GLF CURRICULUM SCIENCE PROGRESSION

Science

This progression document should be used by school leaders and teachers to:

- Support assessment
- Find out what has previously been taught
- Track back to adapt teaching to the needs of individuals, groups of children or the class based on gaps in knowledge and skills.
- Support with planning

This document should be used alongside the Science National Curriculum and EYFS Early Learning Goals

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EYFS

Science – Early Years Foundational Knowledge – Understanding the World

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

Pupil starting points:

It is important that we make no assumptions about what pupils do or do not know on entry to our settings. The relationships we build with our pupils are fundamental to understanding and developing them as individuals with deep knowledge of their context through positive relationships with parents / carers and robust transition procedures such as home visits and baseline systems. The below is an 'indicator' of what we might expect our pupils to know linked to *Birth to 5 Matters* and *Development Matters* and the 2-year-old check.

In Understanding the World – Natural World (Science) pupils may have experience of: observing people and animals, talking about / singing songs about body parts, looking at themselves in a mirror, using all of their senses, exploring different materials and observing natural phenomenon e.g. rain, splashing in puddles. Some pupils may have had the opportunity to observe plants in gardens / parks. Through observation and interaction, we can find out what our children already know and can do and can use the below to build on this.

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What will pupils know and be able to do:	2-3 years	3-4 years	4-5 years
Plants	▪ Talk about some of the things they have observed such as plants / trees. ▪ Notice features of plants. ▪ Know that plants grow. ▪ Know that plants often grow in the ground or in pots.	▪ Know that fruit and vegetables are plants. ▪ Know that some vegetables grow underground and they look different above and below the ground. ▪ Understand the key features of the life cycle of a plant. ▪ Develop an understanding of growth, decay and changes over time. E.g. observing an apple / banana rotting / school compost heap, wet pile of leaves. ▪ Show care and concern for living things and the environment. E.g. keep plants alive by watering them.	▪ Name some common plants / vegetation e.g. grass, tree, bush, daisy, dandelion (and other plants and tree names local to their environment e.g. reeds / lily pads in a school pond). ▪ Examine change over time, for example, life cycle of different plants / fruit / vegetables, growing plants from seeds, plants which go to seed (collect seeds). ▪ Talk about simple plant parts and what happens to them. Use language e.g. leaves, roots, stem, petal. ▪ Talk about simple similarities and differences in plants.
Essential vocabulary	plant, tree, grass, leaves, twig / stick, ground, grow	seeds, rot, change, fruit, vegetable, die underground	leaves, roots, stem, petal, familiar plant names, life-cycle,

What will I explicitly teach:	Where could pupils meet this in provision (this is not exhaustive)			
	Specific Provision			***Wider Provision***
• How to observe plants carefully, modelling the correct vocabulary. • Noticing plants and trees in the environment though observation and dialogue – *look – a tree with xxx shaped leaves, look at it's branches.* • Where plants usually grow. • The life-cycle of plants. • How to care for plants. • The names of plants and trees in the local environment. • Similarities and differences in plants.	**Gardening and Growing Area** • Wheelbarrow • Brushes, rakes, spades, • Watering cans, buckets, hose • Gardening gloves • Plant pots / reclaimed bottles / fruit juice cartons • Raised bed (if room) • Soil, compost • Seasonal seeds, bulbs, plants • Mark making equipment • Gardeners' calendar	**Mud Kitchen** • Pots of Herbs • Growing flowers /plants in pots • Leaves • Scissors, blunt safety knives, whisks, spoons, stirrers • Fruit (whole and chopped) and vegetables (whole and chopped) • Cauldrons • Water / different coloured water	**Themed Role Play** • Till • Seed packets • Real and fake plants and flowers • Gardening gloves • Wellies • Pots, compost, seeds, • Buckets • Gardening books • Flower presses • Mark making materials • Magnifying glasses	Pupils will also meet this in other aspects of the provision. For example, when taking part in forest school activities, when on sounds walks in the environment, when out visiting local parks, garden centres. It is useful to make links in the community e.g. with local garden centres (for cast off plants) with parents / grandparents who are expert gardeners.

