Click these hyperlinks to access each year's Science provision and progression

EYFS	E
Year One	1
Year Two	2
Year Three	3
Year Four	4
Year Five	5
Year Six	6

Threshold Concepts

Working Scientifically

Biology

- Understand animals and humans
- Understand plants
- Investigate living things
- Understand evolution and inheritance

Chemistry

- Investigate materials

Physics

- Understand the Earth's movement in space
- Investigate light and seeing
- Understand electrical circuits
- Understand movement, forces and magnets
- Investigate sound and hearing

BACK TO TOP PAGE

Fairstead Community Primary and Nursery School - Science Curriculum Overview and Progression – July 2020

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Items in italics are not statutory in the English National Curriculum (references required only)					
R	**Physical Development (PD)** ELG 05 Health and self-care **Understanding of the World (UW)** ELG 14 The world; ELG 15 Technology **Expressive Arts and Design (EAD)** ELG 16 Exploring and using media and materials					
1	• Understand animals and humans	• Investigate Materials	• Understand animals and humans • Understand the Earth's movement in space: Seasonal changes	• Understand the Earth's movement in space	• Understand plants	• Understand plants • Understand animals and humans • Understand the Earth's movement in space: Seasonal changes
2	• Understand animals and humans • Investigate living things	• Investigate living things • Understand the Earth's movement in space • *Understand light and seeing*	• Investigate Materials • *Understand light and seeing* • *Understand electrical circuits*	• Understand animals and humans • Investigate Materials	• Understand plants • Understand animals and humans • *Understand evolution and inheritance*	• Understand the Earth's movement in space • *Understand movement, forces and magnets* • *Understand light and seeing* • *Investigate sound and hearing*
3	• Investigate Materials: Rocks and Soils	• Understand animals and humans	• Understand movement, forces and magnets	• Understand plants	• *Understand movement, forces and magnets*	• Understand light and seeing
4	• Understand animals and humans • Investigate living things • *Understand evolution and inheritance*	• Understand animals and humans • Investigate Materials: States of Matter	• Investigate living things • Understand light and seeing • *Understand evolution and inheritance* • *Understand the Earth's movement in space*	• Investigate sound and hearing	• *Understand movement, forces and magnets*	• Understand electrical circuits
5	• Understand the Earth's movement in space • Understand movement, forces and magnets		• Investigate Materials		• Understand animals and humans • Investigate living things	
6	• Understand animals and humans		• Investigate living things • Understand evolution and inheritance • *Understand plants*		• Understand light and seeing • Understand electrical circuits • *Investigate sound and hearing*	

BACK TO TOP PAGE

Fairstead Community Primary and Nursery School - Science Curriculum Overview and Progression – July 2020

	Working Scientifically			Biology												Chemistry			Physics																	
Y	Work Scientifically			Understand animals and humans			Understand plants			Investigate living things			Understand evolution and inheritance			Investigate materials			Understand the Earth's movement in space			Investigate light and seeing			Understand electrical circuits			Understand movement, forces and magnets			Investigate sound and hearing		
1																																			
2																																			
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	Autumn	*Spring*	*Summer*	*Autumn*	*Spring*	*Summer*	*Autumn*	*Spring*	*Summer*	*Autumn*	*Spring*	*Summer*	*Autumn*	*Spring*	*Summer*	*Autumn*	*Spring*	*Summer*	*Autumn*	*Spring*	*Summer*	*Autumn*	*Spring*	*Summer*	*Autumn*	*Spring*	*Summer*	*Autumn*	*Spring*	*Summer*	*Autumn*	*Spring*	*Summer*	*Autumn*	*Spring*	*Summer*

