes a living thing (Mrs Gren) Classification (leaves and minibeasts) Understand classification keys Recognise the impact of changing environments	<b>Animals including humans</b> Construct simple food chains and connect them into webs To describe the digestive system in humans Identify the types if teeth in humans and link this to diet Understand how to keep teeth healthy	<b>States of matter</b>  To know the properties of solids, liquids and gases Research and observe melting different solids To understand and investigate the water cycle	<b>Electricity</b>  How to stay safe Understand that appliances use electricity Create and draw a simple circuit using drawings Understand conductors and insulators To make a simple switch	<b>Sound</b>  Understand how sounds are made Understand how sound travels Find patterns with pitch, volume and vibrations Recognise the effect of distance on sound
HE	Dog visit / walking to school / waste / plants / food / carbon footprint				
<b>Year 5</b>	<b>Changes of materials</b> Explore, group and classify materials based on their properties Investigate solubility Separate materials Reversible and irreversible reactions	<b>Earth and space</b> Understand and explore the earth's rotation and orbit and how this affects daylight Understand the moon phases based on its orbit Understand approximate distances and sizes of planets in our solar system	<b>Forces</b>  Explain the force of gravity Investigate friction Understand air resistance Understand upthrust Understand gears and pulleys and how they can be used to have a greater effect	<b>Living things and their habitat</b> Understand what global warming is and how to prevent it Tectonic plates Name the parts of a plant and flower (sepal, filament, stamen etc) Describe how plants reproduce (sexual/asexual) Seed dispersal Lifecycles of plants, amphibians and insects (metamorphosis), mammals, birds	<b>Animals including Humans</b>  Describe changes in humans as they age Gestation and growth in babies
HE	Sowing seeds / growing vegetables / climate lesson / plastic lesson / walking to school				
<b>Year 6</b>	<b>Light</b> Recognise how light travels Explore shadows (size and colour)	<b>Evolution and inheritance</b> Understand inheritance and adaptation and how this leads to natural selection Using fossils as evidence for evolution	<b>Animals including humans</b> Understand how the human heart functions Describe the components of blood and blood vessels Understand how the lungs function Describe how nutrients and water are transported Recognise the impact of diet (the effects of a poor diet) and exercise Understand the effects of drugs	<b>Living things and their habitats</b> Classify organisms based on their physical characteristics (order, phylum etc) Design and use keys to classify organisms	<b>Electricity</b> Create a circuit and use recognised symbols Investigate how voltage affects output Explore why components might function differently
HE	GARDEN MONITORS / RECYCLING AND WASTE /				

Progression in Working Scientifically Skills							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Enquire	ask simple questions about the world around them	asking simple questions and with help find out answers to them	asking simple questions and recognising that they can be answered in different ways	be guided to ask more relevant questions and become aware of different types of scientific enquiries to answer them  engage in simple practical enquiries, comparative and fair tests they have had some help with setting up	ask relevant questions and use different types of scientific enquiries to answer them set up simple practical enquiries, comparative and fair tests	plan with support different types of scientific enquiries to answer questions, begin to recognise variables and how to control these where necessary use test results to make predictions for other comparative and fair tests	plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary use test results to make predictions to set up further comparative and fair tests
Explore	Know about similarities and differences in relation to places, objects, materials and living things.  They make observations of animals and plants	observe, using simple equipment  perform simple tests with help  can identify and classify with support	observe closely, using simple equipment  perform simple tests  identify and classify	make careful observations and begin to realise the need for more accurate measurements eg mm instead of cm using standard units, using a range of equipment, including thermometers and data loggers	make systematic and careful observations and , where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	take measurements, using a range of scientific equipment, with increasing accuracy become aware of precision and the need to obtain similar results, taking repeat readings when appropriate	take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate