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Prompting questions for Thinking Hard:	2-3 years	3-4 years	4-5 years
Plants	• What can you see on this plant? • Can you spot plants and trees in our school / Nursery? • Where do plants usually grow? How do you know / show me? Where did Oliver's plants come from? (Oliver's Vegetables)	• Where do you think this vegetable came from? How do you know? Where did Errol's carrots come from? (Errol's Garden) • Tell me, what is happening to this plant? • How is the banana changing? Why?	• How are seeds the same and different? (Link to Squirrels who Squabbled e.g. pinecones verses sunflower seeds) • Tell me, how does the plant stay alive? • How many different plants can you name in our outdoor area?

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What will pupils know and be able to do:	2-3 years	3-4 years	4-5 years
Animals including humans	• Can talk about some of the things they have observed such as people and animals. • Name facial features on humans and know what they have on their bodies e.g. arms, legs, body, feet, toes, hands, fingers. • Know how they are similar and different to their friends e.g. eye colour / hair colour. • Name some more familiar animals e.g. farm and domestic animals. • Name human and animal excretions e.g. poo, wee, sick.	• Show care and concern for living things and the environment. • Name obvious body parts on humans and animals. • Understand the key features of the life cycle of an animal. • Name some differences between animals. E.g. fur / colour / markings. • Name more excretions e.g. snot, tears, blood.	• Talk about some similarities and differences in animals including humans. • Name all basic parts of the human body that they can see and the brain and heart. • Observe different animals and their body parts. Talk about why they have them e.g. beak, wings, legs. • Name some habitats e.g. homes of birds (garden, forest, wood, water). • Begins to talk about what their body needs e.g. food, water exercise, sleep.
Essential vocabulary	eyes, ears, nose, mouth, hair, arms, hands, fingers, legs, feet, toes, same, different (some animal names), poo, wee, sick	shoulders, elbow, neck back, stomach, knees, ankles, tail, fur, whiskers, markings, grow, baby, child, adult, snot, tears, blood, differences	similarities, brain, heart, bones, bottom, hips. collar bone, wrist, beak, wings, feathers, gills,

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What will I explicitly teach:	Where could pupils meet this in provision (this is not exhaustive)			
	Specific Provision			***Wider Provision***
• Names of different body parts on both humans and animals. • The vocabulary same / different / similar / similarities / differences. • Model talking about and celebrating similarities and differences e.g. *this animal has a long tail and this one has a short one. You have blue eyes and I have brown eyes.* • Model observation e.g. *I can see a long nose, a brown body, a black mane and a black tail.* • Different simple bodily functions. • How to care for animals. • The basic human lifecycle.	**Investigation / Science Area** • Magnifying glasses • Body parts games • Matching games e.g. animals • Sorting hoops (link to small world) • Photos of themselves • Images of eyes, ears, noses, mouths, hair • to their young • Skeleton • X rays *Link to small world	**Themed Role Play** (doctors) • Doctors coat • First aid kit / medical bag • Body parts poster (doesn't have to have words but could) • X rays • Mini skeleton • My body books • Bandages, plasters, • Bed • Picture cards showing things that could be wrong e.g. nosebleed, broken leg, vomiting • Notebooks and other mark making	**Small World** • Domestic pets • Farm animals • Sea creatures • Birds • Jungle / safari / polar animals • People of different sizes and ages • Insects and amphibians • Small loose parts	Pupils will also meet this in other aspects of the provision. For example, in weekly PE lessons where they are discussing which parts of their body to move / how to carry out specific movements, in PSED lessons when discussing how to keep their bodies healthy, when riding the bikes / trikes – discussing how to pedal *e.g. push with your foot, use your legs, put your hands on the handlebars* or when moving on obstacle courses and larger climbing equipment.

Prompting questions for Thinking Hard:	2-3 years	3-4 years	4-5 years
Animals including humans	• Tell me, which animal have you got there? • Can you tell me about faces / your face? • How is your face the same / different to my face?	• I'm wondering, how is this animal different to this one? • Tell me, which body parts can you see on this person / animal? • What is happening in this picture? What could we do to help that person / animal?	• I'm wondering, how are animals and humans the same and different? • Tell me, why do birds have beaks / wings / feathers? • What do our bodies need to stay healthy?