KEY	
	Covered during the term (statutory)
	Non-Statutory coverage

Science Curriculum Key Vocabulary

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including humans Fish, Reptiles, Mammals, Birds, Amphibians (+ examples of each) Herbivore, Omnivore, Carnivore, Leg, Arm, Elbow, Head, Ear, Nose, Back, Wings, Beak	**Animals including humans** Survival, Water, Air, Food, Adult, Baby, Offspring, Kitten, Calf, Puppy, Exercise, Hygiene	**Animals including humans** Movement, Muscles, Bones, Skull, Nutrition, Skeletons,	**Animals including humans** Mouth, Tongue, Teeth, Oesophagus, Stomach, Small Intestine, Large Intestine, Herbivore, Carnivore, Canine, Incisor, Molar	**Animals including humans** Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Elderly, Growth, Development, Puberty	**Animals including humans** Circulatory, Heart, Blood Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, Exercise, Respiration
Plants Deciduous, Evergreen trees, Leaves, Flowers (blossom), Petals, Fruit, Roots, Bulb, Seed, Trunk, Branches, Stem	**Plants** Seeds, Bulbs, Water, Light, Temperature, Growth	**Plants** Air, Light, Water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, Flower	**Living things and their habitats** Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats	**Living things and their habitats** Mammal, Reproduction, Insect, Amphibian, Bird, Offspring	**Living things and their habitats** Classification, Vertebrates, Invertebrates, Micro-organisms, Amphibians, Reptiles, Mammals, Insects
Everyday Materials Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth	**Living things and their habitats** Living, Dead, Habitat, Energy, Food chain, Predator, Prey, Woodland, Pond, Desert	**Rocks** Fossils, Soils, Sandstone, Granite, Marble, Pumice, Crystals, Absorbent	**States of Matter** Solid, Liquid, Gas, Evaporation, Condensation, Particles, Temperature, Freezing, Heating	**Properties and changes of materials** Hardness, Solubility, Transparency, Conductivity, Magnetic, Filter, Evaporation, Dissolving, Mixing	**Evolution and Inheritance** Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics
Seasonal Changes Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark	**Everyday materials and their uses** Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, Opaque, Transparent Brick, Paper, Fabrics, Squashing, Bending, Twisting, Stretching Elastic, Foil	**Light** Light, Shadows, Mirror, Reflective, Dark, Reflection	**Sound** Volume, Vibration, Wave, Pitch, Tone, Speaker	**Earth and Space** Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases of the Moon, star, constellation	**Light** Refraction, Reflection, Light, Spectrum, Rainbow, Colour,
		Forces and magnets Magnetic, Force, Contact, Attract, Repel, Friction, Poles, Push, Pull	**Electricity** Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators	**Forces** Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys	**Electricity** Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators, Amps, Volts, Cell

	Physics vocabulary		Chemistry vocabulary		Biology vocabulary

BACK TO TOP PAGE

Year Group	Term		ELG (Pertaining to NC Science curriculum)
Rec	Autumn *Paws and Claws*	1	**Physical Development (PD)** ELG 5 Health and 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. They manage their own basic hygiene and personal needs successfully, including dressing and going to the toilet independently.
	Autumn *Up, Up , Up and Away*	2	**Understanding of the World (UW)** ELG 14 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 to another. They make observations of animals and plants and explain why some things occur, and talk about changes.
	Spring *Wild at heart*	1	ELG 15 Technology Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.
	Spring *Once upon a time… Step into story world*	2	**Expressive Arts and Design (EAD)** ELG 16 Exploring and using media and materials: Children sing songs, make music and dance, and experiment with ways of changing them. They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. ELG 17 Being imaginative: Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feeling
	Summer *All things natural*	1	
	Summer *Tiny living things…*	2	

Fairstead Community Primary and Nursery School - Science Curriculum Overview and Progression – July 2020