Record	drawn or verbal record	know that gathering and recording data can help in answering questions; with support, gather and record data	gather and record data to help in answering questions	gather and record data in different ways to help in answering questions record findings using simple scientific language, drawings, labelled diagrams and tables; develop use of bar charts and keys with appropriate support	gather, record, classify and present data in a variety of ways to help in answering questions record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	record data and results using scientific diagrams and labels, classification keys, tables and bar graphs, become familiar with and begin to develop use of scatter graphs and line graphs,	record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs,
Explain	explain why some things occur, and talk about changes. They talk about the features of their own immediate environment and how environments might vary from one another.  They make observations of animals and plants and explain why some things occur.	use their observations to try to answer their questions	use their observations and ideas to suggest answers to questions	report on findings from enquiries, including oral and written explanations, displays or presentations use results to draw simple conclusions identify differences, similarities or changes related to simple scientific ideas use straightforward scientific evidence to answer questions	report on findings from enquiries, include oral and written explanations, displays or presentations of results and conclusions use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identify differences, similarities or changes related to simple scientific ideas and processes use straightforward scientific evidence to answer questions or to support their findings.	report and present findings from enquiries, including conclusions and explanations of results in oral and written forms such as displays and other presentations identify scientific evidence that supports their ideas become aware of simple causal relationships and be able to explain some begin to develop understanding that not all results can be trusted	report and present findings from enquiries, including conclusions, causal relationships and explanations of, and degree of trust in, results in oral and written forms such as displays and other presentations identify scientific evidence that has been used to support or refute ideas or arguments.

### Investigation skills evidence progression

EYFS	Predict / draw / verbal results
Year 1	Predict / <u>method (chn or T)</u> / draw or verbal results
Year 2	Predict / method / results / <u>try to form a conclusion</u>
Year 3	Predict / method / results / <u>conclusion</u>
Year 4	Predict / method / results / conclusion / <u>questions for next time or what would they improve</u>
Year 5	Predict / method / results / conclusion / <u>explain using evidence (begin to consider the trust in the results)</u>
Year 6	Predict / method / results/ conclusion / <u>explain using evidence / consider the trust in the result (why might they need to be repeated?)</u>

### Vocabulary progression

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Transition (environment)</b>  <b>Our bodies</b> Tier 1: Head, shoulders, elbows, (various other body parts), healthy, exercise, sweaty, hot, thirsty, heart, fast  Tier 2: diet dehydrated	<b>Animals including humans</b> Tier 1: Fish, Birds, Leg, Arm, Elbow, Head, Ear, Nose, Back, Wings, Beak  Tier 2: Reptiles, Mammals, Amphibians (+ examples of each)  Tier 3: Herbivore, Omnivore, Carnivore,	<b>Animals including humans</b> Tier 1: Survival, Water, Air, Food, Adult, Baby, , Kitten, Calf, Puppy, Exercise,  Tier 2: Hygiene  Tier 3: Offspring	<b>Animals including humans</b> Tier 1: Movement, Bones, Skull, Skeletons,  Tier 2: Nutrition, Muscles	<b>Animals including humans</b> Tier 1: Mouth, Tongue, Teeth, Tier 2: Stomach, Small Intestine, Large Intestine, Herbivore, Carnivore Tier 3: Oesophagus, Incisor, Molar, Canine	<b>Animals including humans</b> Tier 1: Baby, Toddler, Teenager, Elderly, Growth,  Tier 2: Foetus, Embryo, Womb, Gestation, development, Puberty,	<b>Animals including humans</b> Tier 1: Heart, lungs, Exercise, tobacco, alcohol, dairy  Tier 2: Respiration, rhythm expand, contract, transported, balanced,  Tier 3: Blood Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, trachea, bronchi, diaphragm, ventricle, atrium, aorta, vena cava, , circulatory system, pulmonary, contracts, plasma, platelets, capillaries, alveoli, molecules, cells, ingestion, digestion, nutrients, absorption, elimination, , carbohydrate, protein, , malnourish, obesity, deficiency, lifestyle,
<b>Plants</b> Tier 1: Seeds leaves, stem, roots, petal, light, soil, water, grow	<b>Plants</b> Tier 1: Leaves, Flowers (blossom), Petals, Trunk, Branches, Stem	<b>Plants</b> Tier 1: Seeds, Bulbs, Water, Light, Growth  Tier 2: Temperature,	<b>Plants</b> Tier 1: Air, Light, Water, Soil, Flower Tier 2: Nutrients, Reproduction,	<b>Living things and their habitats</b> Tier 1: Fish, Birds, Snails, Slugs, Worms, Spiders, Insects,	<b>Living things and their habitats</b> Tier 1: Environment, Life cycle, seed,	<b>Living things and their habitats</b> Tier 1: Everyday  Tier 2: Amphibians, Reptiles, Mammals, Insects