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What will pupils know and be able to do:	2-3 years	3-4 years	4-5 years
Everyday Materials	• Can talk about some of the things they have observed such as natural and found objects. • Explore natural materials, indoors and outside. • Manipulate and play with different materials e.g. dough, shaving foam, sand.	• Explore different materials freely, to develop their ideas about how to use them and what to make. • Talk about the differences between materials and changes they notice. • Use all their senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties.	• Know about similarities and differences in materials. • Sort materials using criteria such as soft, hard, flexible, plastic, wood, metal. • Develop their own ideas through experimentation with a diverse range of materials. (EAD Link) • Increasingly choose more appropriate materials for the job e.g. cotton reels / lids for wheels, wool for hair. (EAD Link) • Look at how materials change e.g. when cooking.
Essential vocabulary	wood (twigs / sticks), leaves, soil, dough,	change, senses, explore, mixture, pinecones, conkers, bark, moss	sort, materials, flexible, experiment, change

What will I explicitly teach:	Where could pupils meet this in provision (this is not exhaustive)			
	Specific Provision			***Wider Provision***
• How to observe – narrating what you see using appropriate vocabulary. • Using senses to explore a range of natural loose parts e.g. *It feels bumpy… It looks brown and grey…* • Teach pupils how to play with different materials e.g. dough, sand. • Model noticing similarities and differences between materials e.g. *The wood is brown and rough, the plastic is white and smooth.* • How to sort using simple criteria.	**Transient Art** • Natural resources such as moss, flowers, petals, grass, stones, seeds, fir cones, twigs, small pieces of wood, shells, feathers… • Seasonal resources such as pumpkin seeds, conkers, horse chestnuts, acorns, autumn leaves. • Mini pom poms , cotton wool, plain or coloured pasta, beads, buttons, pieces of cut up drinking straws, coloured aquarium gravel, cotton reels, craft sticks, corks and other small loose parts.	**Workshop / Junk modelling area:** • Range of materials including paper, fabric, foil, plastic, wool, glitter, sequins, tissue paper, paper. • Joining equipment including clips, tape, glue • Junk modelling equipment – bottles, boxes, cartons • Natural materials – twigs, sticks, straw, bark, moss, feathers	**Water Area:** • Natural loose parts e.g. shells, pebbles, sticks / twigs, corks • Different materials • Transparent tubing – different lengths and widths • Guttering, stands and chutes • Bubbles • Different materials to mix in water e.g. flour, porridge, salt	Pupils will also meet this in other aspects of the provision. For example, in the dough area, in sensory areas e.g. playing with shaving foam, jelly, water beads, when exploring sand and water and how they behave in different containers and mixed with other materials.

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Prompting questions for Thinking Hard:	2-3 years	3-4 years	4-5 years
Everyday Materials	• Tell me, what have you used in your transient art / to make your model? • What did you find outside? Can you tell me about it? • How does the sand feel? What happens when we put water in the sand?	• How would you describe this? • How did the pasta change when it went in the water? • How are these materials / objects similar?	• Which material would be best for xxx? Why do you think this? • Tell me, what happened to the mixture when we cooked /baked it? How did it change? • Can you sort the materials that float? How could you test this?

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What will pupils know and be able to do:	2-3 years	3-4 years	4-5 years
Seasonal Change	• Observe the weather through first hand experiences. • Name simple weather types e.g. rain, snow, sun, wind. • Know the difference between hot and cold, wet and dry.	• Know the difference between day and night, dark and light. • Name more weather types e.g. storm, thunder, lightning, rainbow, cloudy. • Know that we wear different clothes for different weather.	• Know the names of the seasons and what the weather is / can be like in each. • Talk about the changes that each seasons brings in relation to their environment: the clothes they wear, the weather and the plants. • Describe how trees and plants change in different seasons. • Know that some animals store food for the winter. • Know that some animals hibernate in the winter.
Essential vocabulary	rain, snow, sun, wind, wet, dry, hot, cold	weather, day, night, light, dark, storm, thunder, lightning, rainbow, cloudy	autumn, winter, spring, summer, season, hibernate

What will I explicitly teach:	Where could pupils meet this in provision (this is not exhaustive)			
	Specific Provision			***Wider Provision***
• The different types of weather. • The different types of clothing we wear for different weather types. • The difference between hot and cold, including items that are hot and cold. • The difference between day and night and what we do during the day / at night. • The seasons and what happens in each linked to weather, trees, animals and themselves, celebrations and clothing.	**Outdoor Science Area** • Thermometer • Windmills, twisters, turbines, ribbons, scarves to explore movement and wind • Rain collectors / rain gauge • Cameras I pads	**Water Area** • Warm and cold water • Dolls • Small world people and sea creatures • Towels • Paper towels • Different materials • Ice	**Investigation Area** • Magnifying glasses • Sorting hoops (sorting seasonal clothes) • Light board / light panel, colour Perspex blocks / paddles, mirrors, telescopes, kaleidoscopes • Torches, fabric, dark tent • Natural and interesting seasonal artefacts e.g. pinecones, acorns, conkers	Pupils will also meet this in other aspects of the provision. For example, when reading seasonal stories / stories about day and night, when washing their hands (wet and dry and hot and cold) and when walking to and from school. Routines should also incorporate daily conversation about the days / month /season / weather.