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Year 1	Autumn *Fur, feathers, scales and skin*	1	**Understand animals and humans** • Identify and name a variety of animals • Identify common animals which are carnivores, herbivores and omnivores. • Describe and compare the structure of common animals • Identify, name and draw basic body parts	• Identifying and classifying • Using their observations and ideas to suggest answers to questions	**Sc1/1 Working Scientifically** During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: Sc1/1.1 asking simple questions and recognising that they can be answered in different ways Sc1/1.2 observing closely, using simple equipment Sc1/1.3 performing simple tests Sc1/1.4 identifying and classifying Sc1/1.5 using their observations and ideas to suggest answers to questions Sc1/1.6 gathering and recording data to help in answering questions. **Sc1/2.1 Plants** Sc1/2.1a identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Sc1/2.1b identify and describe the basic structure of a variety of common flowering plants, including trees **Sc1/2.2 Animals including humans** Sc1/2.2a identify and name a variety of common animals including, fish, amphibians, reptiles, birds and mammals Sc1/2.2b identify and name a variety of common animals that are carnivores, herbivores and omnivores Sc1/2.2c describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Sc1/2.2d identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. **Sc1/3.1 Everyday materials** Sc1/3.1a distinguish between an object and the material from which it is made
	Autumn *Mighty Structures*	2	**Investigate 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.	• Observing closely, using simple equipment. • Performing simple tests.	
	Spring *Extremes!*	1	**Understand animals and humans** • 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. **Seasonal changes** • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies.	• Asking simple questions and recognising that they can be answered in different ways • Observing closely, using simple equipment • Performing simple tests	
	Spring *The Rescuers*	2	**Understand the Earth's movement in space** • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies.	• Ask simple questions and recognise that they can be answered in different ways. • Observe closely, using simple equipment. • Perform simple tests. • Identify and classify. • Use their observations and ideas to suggest answers to questions. • Gather and record data to help answer questions	
	Summer	1	**Understand plants**		

	Around the world in 7 continents		• Identify and name a variety of common plants, including garden plants, wild plants and trees and those classified as deciduous and evergreen. • Identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers. • 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.		Sc1/3.1b identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock Sc1/3.1c describe the simple physical properties of a variety of everyday materials Sc1/3.1d compare and group together a variety of everyday materials on the basis of their simple physical properties **Sc1/4.1 Seasonal Changes** Sc1/4.1a observe changes across the 4 seasons Sc1/4.1b observe and describe weather associated with the seasons and how day length varies.
	Summer *Marvellous Earth*	2	**Understand 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. **Understand animals and 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. **Seasonal changes** • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies.	• Using their observations and ideas to suggest answers to questions. • Gathering and recording data to help in answering questions.	

Fairstead Community Primary and Nursery School - Science Curriculum Overview and Progression – July 2020

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Year 2	Autumn *Underground, Overground*	1	**Understand animals and humans** • Identify and name a variety of common animals. • 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. • Identify name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. **Investigate living things** • Explore and compare the differences between things that are living, that are dead and 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 micro-habitats • 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.	• Ask simple questions. • Observe closely, using simple equipment. • Perform simple tests. • Identify and classify. • Use observations and ideas to suggest answers to questions • Gather and record data to help in answering questions.	**Sc2/1 Working Scientifically** During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: Sc2/1.1 asking simple questions and recognising that they can be answered in different ways Sc2/1.2 observing closely, using simple equipment Sc2/1.3 performing simple tests Sc2/1.4 identifying and classifying Sc2/1.5 using their observations and ideas to suggest answers to questions Sc2/1.6 gathering and recording data to help in answering questions. **Sc2/2.1 Living things and their habitats** Sc2/2.1a explore and compare the differences between things that are living, dead, and things that have never been alive Sc2/2.1b 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 Sc2/2.1c identify and name a variety of plants and animals in their habitats, including microhabitats Sc2/2.1d 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. **Sc2/2.2 Plants** Sc2/2.2a observe and describe how seeds and bulbs grow into mature plants Sc2/2.2b find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. **Sc2/2.3 Animals including humans**
	Autumn *Mighty Structures*	2	**Investigate living things** • 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. • 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. *Understand light and seeing* • *Observe and name a variety of sources of light, including electric lights, flames and the Sun, explaining that we see things because light travels from them to our eyes.* **Understand the Earth's movement in space** • Observe the apparent movement of the Sun during	• Ask simple questions • Observe closely, using simple equipment. • Perform simple tests. • Identify and classify. • Use observations and ideas to suggest answers to questions. • Gather and record data to help in answering questions.	

