Farsley Springbank Science Skills and Knowledge Progression Map

	EFYS	KS1	
Science Working Scientifically outcomes for children by the end of each year:	**Reception**	**Year 1**	**Year 2**
	• To make observations of animals and plants • Explore a variety of materials, tools and techniques through experimentation • To represent their own ideas, thoughts and feelings through design and technology, art, music, dance , role play and stories • To talk about features of their own immediate environment and how environments might vary from one another • Explain why some things occur and talk about changes	• Observe, describe and compare using simple science words • Sort things • Ask science questions • Collect evidence to answer some questions • Measure using non-standard units • Test out ideas with help • Talk about what might happen and what they found out • Write and draw about science • Record on a simple table	• Observe, describe and compare using science words • Sort and order observations • Ask scientific questions and use information to help answer them • Plan how to collect data to answer questions, with help • Measure using non-standard, then standard units • Talk about what might happen and compare it to what did happen • Plan a simple fair test, with help • Test out their own/someone else's ideas • Explain why (in a simple way) • Record information on tables and bar charts • Talk, write and draw about science

Farsley Springbank Science Skills and Knowledge Progression Map

	KS2			
	Year 3	**Year 4**	**Year 5**	**Year 6**
Science Working Scientifically outcomes for children by the end of each year:	• Observe, describe and compare using Key Stage 2 scientific vocabulary • Group and order observations giving scientific reasons • Ask scientific questions and use information/collect data to answer them • Predict what might happen and begin to explain why using everyday ideas • Measure in standard units • Test out their own/someone else's ideas • Plan a fair test with help • Explain observations using cause and effect • Draw simple tables and bar charts to record their own observations/data • Talk about observations/results and begin to use scientific facts to explain them • Find and talk about simple patterns in results • Communicate findings in a variety of ways • Talk about how to improve their own work	• Observe, describe and compare using Key Stage 2 scientific vocabulary • Group and order observations giving scientific reasons • Collect evidence/find information to test out an idea/prediction or answer a question • Predict what might happen and begin to explain why using everyday ideas and scientific facts/ideas • Measure in standard units • Select equipment, with help • Plan ways to test out their own/someone else's ideas • Set up a fair test and explain why it is important to do so • Draw tables and bar charts to record observations/data • Explain observations/results using cause and effects and scientific facts and ideas • Explain what the evidence shows and whether it supports any predictions • Identify and explain simple trends and patterns in results • Communicate findings in a variety of ways • Improve experiment	• Observe, describe and compare in careful detail • Sort and classify with precise reasons • Make predictions and explain why • Plan how to collect evidence/information/data to test out an idea/prediction or answer a question • Measure precisely in standard units • Select the most suitable equipment for the task • Plan ways to test out their own/someone else's ideas • Set up and carry out fair tests • Repeat observations and measurements • Draw tables, bar charts and simple line graphs to record observations/data • Interpret and predict from bar charts and line graphs • Explain observations/results using cause and effects and scientific facts and ideas • Explain what the evidence show and whether it supports any predictions • Identify trends and patterns in data and explain using scientific facts and ideas • Begin to identify scientific evidence that has been used to support or refute ideas or arguments • Select the most appropriate way to communicate findings, evaluating the evidence as well as describing it • Talk about how to improve their own work giving reasons	• Observe, describe and compare in careful detail using the correct language • Sort and classify with precise reasons • Make predictions based on scientific facts and ideas • Collect evidence/information/data to test out an idea/prediction or answer a question from a wide range of sources • Measure precisely in standard units • Select the most suitable equipment for the task • Plan ways to test out their own/someone else's ideas • Independently set up and carry out fair tests • Decide when to repeat observations and measurements • Choose the most appropriate way to record and present results • Interpret and predict from bar charts and line graphs • Explain observations/results using cause and effects and scientific facts and ideas • Explain what the evidence shows and whether it supports any predictions • Identify trends and patterns in data that do not fit and explain using scientific facts and ideas • Identify scientific evidence that has been used to support or refute ideas or arguments

Farsley Springbank Science Skills and Knowledge Progression Map

	EYFS	KS1		KS2
	Reception	**Year 1**	**Year 2**	**Year 3**
Plants	**Pupils should be taught to:** ·to make comments about what they have heard and ask questions to clarify their understanding. ·to explore the natural world around them making observations, and drawing pictures of animals and plants. · to know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what they have been read in class.	**Pupils should be taught to:** · 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	**Pupils should be taught to:** · 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	**Pupils should be taught to:** · 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

Farsley Springbank Science Skills and Knowledge Progression Map

	EYFS	KS1	KS2		
	Reception	**Year 2**	**Year 4**	**Year 5**	**Year 6**
Habitats and living things	**Pupils should be taught to:** · explore the natural world around them, making observations and drawing pictures of animals and plants. · know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. · understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	**Pupils should be taught to:** · explore and compare the difference 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 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	**Pupils should be taught to:** · 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	**Pupils should be taught to:** · describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	**Pupils should be taught to:** · 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 · give reasons for classifying plants and animals based on specific characteristics

Farsley Springbank Science Skills and Knowledge Progression Map

	EYFS	KS1		KS2			
	Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Animals including humans	**Pupils should be able to:** ·explore the natural world around them, making observations and drawing pictures of animals and plants. · know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.	**Pupils should be taught to:** · 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	**Pupils should be taught to:** · 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	**Pupils should be taught to:** · 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	**Pupils should be taught to:** · 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 · construct and interpret a variety of food chains, identifying producers, predators and prey	**Pupils should be taught to:** · describe the changes as humans develop to old age	**Pupils should be taught to:** · 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

Farsley Springbank Science Skills and Knowledge Progression Map

	KS2	
	Year 3	**Year 6**
Light	**Pupils should be taught to:** · recognise that they need light in order to see things and that the 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 changes	**Pupils should be taught to:** · recognise that light appears to travel in straight lines · 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 · 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 · use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

Farsley Springbank Science Skills and Knowledge Progression Map		
	KS2	
	Year 3	Year 5
Forces and magnets	**Pupils should be taught to:** · 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 on 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	**Pupils should be taught to:** · 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

Farsley Springbank Science Skills and Knowledge Progression Map		
	EYFS	**KS1**
	Reception	**Year 1**
Seasonal changes	**Pupils should be able to:** ·explore the natural world around them, making observations and drawing pictures of animals and plants. · know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.	**Pupils should be taught to:** · observe changes across the four seasons ·observe and describe weather associated with the seasons and how day length varies

Farsley Springbank Science Skills and Knowledge Progression Map	
	KS2
	Year 6
Evolution and inheritance	**Pupils should be taught to:** · 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

Farsley Springbank Science Skills and Knowledge Progression Map	
	KS2
	Year 4
Sound	**Pupils should be taught to:** · Identify how sounds are made, associating some of them with something vibrating · Recognise that vibrations from a sound 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.

Farsley Springbank Science Skills and Knowledge Progression Map		
	KS2	
	Year 4	Year 6
Electricity	**Pupils should be taught to:** 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.	**Pupils should be taught to:** ·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.

Farsley Springbank Science Skills and Knowledge Progression Map

	KS1		KS2	
	Year 1	**Year 2**	**Year 3**	**Year 5**
Everyday materials	**Pupils should be taught to:** · 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	**Pupils should be taught to:** · 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	**Pupils should be taught to:** · 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	**Pupils should be taught to:** · compare and group together everyday materials on the basis of their properties · 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