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Prompting questions for Thinking Hard:	2-3 years	3-4 years	4-5 years
Seasonal Change	• Let's go outside, what is the weather like today? What do we need to wear? • Tell me, which of these clothes do we need for hot weather and which do we need for cold weather? • Tell me, how do we get water? (Linked to Hey, Water!)	• How are night and daytime different? What do we do at night that we don't do in the day? • Let's look at some pictures of the weather. What can you see? Can you describe what the weather is doing here? • Why does Pete need to be in a boat in our story Tidy?	• Tell me, what season is it in the Squirrels who Squabbled? How do you know? How do you know it isn't summer? Why do squirrels store food? • Can you sort the objects into the season they belong to? • What sort of weather might we have in the winter?

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What will pupils know and be able to do:	2-3 years	3-4 years	4-5 years
Environmental Change	• Play with small world reconstructions, building on first-hand experiences of the natural world e.g. visiting farms, walking by river or lake, visiting the seaside. • Begin to understand that places are different and have different things in them.	• Begin to understand the effect their behaviour can have on the environment. • Begin to understand the need to respect and care for the natural environment and all living things.	• Talks about the features of their own immediate environment and how environments might vary from one another. • Knows some ways in which humans are harming the world and how to help.
Essential vocabulary	garden, farm, seaside, park, river, lake	forest, concrete, tidy, ruin, care, places, wildlife	harm , humans, nature, island, pollution

What will I explicitly teach:	Where could pupils meet this in provision (this is not exhaustive)			
	Specific Provision			***Wider Provision***
• The different places in the school locality e.g. park, shops, river, seaside, forest / wood. • Similarities and differences between school / their homes and other places. • How we can look after the local environment e.g. putting litter in bins, litter picking, walking instead of taking the car. • How to care for plants and animals. • How humans are harming the world and how they can help (simple ways) e.g. litter, walking not driving, wasting less food.	**Small World** • Farm • Farm animals • Trees • Woodland animals • Sea creatures • Sand and ocean e.g. in tough tray / • Jungle / safari / polar animals • People of different sizes and ages • Small loose parts e.g. stones for riverbed	**Water Area** • Sea creatures • Materials for floating islands (e.g. Clean up!) • Soil to mix in (like flood in Tidy) • Tough tray seaside (sand and water) • Salt • People and boats • Oils (can they get the oil out of the water?)	**Outdoor Science Area** • Recycling boxes • Sorting hoops • Different materials / litter • Litter pickers • Rotting food for observation • Plants • Soil • Reclaimed material containers for planting	Pupils will also meet this in other aspects of the provision. For example: watching clips of pollution, litter picking in local parks / wider school grounds / visitors e.g. The Woodland Trust, Surfers against Sewage, Friends of the Earth. There should also be planned experiences for pupils to ensure they experience different environments e.g. farm visits, forest, river, seaside visits (linked to locality), visits to the local park.

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Prompting questions for Thinking Hard:	2-3 years	3-4 years	4-5 years
Environmental Change	• What is Oliver's Grandad's garden like? Have you got a garden / ever visited a garden? • Who has been to the seaside / to a farm? What did you see there? • What is our local park like?	• Why did Pete (Tidy) make a mistake? What did he do to the forest and why was this wrong? • How did the animals help him to make it right?	• In Clean up! Humans have not looked after the world. Can you tell me what we are doing wrong? • How did Rocket (Clean up!) help the sea creatures? • Tell me, how can we help look after the world?