			the day. • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies.		Sc2/2.3a notice that animals, including humans, have offspring which grow into adults Sc2/2.3b find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Sc2/2.3c describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. **Sc2/3.1 Uses of everyday materials** Sc2/3.1a identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses Sc2/3.1b compare how things move on different surfaces. Sc2/3.1c find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching *The teaching of Light/Sound is no longer required at KS1*
	Spring *Inventors*	1	**Investigate 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. • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard for particular uses. Understand movement, forces and magnets. • Notice and describe how things move, using simple comparisons such as faster and slower. • Compare how different things move. *Understand light and seeing* *• Observe and name a variety of sources of light, including electric lights, flames and the Sun, explaining that we see things because light travels from them to our eyes.* *Understand electrical circuits* *• Identify common appliances that run on electricity. • Construct a simple series electrical circuit.*	• Ask simple questions. • Observe closely, using simple equipment. • Perform simple tests. • Identify and classify. • Use observations and ideas to suggest answers to questions. • Gather and record data to help in answering questions.	
	Spring *Time Travelling*	2	**Understand animals and humans** • Investigate 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.		

			Investigate 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. • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard for particular uses.		
	Summer *Growing*	1	**Understand plants** • Identify and name a variety of common plants, including garden plants, wild plants and trees and those classified as deciduous and evergreen. • Identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers. • 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 **Understand animals and humans** • Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates. • 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 (birds, fish, amphibians, reptiles, mammals and invertebrates, 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. • Notice that animals, including humans, have offspring which grow into adults.		

			• Investigate 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. Investigate living things This concept involves becoming familiar with a wider range of living things, including insects and understanding life processes. • Explore and compare the differences between things that are living, that are dead and 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 micro-habitats. • 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. *Understand evolution and inheritance* • *This concept involves understanding that organisms come into existence, adapt, change and evolve and become extinct.* • *Identify how humans resemble their parents in many features.*		
	Summer *My World*	2	**Understand movement, forces and magnets** • Notice and describe how things move, using simple comparisons such as faster and slower. • Compare how different things move. **Understand light and seeing** • Observe and name a variety of sources of light, including electric lights, flames and the Sun, explaining that we see things because light travels from them to our eyes **Investigate sound and hearing** • Observe and name a variety of sources of sound, noticing that we hear with our ears.		

			Understand the Earth's movement in space. This concept involves understanding what causes seasonal changes, day and night. • Observe the apparent movement of the Sun during the day. • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies.		

Fairstead Community Primary and Nursery School - Science Curriculum Overview and Progression – July 2020

