Science

Progression Map

Intent	At Inglehurst Infant School, we provide a Science curriculum that immerses pupils in learning that is memorable, engaging and meaningful. The Science curriculum enables pupils to acquire and develop the knowledge, skills and vocabulary they need to be successful Scientists. Our Science curriculum will enable the children to develop, apply and embed their skills through linked topic learning, building on what they already know and can do. We aim to enable the children to: • To develop an enquiring mind and a scientific approach by observing (including over time), identifying, classifying, exploring, researching, asking and answering questions • Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer specific questions about the world around them • To develop independent learning skills • To plan and carry out scientific investigations, developing investigative skills • To work together to collect evidence including data to help them answer questions and to link these to simple scientific ideas • To evaluate evidence and consider whether tests or comparisons are fair • To develop a range of approaches to communicate ideas using scientific language, drawings, charts, tables and ICT • To learn technical terminology and specialist vocabulary • To learn the scientific knowledge required to understand the uses and implications of science, today and for the future
Implementation	Our children begin their science experience in Early Years Foundation Stage, with informal investigation within the setting. Teachers facilitate children's curiosity with open-ended questions and clearly thought out learning experiences, which are both child-led and adult-led. In KS1, children continue to build on their science knowledge with more formal science lessons where they are taught to use the following practical scientific methods, processes and skills: asking simple questions and recognising that they can be answered in different ways; observing closely, using simple equipment; performing simple tests; identifying and classifying; using their observations and ideas to suggest answers to questions and gathering and recording data to help in answering questions. Our investigative Science will encourage children to ask important questions about how things work and why things happen in a certain way. Ultimately, this will help all children to understand the world they are growing up in and provide them with life skills to better access it as well as becoming creative thinkers and adults who strive to seek solutions to problems and answers to life's questions.
Impact	Our approach at Inglehurst Infant School results in a fun, engaging, high-quality science education, that provides children with the foundations for understanding the world. The impact of this is to ensure children not only acquire the appropriate age related knowledge linked to the science curriculum, but also skills which equip them to progress from their starting points, and within their everyday lives.

	All children will have: • A wider variety of skills linked to scientific knowledge and understanding, and scientific enquiry/investigative skills. • A richer vocabulary which will enable to articulate their understanding of taught concepts. • The ability to demonstrate their success as a scientist, be curious about scientific processes and the world around them. Children at Inglehurst Infant School thoroughly enjoy Science and this results in motivated learners who are able to make good progress by the end of Key Stage 1.

Experience for all children
• British Science Week whole school activity and competition • Opportunities to investigate and explore Science within the classroom • Zoolab/Mad Science

EYFS		
Topics		
Cycle A		
Once upon a rhyme	**In my imagination**	**The Whole Wide Wonderful World**
Seasonal Changes		
Cycle B		
The Story of People	**Scales, tails and wings**	**Adventures, places and journeys**
Seasonal Changes		

EYFS	
Characteristics of effective learning Enquiry skills	Show curiosity about objects, events and people Questions why things happen Engage in open-ended activity Take a risk, engage in new experiences and learn by trial and error Find ways to solve problems / find new ways to do things / test their ideas Develop ideas of grouping, sequences, cause and effect Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world Use senses to explore the world around them Make links and notice patterns in their experiences Create simple representations of events, people and objects Build up vocabulary that reflects the breadth of their experience
Physical Development (self-care)	Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe.
Understanding the World	Children know about similarities and differences in relation to places, objects, materials and living things. 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, and talk about changes.
ELG	Choose the resources they need for their chosen activities Handle equipment and tools effectively Answer how and why questions about their experiences Make observations Develop their own narratives and explanations by connecting ideas or events Explain why some things occur and talk about changes

KS1			
Programmes of study			
Cycle A			
Everyday Materials	Plants	Animals All living things and their habitat	
Seasonal Changes			
Cycle B			
Humans	Everyday Materials	Humans	All living things and their habitats

KS1 Scientific Enquiry	
SE1 - Drawing conclusions, noticing patterns and presenting finding	Asking simple questions and recognising that they can be answered in different ways. Performing simple tests. Children can: a explore the world around them, leading them to ask some simple scientific questions about how and why things happen; b begin to recognise ways in which they might answer scientific questions; c ask people questions and use simple secondary sources to find answers; d carry out simple practical tests, using simple equipment; e Experience different types of scientific enquiries, including practical activities; talk about the aim of scientific tests they are working on.
SE2 - Observing and measuring change	Observing closely, using simple equipment. Children can: a observe the natural and humanly constructed world around them; b observe changes over time; c Use simple measurements and equipment; make careful observations, sometimes using equipment to help them observe carefully.
SE3 - Identifying, classifying, recording and presenting data	Identifying and classifying. Gathering and recording data to help in answering questions. Children can: a use simple features to compare objects, materials and living things; b decide how to sort and classify objects into simple groups with some help; c record and communicate findings in a range of ways with support; sort, group, gather and record data in a variety of ways to help in answering questions such as in simple sorting diagrams, pictograms, tally charts, block diagrams and simple tables.

SE4 - Asking questions and carrying out fair and comparative tests	Using their observations and ideas to suggest answers to questions. Children can: a notice links between cause and effect with support; b begin to notice patterns and relationships with support; c begin to draw simple conclusions; d identify and discuss differences between their results; e use simple and scientific language; f read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1; g talk about their findings to a variety of audiences in a variety of ways.