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What will pupils know and be able to do:	2-3 years	3-4 years	4-5 years
Forces and how things work	• Repeat actions that have an effect. E.g. splashing in water, handprints in sand, building and knocking over towers.	• Explore how things work. E.g. wind-up toys, pulleys, sets of cogs with pegs and boards. • Explore and talk about different forces they can feel.	• Know how to use a variety of different tools and equipment and how they work. • Know the effect of simple push and pull forces.
Essential vocabulary	splash, print, mark, build, knock down	cogs, gears, join,, work, turn	push, pull, action, tools, together, apart, connect, electricity, battery

What will I explicitly teach:	Where could pupils meet this in provision (this is not exhaustive)			
	Specific Provision			***Wider Provision***
• How to make observations e.g. *Look the jelly wobbles when we touch it! Let's look at the windmill. What is it made of? How can we make our own?* • Model how to explore how to make things work e.g. remote controlled toys, switches, different push / pull forces. • Model how to use different construction kits. • Model how to use different tools. Including safety aspects.	**Woodwork Area** • Hand drill • Clamp • Vice • Screwdriver (safety) • Hammer (safety) • Spirit Level • Dowels • Balsa wood • Wooden cogs / cams • Screws / nails / rubber bands • Gloves, goggles	**Sensory Play** • Sand • Water • Shaving foam • Jelly • Water beads • Paint • Small loose parts • Transient Art • Blocks	**Construction Area** • Meccano (or similar) • Duplo (Nursery) Lego (or similar) • Cogs, gears, nuts and bolts sets • Gears e.g. gears mega builds • Pulleys (these may already part of provision in the outdoor area) • Pegs and boards • Connetix (or similar) • Stickle brix (or similar)	• Pupils will also meet this in other aspects of the provision. For example, in the mathematics area when using Rekenreks interlinking cubes, balance scales, in the outdoor science area when exploring things like thermometers, windmills, twisters, turbines, rain collectors / rain gauges and when on the bikes and trikes / exploring push – a – long toys. This should also link to computing and control technology e.g. Bee Bots, torches etc.

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Prompting questions for Thinking Hard:	2-3 years	3-4 years	4-5 years
Forces and how things work	• Tell me, what is happening to the sand? • What happens when I drop the pebbles into the water? • How tall can you make your tower before it falls over?	• Tell me, how do you think this works? • How did you make that move? • What did you need to do to make the trike go up the hill?	• Tell me, which action do I need to do to make this work? Push / pull / both? • How does the windmill work? Can you make a windmill? How will you make it go round?

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Plants

Plants taught in Year 1, Year 2 and Year 3; and connected in Year 2, Year 4, Year 5 and Year 6

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 1	Spring 2	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.		Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, deciduous, evergreen
Year 2	Summer 1	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.	Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats)	light, shade, sun, warm, cool, water, grow, healthy, seeds, bulb, soil, nutrients
Year 3	Summer 1	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.		Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal)

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Plants

Plants taught in Year 1, Year 2, Year 3 and connected in Year 2, Year 4, Year 5 and Year 6

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 4	Spring 2		Recognise that living things can be grouped in a variety of ways. (Y4 - Living things and their habitats) Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. (Y4 – Living things and their habitats) Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats)	
Year 5	Summer 1		Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats)	
Year 6	Summer 1		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. (Y6 - Living things and their habitats) Give reasons for classifying plants and animals based on specific characteristics. (Y6 - Living things and their habitats)	

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Living Things and their Habitats

Taught in Year 2, Year 4, Year 5 and Year 6; and connected in Year 2 and Year 3

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 1			Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants) Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants) Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans) Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals including humans) Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans) Observe changes across the four seasons. (Y1 - Seasonal change)	
Year 2	Summer 1	Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify 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. Identify and name a variety of plants and animals in their habitats, including microhabitats. 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.	Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals including humans)	Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, habitat, adapted Names of local habitats e.g. pond, woodland etc. Names of micro-habitats e.g. under logs, in bushes etc.
Year 3			Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)	

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Living Things and their Habitats

Taught in Year 2, Year 4, Year 5, Year 6; and connected in Year 2 and Year 3

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 4	Summer 1	Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, 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.	Construct and interpret a variety of food chains, identifying producers, predators and prey. (Y4 - Animals, including humans)	Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate
Year 5	Summer 1	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.		Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings, stigma, stamen
Year 6	Summer 1	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.		Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering, exoskeleton

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Animals, including Humans

Taught in Year 1, Year 2, Year 3, Year 4, Year 5 and Y6; and connected in Year 5 and Year 6

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 1	Summer 1	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.		Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves Names of animals experienced first-hand from each vertebrate group Parts of the body Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear, tongue
Year 2	Summer 1	Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.		Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta)
Year 3	Summer 2	☐ 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.		bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints

GLF CURRICULUM SCIENCE PROGRESSION

Animals, including Humans

Taught in Year 1, Year 2, Year 3, Year 4, Year 5 and Y6; and connected in Year 5 and Year 6