Year Group	Term		Threshold Concept and Milestones *Items in italics are not statutory in the English National Curriculum (references required only)*	Working Scientifically milestones	NC2014 outcomes covered (Green denotes coverage)
Year 3	Autumn *Stone Age and rocks and soils*	1	**Rocks and Soils** • Compare and group together different kinds of rocks on the basis of their simple, physical properties. •Relate the simple physical properties of some rocks to their formation (igneous or sedimentary). • Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock. • Recognise that soils are made from rocks and organic matter •	• Ask relevant questions; • Gather, record, classify and present data in a variety of ways to help in answering questions; • Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests; • Identify differences, similarities or changes related to simple, scientific ideas and processes.	**Sc3/1 Working Scientifically** During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them Sc4/1.2 setting up simple practical enquiries, comparative and fair tests Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Sc4/1.4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Sc4/1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Sc4/1.6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Sc4/1.7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Sc4/1.8 identifying differences, similarities or changes related to simple scientific ideas and processes Sc4/1.9 using straightforward scientific evidence to answer questions or to support their findings. **Sc3/2.1 Plants** Sc3/2.1a identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
	Autumn *Bronze Age and Animals including humans*	2	**Understand animals and humans** • Animals and humans need the right types/amounts of nutrition • Humans (mostly for this topic) and some animals have skeletons and muscles for support, protection and movement	• Ask relevant questions; • Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables; • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions; • Use straightforward, scientific evidence to answer questions or to support their findings.	
	Spring *Iron Age and Magnets*	1	**Understand movement, forces and magnets** • Observe how magnets attract or repel each other and attract some materials and not others • Compare and group together a variety of materials on whether they are attracted to a magnet and identify some magnetic materials • Describe a magnet as having two poles • Predict whether two magnets will attract or repel each other, depending on which poles are facing. • Compare how things move on different surfaces • Notice that some forces need contact between two objects, but magnetic forces can act at a distance.	• Set up simple, practical enquiries and comparative and fair tests; • Gather, record, classify and present data in a variety of ways to help in answering questions; • Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests; • Use straightforward, scientific evidence to answer questions or to support their findings.	
	Spring	2	**Understand plants** • Identify and describe the functions of different parts of flowering plants: roots, stem, leaves and flowers;	• Set up simple, practical enquiries and comparative and fair tests;	

	Plants and Rainforests		• 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 role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	• Make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers; • 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, bar charts and tables; • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions; • Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests; • Identify differences, similarities or changes related to simple, scientific ideas and processes;	Sc3/2.1b 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 Sc3/2.1c investigate the way in which water is transported within plants Sc3/2.1d explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. **Sc3/2.2 Animals including humans** Sc3/2.2a 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 Sc3/2.2b identify that humans and some other animals have skeletons and muscles for support, protection and movement.
	Summer *Mayan civilisation and forces*	1	**Understand movement, forces and magnets** • Compare how things move on different surfaces • Notice that some forces need contact between two objects	• Ask relevant questions; • Set up simple, practical enquiries and comparative and fair tests; • Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables; • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions; • Identify differences, similarities or changes related to simple, scientific ideas and processes; • Use straightforward, scientific evidence to answer questions or to support their findings.	**Sc3/3.1 Rocks** Sc3/3.1a compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Sc3/3.1b describe in simple terms how fossils are formed when things that have lived are trapped within rock Sc3/3.1c recognise that soils are made from rocks and organic matter. **Sc3/4.1 Light** Sc3/4.1a recognise that they need light in order to see things and that dark is the absence of light Sc3/4.1b notice that light is reflected from surfaces Sc3/4.1c recognise that light from the sun can be dangerous and that there are ways to protect their eyes Sc3/4.1d recognise that shadows are formed when the light from a light source is blocked by a solid object Sc3/4.1e find patterns in the way that the size of shadows change. **Sc3/4.2 Forces and Magnets** Sc3/4.2a compare how things move on different surfaces
	Summer *Light and dark, weather and climate change*	2	**Investigate light and seeing** • 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 a solid object; • Find patterns in the way that the size of shadows change.	• Ask relevant questions; • Set up simple, practical enquiries and comparative and fair tests; • Make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers; • Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables; • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	

					Sc3/4.2b notice that some forces need contact between 2 objects, but magnetic forces can act at a distance Sc3/4.2c observe how magnets attract or repel each other and attract some materials and not others Sc3/4.2d 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 Sc3/4.2e describe magnets as having 2 poles Sc3/4.2f predict whether 2 magnets will attract or repel each other, depending on which poles are facing.