Cycle A			
	Programmes of study	Knowledge and skills	Scientific enquiry
Autumn	**Everyday Materials**	•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. •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. **Vocabulary** **Year 1** Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, waterproof, absorbent, tear, rough, smooth, shiny, dull, see through, not see through, man-made, natural **Year 2** (Including Year 1) Suitable/unsuitable, use, object, material, properties, wood, plastic, glass, metal water, rock, fabrics, hard, soft, stretchy, flexible, waterproof, absorbent, transparent, translucent, opaque, shape, change, twist, squash, bend, stretch, roll, squeeze, process, purpose, recycle, suitable, unsuitable	**Waterproof Investigation** **SE1** a, b, c, d, e **SE2** a, b, c **SE3** a, b, c **SE4** a, b, c, d, e, f
Spring	**Plants**	•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. •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. **Vocabulary** **Year 1** Names of: wild plants, garden plants, flower, flowering plants, weeds, trees, leaf, leaves, blossom, petal, fruit, herb, berry, root, bulb, seed, trunk, branch, stem, bark, stalk, vegetable, vegetation, common, deciduous, evergreen,	**Where do plants grow?** **SE1** a, b, c, d, e **SE2** a, b, c **SE3** a, c **SE4** a, b, c, d, e, f, g

		Year 2 (Including Year 1) seeds, bulbs, water, light, growth, healthy, shoot, seedling, crop, nutrients, reproduce,	
Summer 1	**Animals**	•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); •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); **Vocabulary** **Year 1** Names of: common animals and their young. body, bones, head, arms, legs, ears, eyes, nose, hair, mouth, teeth, tongue, feet, toes, tail, wing, claw, fin, gills, scales, feathers, fur, beak, senses, hearing, seeing, touching, carnivore, herbivore, omnivore, adults, babies, water, food, air, backbone, cold-blooded, environment, farm, pet, temperature, vertebrate, warm-blooded, wild **Year 2** (Including Year 1) offspring, life cycles, grow, change, basic needs, balanced diet, survival, offspring, shelter, habitat, predator, prey, disease, exercise, health, hygiene, life cycle, medicine, muscles, offspring, skeleton	
Summer 2	**All Living Things and their Habitats**	•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. **Vocabulary** **Year 1** food, water, air, survive, shelter, names of local habitats, **Year 2** (Including Year 1) Living, dead, never been alive, names of local habitats, pond, woodland, meadow, name micro habitats, under log, stony path, under bushes, suited, basic needs, depend, food, food chain, shelter	Nothing lives here…or does it? **SE1** **SE2** **SE3** **SE4**
All year	**Seasonal changes**	•know when each of the four seasons occurs •observe changes across the 4 seasons •observe and describe weather associated with the seasons •know that the days are longer in summer than in winter •know and can describe the features of different seasons and how they change through the year **Vocabulary** **Year 1** Season, spring, summer, autumn, winter, weather, weather forecast, hot, warm, cool, cold, sunny, cloudy, windy, rainy, snowing, hailing, sleet, frost, fog, mist, icy, rainbow, thunder, lightning, storm, light, dark, day, night, UK	Complete a seasons diary **SE1** a, b, c **SE2** a, b, c **SE3** a, b **SE4** a, b, c, d, e, f, g

		Year 2 (Including Year 1) temperature, thermometer, compare, climates, countries	

Cycle B			
	Programmes of study	Knowledge and skills	Scientific enquiry
Autumn	Humans	•identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense •notice that humans, have offspring which grow into adults; **Vocabulary** Year 1 Body, head, neck, arms, elbows, legs, knees, face, ears, eyes, eyebrows, eyelashes, nose, hair, mouth, teeth, tongue, feet, toes, fingers, nails, ankle, calf, thigh, hips, waist, trunk, chest, shoulders, back, hands, wrist, senses, hearing, seeing, touching, heart, lungs, intestines, blood, kidneys, skeleton, bones, life cycle, baby, toddler, child, teenager, adult, elderly **Year 2** (Including Year 1) offspring,	Are the children with the largest feet always the tallest? SE1 SE2 SE3 SE4
Spring	Everyday Materials	•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. •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. **Vocabulary** Year 1 Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, waterproof, absorbent, tear, rough, smooth, shiny, dull, see through, not see through **Year 2** Suitable/unsuitable, use, object, material, property, wood, plastic, glass, metal water, rock, fabrics, hard, soft, stretchy, flexible, waterproof, absorbent, transparent, translucent, opaque, shape, change, twist, squash, bend, stretch, roll, squeeze	Helping hands, making hands project SE1 SE2 SE3 SE4
Summer 1	Humans	• Find out about & describe the basic needs of humans, for survival (water, food & air) • Describe the importance of exercise, eating the right amounts of different types of food & hygiene for humans. **Vocabulary** Year 1 Year 2	

		basic needs, water, food, air survival, exercise, food types (fruit and veg, bread, rice, pasta, milk, dairy, foods high in fat and sugar, meat, fish, eggs, beans), hygiene	
Summer 2	All Living Things and their Habitats	•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.	Plastic pollution project SE1 SE2 SE3 SE4
		Vocabulary	
		Year 1 food, water, air, survive, shelter, names of local habitats, Year 2 Living, dead, never been alive, names of local habitats, pond, woodland, meadow, name micro habitats, under log, stony path, under bushes, suited, basic needs, depend, food, food chain, shelter, Living, dead, never been alive, names of local habitats, pond, woodland, meadow, name micro habitats, under log, stony path, under bushes, suited, basic needs, depend, food, food chain, shelter	