	Tier 2:Deciduous, Evergreen trees, Fruit, Roots, Bulb, Seed,		Transportation, Tier 3: Dispersal, Pollination,	Tier2: Amphibians, Reptiles, Mammals, Environment, Habitat Tier3: Vertebrates, Invertebrates,	Tier 2: Naturalist mammal, reproduction amphibian, offspring, metamorphosis, pollination, germination	Tier3: Micro-organisms, Classification, Vertebrates, Invertebrates,
<b>Animals (woodland/pets/farm/sea/Jungle/birds)</b> Tier1: food, land, sea, air(how they look/features)  Tier2: Habitat		<b>Living things and their habitats</b> Tier1: Living, Dead, Woodland, Pond, Desert  Tier2: Habitat, Energy, Food chain, Predator, Prey,				<b>Evolution and Inheritance</b> Tier1: Fossils, not identical, identical, change, extreme, conditions,  Tier2: fossilisation, Characteristics, Reproduction offspring, environment,  Tier3: Adaptation, vary/variation, Evolution, DNA, inherit/inheritance, acquired, Charles Darwin
<b>Materials</b> Tier1: Hard, soft, bendy, natural, wood, plastic, paper, metal, water, hard, soft, smooth, fluffy, rough, solid	<b>Everyday Materials</b> Tier1: Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth	<b>uses of Everyday materials</b> Tier 1:, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Brick, Paper, Fabrics, Squashing, Bending, Twisting, Stretching Elastic, Foil Tier 2: Absorbent, Opaque, Transparent	<b>Rocks</b> Tier1: Soils, Tier2: Absorbent Fossils, Tier 3: Pumice, Crystals, Granite, Marble, sandstone,	<b>States of Matter</b> Tier1: Solid, Liquid, Gas, Freezing, Heating Tier 2:Evaporation, Condensation, Temperature, Tier 3: Particles,	<b>Properties and changes of materials</b> Tier1: Hardness, Mixing Tier2: Magnetic, Filter, Evaporation, Dissolving, Tier3: Solubility, Transparency, Conductivity, porous	
<b>Weather</b> Tier1: Sun, rain, cloud, wind, snow, ice, lightening,	<b>Seasonal Changes</b> Tier1: Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark		<b>Light</b> Tier1: Light, Shadows, Mirror, Dark,	<b>Sound</b> Tier1: Volume, Tier2: Vibration, Wave, Pitch, Tone	<b>Earth and Space</b> Tier1: Earth, Sun, Moon, Day, Night  Tier1: Rotation, Axis, orbit, Phases	<b>Light</b> Tier1: Rainbow, Colour, travels, straight, mirrors Tier2:Refraction, Reflection, Light, Spectrum, periscope, UV light,

thunder, wet, dry, cold, hot			Tier2: Reflection Reflective		of the Moon, star, constellation	Tier3: transparent, translucent, fluorescence, opaque, bioluminescence,
<b>Seasons</b> Tier1: Spring, autumn, winter, summer			<b>Forces and magnets</b> Tier1: Magnetic, Push, Pull Tier2: Force, Contact, Attract, Tier3: Repel, Friction, Poles,	<b>Electricity</b> Tier1: Wires, Bulbs, Switches, Buzzers, Battery Tier2: Cells, Circuit, Series, Tier3: Conductors, Insulators	<b>Forces</b> Tier1: force Tier2: Tier3: Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulley, lever	<b>Electricity</b> Tier1: Wires, Bulbs, Switches, Buzzers, Battery, brightness, Tier 2: Circuit, symbols  Tier3: Cells, Series, Conductors, Insulators, Amps, Volts/voltage, Cell