Fairstead Community Primary and Nursery School - Science Curriculum Overview and Progression – July 2020

Year Group	Term		Threshold Concept and Milestones *Items in italics are not statutory in the English National Curriculum (references required only)*	Working Scientifically milestones	NC2014 outcomes covered (Green denotes coverage)
Year 4	Autumn *The Circle of Life*	1	**Understand animals and humans** • Identify that animals, including humans, need the right types and amounts of nutrition, that they cannot make their own food and they get nutrition from what they eat. • Construct and interpret a variety of food chains, identifying producers, predators and prey. **Investigate living things** • Recognise that living things can be grouped in a variety of ways. • Explore and use classification keys. • Recognise that environments can change and that this can sometimes pose dangers to specific habitats. **Understand evolution and inheritance** • *Identify how animals and plants are suited to and adapt to their environment in different ways.*	• Ask relevant questions. • 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, bar charts and tables. • Identify differences, similarities or changes related to simple, scientific ideas and processes.	**Sc4/1 Working Scientifically** During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them Sc4/1.2 setting up simple practical enquiries, comparative and fair tests Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Sc4/1.4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Sc4/1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Sc4/1.6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Sc4/1.7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Sc4/1.8 identifying differences, similarities or changes related to simple scientific ideas and processes Sc4/1.9 using straightforward scientific evidence to answer questions or to support their findings. **Sc4/2.1 All Living Things** Sc4/2.1a recognise that living things can be grouped in a variety of ways Sc4/2.1b explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
	Autumn *What a state!*	2	**Understand animals and humans** • Identify that humans and some animals have skeletons and muscles for support, protection and movement. • 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. **Investigate materials** • 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 the temperature at which this happens in degrees Celsius (°C), building on their teaching in mathematics. • Identify the part played by evaporation and condensation in the water cycle and	• Make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers. • Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables. • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	

			associate the rate of evaporation with temperature.		Sc4/2.1c recognise that environments can change and that this can sometimes pose dangers to living things. **Sc4/2.2 Animals including humans** Sc4/2.2a describe the simple functions of the basic parts of the digestive system in humans Sc4/2.2b identify the different types of teeth in humans and their simple functions Sc4/2.2c construct and interpret a variety of food chains, identifying producers, predators and prey. **Sc4/3.1 States of Matter** Sc4/3.1a compare and group materials together, according to whether they are solids, liquids or gases Sc4/3.1b 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) Sc4/3.1c identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. **Sc4/4.1 Sound** Sc4/4.1a identify how sounds are made, associating some of them with something vibrating Sc4/4.1b recognise that vibrations from sounds travel through a medium to the ear Sc4/4.1c find patterns between the pitch of a sound and features of the object that produced it Sc4/4.1d find patterns between the volume of a sound and the strength of the vibrations that produced it. Sc4/4.1e recognise that sounds get fainter as the distance from the sound source increases **Sc4/4.2 Electricity** Sc4/4.2a identify common appliances that run on electricity Sc4/4.2b construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
	Spring *Daedalus, Democracy and Dictionaries!*	1	**Investigate living things** • Recognise that living things can be grouped in a variety of ways. • Explore and use classification keys. • Recognise that environments can change and that this can sometimes pose dangers to specific habitats. Understand evolution and inheritance • *Identify how animals and plants are suited to and adapt to their environment in different ways.* Understand light and seeing • *Recognise that shadows are formed when the light from a light source is blocked by a solid object.* • *Find patterns in the way that the size of shadows change* Understand the Earth's movement in space • *Describe the movement of the Earth relative to the Sun in the solar system.* • *Describe the movement of the Moon relative to the Earth.*	• Ask relevant questions. • 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, bar charts and tables. • Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.	
	Spring *Good vibrations*	2	**Investigate sound and hearing** • Identify how sounds are made, associating some of them with something vibrating. • Recognise that vibrations from sounds travel through a medium to the ear.	• Set up simple, practical enquiries and comparative and fair tests. • Make accurate measurements using standard units • Identify differences, similarities or changes related to simple, scientific ideas and processes. • Use straightforward, scientific evidence to answer questions or to support their findings.	
	Summer *The rule of the Romans*	1	*Understand movement, forces and magnets* • *Compare how things move on different surfaces.* • *Notice that some **forces** need contact between two objects, but magnetic forces can act at a distance.*	• Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests. • Identify differences, similarities or changes related to simple, scientific ideas and processes.	