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 4	Summer 2	Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions. Sum 2 Construct and interpret a variety of food chains, identifying producers, predators and prey. Sum 1		Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, acid, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain, producer, consumer
Year 5	Covered during PSHE	Describe the changes as humans develop to old age.	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats) Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats)	Puberty – the vocabulary to describe sexual characteristics
Year 6	Discrete Unit	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Describe the ways in which nutrients and water are transported within animals, including humans.	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. (Y6 - Living things and their habitats) Give reasons for classifying plants and animals based on specific characteristics. (Y6 - Living things and their habitats)	Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle

GLF CURRICULUM SCIENCE PROGRESSION

Evolution and Inheritance

Taught in Y6; and connected in Year2, Year 3 and Year 4

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 1				
Year 2			Identify 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. (Y2 - Living things and their habitats)	
Year 3			Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y3 - Rocks)	
Year 4			Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats)	
Year 5				
Year 6	Summer 1	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 and that adaptation may lead to evolution.		Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils

GLF CURRICULUM SCIENCE PROGRESSION

Seasonal Change

Taught in Y6; and connected in Year 2, Year 3 and Year 4

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 1		Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.		Weather (sunny, rainy, windy, snowy etc.) Seasons (winter, summer, spring, autumn) Sun, sunrise, sunset, day length
Year 2				
Year 3			Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 - Light)	
Year 4				
Year 5			Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. (Y5 - Earth and space)	
Year 6				

GLF CURRICULUM SCIENCE PROGRESSION

Materials

Taught in Year 1, Year 2, Year 4 and Year 5; and connected in Year 3

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 1	Autumn 1	Distinguish between an object and the material from which it is made. 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.		Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through
Year 2	Autumn 2	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.		Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard Properties of materials –opaque, transparent and translucent, reflective, non- reflective, flexible, rigid, shape, push/pushing, pull/puling, twist/twisting, squash/squashing, bend/bending, stretch/stretching, waterproof, absorbent
Year 3			Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (Y3 - Rocks) Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y3 - Rocks) Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y3 - Forces and magnets)	

GLF CURRICULUM SCIENCE PROGRESSION

Materials

Taught in Year 1, Year 2, Year 4 and Year 5; and connected in Year 3

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 4	Autumn 1	Compare and group materials together, according to whether they are solids, liquids or gases. 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.		Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, freezing point, evaporation, condensation, temperature, water cycle, particles, bonds
Year 5	Autumn 1	Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes. Explain 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.		Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material
Year 6	Summer 1			

GLF CURRICULUM SCIENCE PROGRESSION

Rocks

Taught in Y3; and connected in Year 1, Year 2 and Year 6

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 1			Distinguish between an object and the material from which it is made. (Y1 - Everyday materials) Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials) Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)	
Year 2			Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials)	
Year 3	Autumn 2	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter.		Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, basalt, limestone sandy/chalk/clay soil sedimentary, igneous, metamorphic, acid, heat, pressure, magma
Year 4				
Year 5				
Year 6			Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. (Y6 - Evolution and inheritance)	

GLF CURRICULUM SCIENCE PROGRESSION

Light

Taught in Year 3; and connected in Year 1, Year 2 and Year 6

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 1			Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)	
Year 2				
Year 3	Spring 2	Recognise that they need light in order to see things and that dark is the absence of light. 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. Sp2 Find patterns in the way that the size of shadows change. Sp2		Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, UV
Year 4				
Year 5	Spring 1	Please note: this is taken from the Y6 NC Programme of Study Recognise that light appears to travel in straight lines. Sp1 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. Sp1 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. Sp1 Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.		As for Year 3 - Light, plus straight lines, light rays
Year 6				

GLF CURRICULUM SCIENCE PROGRESSION

Forces and Magnets

Taught in Year 3 and Year 5; and connected in Year 2

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 1				
Year 2			Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)	
Year 3	Autumn 1	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 having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing.		Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar, magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole
Year 4				
Year 5	Autumm 2	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.		Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears
Year 6				

GLF CURRICULUM SCIENCE PROGRESSION

Sound

Taught in Year 4; and connected in Year 1

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 1			Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)	
Year 2				
Year 3				
Year 4	Summer 2	Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Find patterns between the pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases.		Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation,
Year 5				
Year 6				