			• *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.*	• Use straightforward, scientific evidence to answer questions or to support their findings.	Sc4/4.2c 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 Sc4/4.2d recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit Sc4/4.2e recognise some common conductors and insulators, and associate metals with being good conductors.
	Summer *F*	2	Understand electrical circuits • 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.	• Ask relevant questions. • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	

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Year 5	Autumn *Give me some space*	1 & 2	**Understand the Earth's movement in space** • Describe the movement of Earth and other planets, relative to the Sun. Describe the movement of the moon relative to the Earth. • Describe the Sun, Earth and Moon as approximately spherical. • Use the idea of the Earth's rotation to explain day and night, and the apparent movement of the sun across the sky. **Understand movement, forces and magnets** • Explain that unsupported objects fall towards Earth because of gravity. • Identify the effects of drag forces – air resistance, water resistance and friction. Describe why moving objects that are not driven tend to slow down. • Understand that force and motion can be transferred through mechanical devices. Understand that some mechanisms allow a smaller force to have a greater effect.	• Plan enquiries, including recognising and controlling variables where necessary. Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. Take measurements, using a range of scientific equipment, with increasing accuracy and precision. • Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions. Present findings in written form, displays and other presentations. Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments.	Sc5/1 Working Scientifically During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: Sc5/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Sc5/1.2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision Sc5/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs Sc5/1.4 using test results to make predictions to set up further comparative and fair tests Sc5/1.5 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations Sc5/1.6 identifying scientific evidence that has been used to support or refute ideas or arguments. Sc5/2.1 Living Things and their habitats Sc5/2.1a describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Sc5/2.1b describe the life process of reproduction in some plants and animals. Sc5/2.2 Animals, including humans Sc5/2.2a describe the changes as humans develop to old age. Sc5/3.1 Properties and Changes of Materials Sc5/3.1a 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
	Spring *Unity and disunity*	1 & 2	**Investigate materials** • Compare and group everyday materials based on evidence from comparative and fair tests. • Understand how some materials will dissolve to form a solution and describe how to recover a material from a solution. • Use knowledge of solids, liquids and gases to decide how mixtures may be separated. • Give reasons for the particular uses of everyday materials. • Demonstrate that dissolving, mixing and changes of state are reversible changes. • Explain that some changes form new materials and this change is not usually reversible.	• Plan enquiries, including recognising and controlling variables where necessary. • Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. • Take measurements, using a range of scientific equipment, with increasing accuracy and precision. • Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships and conclusions. • Use test results to make predictions to set up further comparative and fair tests.	
	Summer	1 &	**Understand animals and humans**	• Record data and results of increasing complexity using scientific diagrams and	

	Cycling and Vik(I)ings	2	• Describe the changes as humans develop to old age. **Investigate living things** • Describe the life cycles of a mammal, an amphibian, an insect and a bird. • Describe the life process of reproduction in some plants and animals. • Describe how living things are classified into broad groups based on observable characteristics. • Give reasons for classifying plants and animals based on specific characteristics. • Identify how animals and plants are adapted to suit their environments.	labels, classification keys, tables, bar and line graphs, and models. • Present findings in written form, displays and other presentations. • Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments.	Sc5/3.1b know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Sc5/3.1c use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Sc5/3.1d give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Sc5/3.1e demonstrate that dissolving, mixing and changes of state are reversible changes Sc5/3.1f 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. **Sc5/4.1 Earth and Space** Sc5/4.1a describe the movement of the Earth, and other planets, relative to the Sun in the solar system Sc5/4.1b describe the movement of the Moon relative to the Earth Sc5/4.1c describe the Sun, Earth and Moon as approximately spherical bodies Sc5/4.1d use the idea of the Earth's rotation to explain day and night, and the apparent movement of the sun across the sky. **Sc5/4.2 Forces** Sc5/4.2a explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Sc5/4.2b identify the effects of air resistance, water resistance and friction, that act between moving surfaces Sc5/4.2c recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect

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Year 6	Autumn ***Blood, sweat and tears***	1 & 2	**Understand animals and humans** • Describe the changes as humans develop to old age. Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. • Recognise the importance of diet, exercise, drugs and lifestyle on the way the human body functions. • Describe the ways in which nutrients and water are transported within animals, including humans.	• Plan enquiries, including recognising and controlling variables where necessary. Plan enquiries, including recognising and controlling variables where necessary. Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. • Take measurements, using a range of scientific equipment, with increasing accuracy and precision. • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models. Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions. Present findings in written form, displays and other presentations. • Use test results to make predictions to set up further comparative and fair tests. Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments.	**Sc6/1 Working Scientifically** During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: Sc6/1.1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Sc6/1.2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision Sc6/1.3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs Sc6/1.4 using test results to make predictions to set up further comparative and fair tests Sc6/1.5 using simple models to describe scientific ideas Sc6/1.6 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations Sc6/1.7 identifying scientific evidence that has been used to support or refute ideas or arguments. **Sc6/2.1 Living Things and their habitats** Sc6/2.1a 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 Sc6/2.1b give reasons for classifying plants and animals based on specific characteristics. **Sc6/2.2 Animals including humans** Sc6/2.2a identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
	Spring ***Evolutions and revolutions***	1 & 2	***Understand Plants*** • *Relate plant knowledge to studies of evolution and inheritance. Relate knowledge of plants to studies of all living things.* **Investigate living things** • Give reasons for classifying plants and animals based on specific characteristics. • 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	• Plan enquiries, including recognising and controlling variables where necessary. • Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models. • Present findings in written form, displays and other presentations.	

			Understand evolution and Inheritance • Recognise that living things have changed over time and that fossils provide information about living things that have inhibited the Earth millions of years ago. • Recognise living things produce offspring, but which vary and are not identical to their parents. • Identify how animals and plants are adapted to suit their environment and this may lead to evolution.	• Take measurements, using a range of scientific equipment, with increasing accuracy and precision. • Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships and conclusions. • Use test results to make predictions to set up further comparative and fair tests.	Sc6/2.2b recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function Sc6/2.2c describe the ways in which nutrients and water are transported within animals, including humans. Sc6/2.3 Evolution Sc6/2.3a recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago Sc6/3.2b recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents Sc6/2.3c identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
	Summer *Zzzzzzap!*	1 & 2	**Investigate light and seeing** • Understand that light travels in straight lines. • Use how light travels to explain that objects are seen because they give out or reflect light into the eyes. • Explain why shadows have the same shape as the object that cast them, and predict the size of shadows when the position of the light source changes. • Explain that we see things because light travels from a source to our eyes or from sources to objects to our eyes. ***Investigate sound and hearing*** • *Find patterns between pitch and the features of the object which produce it.* • *Find patterns between the volume of a sound and the strength of vibrations that produced it. Recognise sounds get fainter as distance from the sound source increases.* **Understand electrical Circuits** • Associate brightness of a lamp or buzzer volume with the number/voltage of cells used. • Compare/give reasons for variations in how components functions, including bulb brightness, buzzer loudness and the on/off position of switches. • Use recognised symbols in simple circuit diagrams.	• Plan enquiries, including recognising and controlling variables where necessary. • Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models. • Present findings in written form, displays and other presentations. • Take measurements, using a range of scientific equipment, with increasing accuracy and precision. • Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships and conclusions. • Use test results to make predictions to set up further comparative and fair tests. • Use simple models to describe scientific ideas, identifying evidence that has been used to support or refute ideas.	Sc6/4.1 Light Sc6/4.1a recognise that light appears to travel in straight lines Sc6/4.1b 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 Sc6/4.1c 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 Sc6/4.1d use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them Sc6/4.2 Electricity Sc6/4.2a associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit Sc6/4.2b 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 Sc6/4.2c use recognised symbols when representing a simple circuit in a diagram.