GLF CURRICULUM SCIENCE PROGRESSION

Electricity

Taught in Year 4 and Year 6

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 1				
Year 2				
Year 3				
Year 4	Spring 1	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. Recognise some common conductors and insulators, and associate metals with being good conductors.		Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol, generator, energy, pylon, power station, plug
Year 5				
Year 6	Autumn 1	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. 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. Use recognised symbols when representing a simple circuit in a diagram.		Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage

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Earth and Space

Taught in Year 5; and connected in Year 1

Year Group	Term	Taught Knowledge	Connected Knowledge	Vocabulary
Year 1			Observe changes across the four seasons. (Y1 - Seasonal changes) Observe and describe weather associated with the seasons and how day length varies. (Y1 - Seasonal changes)	
Year 2				
Year 3				
Year 4				
Year 5	Spring 2	Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. Describe the movement of the Moon relative to the Earth. Describe the Sun, Earth and Moon as approximately spherical bodies. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.		Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets
Year 6				

Working Scientifically

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What will pupils know and be able to do:	2-3 years	3-4 years	4-5 years
Working Scientifically	• Use all of their senses to explore the natural world and materials. • Begin to ask simple why questions about what they see, hear, smell and hear. • Talk about what they see happening e.g. xxx got wet. • Recognise similarities and differences.	• Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world. • Make observations and talk about what they see, using a wide vocabulary. • Ask simple why, when, what questions. • Interested in why things happen. • Describe similarities and differences. • Begin to group and sort.	• Question why things happen, having their own ideas. • Carry out observations on changes e.g. growing plants, floating and sinking, ice melting, magnets, sponges in water. • Looks closely at similarities, differences, patterns and change. • Make observations and explain observations. • Explore the natural world around them. • Make predictions about what might happen. • Make decisions about what to do. • Describe what they see, hear and feel whilst outside.
Essential vocabulary	look, see, same, different, why	group, sort, objects, compare, why, when, what,	try, test, ideas, explore, find, out, how

What will I explicitly teach:	Where could pupils meet this in provision (this is not exhaustive)			
	Specific Provision			***Wider Provision***
• Using senses to explore a range of objects, materials and natural phenomenon. • How to ask questions and question words e.g. why, when, what, how. • Observation skills, narrating what you see using correct vocabulary. • Why things happen. • Grouping, sorting, similarities, differences. • How to make predictions e.g. *I think x will happen… what do you think?* • Decision making e.g. *I am going to try this out to see if it works…*	**Water Area** • Natural loose parts e.g. shells, pebbles, sticks / twigs, • Transparent tubing – different lengths and widths • Guttering, stands and chutes • Kitchen utensils – some with holes e.g. cullender, sieve, • Small world e.g. people, boats, sea creatures • Bubbles • Different materials to mix in water e.g. flour, porridge, salt	**Investigation Area** • Magnifying glasses • Sorting hoops • Light board / light panel, colour Perspex blocks / paddles, mirrors, telescopes, kaleidoscopes • Natural and interesting artefacts e.g. petrified wood, skull / bones, teeth, natural loose parts, insects in resin, seasonal objects • Magnets metallic and non-metallic objects	**Outdoor Science Area** • Insect / plant collecting e.g. pots, sorting trays, pooters, jars, tweezers, • Magnifying glasses • Thermometer • Windmills, twisters, turbines, ribbons, scarves to explore movement and wind • Rain collectors / rain gauge • Stretchy telephones / string and cans / cups	Pupils will also meet this in other aspects of the provision. For example, in the mud kitchen when experimenting with different materials, experimenting with natural loose parts, mathematics - when describing similarities and differences in representations, describing pattern, shapes etc, in the painting / creative / workshop areas when exploring different materials and media and whilst exploring the outdoor area.

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Prompting questions for Thinking Hard:	2-3 years	3-4 years	4-5 years
Working Scientifically	• Tell me what is happening here? • How are these two things the same / different? • Let's look outside in the xxx. What can you see?	• Tell me, how would you describe this? • This mixture isn't working, can you help me? • How can we sort out the seeds for Errol (Errol's Garden)?	• Tell me, what happened to the turtle. Why? (Clean up!) • I wonder what happens when we mix xxx with xxx? • How has this plant changed over time? Why?

GLF CURRICULUM WORKING SCIENTIFICALLY PROGRESSION

KS1 – Year 1 and Year 2

Asking Questions	Making Observations & Taking Measurements	Engaging in Practical Enquiry	Recording & Presenting Evidence	Answering Questions & Concluding	Evaluating & Raising Further Questions	Communicating their Findings
Asking simple questions and recognising that they can be answered in different ways: • *While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions.* • *The children answer questions developed with the teacher often through a scenario.* • *The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.*	**Observing closely, using simple equipment** • *Children explore the world around them.* • *They make careful observations to support identification, comparison and noticing change.* • *They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations.* • *They begin to take measurements, initially by comparisons, then using non-standard units*	**Performing simple tests** • *The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time.* • *Identifying and classifying* • *Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting.* • *They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.*	**Gathering and recording data to help in answering questions** • *The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing.* • *They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs.* • *They classify using simple prepared tables and sorting rings.*	**Using their observations and ideas to suggest answers to questions** • *Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources.* • *Using their observations and ideas to suggest answers to questions* • *The children recognise 'biggest and smallest', 'best and worst' etc. from their data.*		

GLF CURRICULUM WORKING SCIENTIFICALLY PROGRESSION

LKS2 – Year 3 and Year 4

Asking Questions	Making Observations & Taking Measurements	Engaging in Practical Enquiry	Recording & Presenting Evidence	Answering Questions & Concluding	Evaluating & Raising Further Questions	Communicating their Findings
Asking relevant questions and using different types of scientific enquiries to answer them • *The children consider their prior knowledge when asking questions.* • *They independently use a range of question stems. Where appropriate, they answer these questions.* • *The children answer questions posed by the teacher.* • *Given a range of resources, the children decide for themselves how to gather evidence to answer the question.* • *They recognise when secondary sources can be used to answer questions that cannot be answered through practical work.* • *They identify the type of enquiry that they have chosen to answer their question.*	**Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers** • *The children make systematic and careful observations.* • *They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.*	**Setting up simple practical enquiries, comparative and fair tests** • *The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher.* • *They follow their plan to carry out: observations and tests to classify, comparative and simple fair tests; observations over time; and pattern seeking*	**Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions** **Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables** • *The children sometimes decide how to record and present evidence. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings). They record classifications e.g. using tables, Venn diagrams, Carroll diagrams.* • *Children are supported to present the same data in different ways in order to help with answering the question.*	**Using straightforward scientific evidence to answer questions or to support their findings.** • *Using straightforward scientific evidence to answer questions or to support their findings.* • *Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. The answers are consistent with the evidence.* **Identifying differences, similarities or changes related to simple scientific ideas and processes** • *Children interpret their data to generate simple comparative statements based on their evidence. They begin to identify naturally occurring patterns and causal relationships.* **Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions** • *They draw conclusions based on their evidence and current subject knowledge.*	**Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions** • *They identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry.* **Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions** • *Children use their evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface.* • *Following a scientific experience, the children ask further questions which can be answered by extending the same enquiry.*	

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UKS2 – Year 5 and Year 6

Asking Questions	Making Observations & Taking Measurements	Engaging in Practical Enquiry	Recording & Presenting Evidence	Answering Questions & Concluding	Evaluating & Raising Further Questions	Communicating their Findings
Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • *Children independently ask scientific questions. This may be stimulated by a scientific experience or involve asking further questions based on their developed understanding following an enquiry.* • *Given a wide range of resources the children decide for themselves how to gather evidence to answer a scientific question.* • *They choose a type of enquiry to carry out and justify their choice.* • *They recognise how secondary sources can be used to answer questions that cannot be answered through practical work.*	**Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate** • *The children select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale.* • *During an enquiry, they make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value)*	**Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary** • *The children select from a range of practical resources to gather evidence to answer their questions. They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time and for how long. They look for patterns and relationships using a suitable sample.*	**Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs** • *The children decide how to record and present evidence. They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. They record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs. They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys.* • *Children present the same data in different ways in order to help with answering the question.*	**Identifying scientific evidence that has been used to support or refute ideas or arguments** • *Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer.* • *They talk about how their scientific ideas change due to new evidence that they have gathered.* • *They talk about how new discoveries change scientific understanding.* **Reporting and presenting 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** • *In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify results that do not fit the overall pattern; and explain their findings using their subject knowledge.*	**Reporting and presenting 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** • *They evaluate, for example, the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used.* • *They identify any limitations that reduce the trust they have in their data.* **Using test results to make predictions to set up further comparative and fair tests** • *Children use the scientific knowledge gained from enquiry work to make predictions they can investigate using comparative and fair tests.*	**Reporting and presenting 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** • *They communicate their findings to an audience using relevant scientific language and illustrations.*