



Providing the rich soil that enables
our children to develop deep roots and flourish.

Immersion Curriculum: Y3/4

At Amberley, each unit of Science contains the key elements of - **working scientifically**, **biology** (understand plants, animals and humans, investigate living things evolution and inheritance), **chemistry** (investigate materials), **physics** (understand movement, forces and magnets, light and seeing, investigate sound and hearing, understand electrical circuits, Earth's movement in space.)



Intent:

For all learners to have...

- The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings.
 - Confidence when using practical skills, for example, planning and carrying out scientific investigations.
- Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings.
 - A passion for science and being a scientist.

Impact

The children of Amberley will understand and develop the traits and skills needed to become Scientists. They understand that Science is about how the world works, and they aim to behave like scientists in the way they ask questions, make observations and draw conclusions. They will accumulate a knowledge and skills base that will allow them to deepen their understanding in a range of areas of Science.

Implementation

Focus:		Milestone for end of Lower Key Stage 2 (Year 3/4)	National Curriculum Objectives: By the end of the Year 4
Animals		<ul style="list-style-type: none"> 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. Identify that humans and some animals have skeletons and muscles for support, protection and movement. Identify how animals and plants are suited to adapt to their environment in different ways. 	<p>Working scientifically:</p> <ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them. setting up simple practical enquiries, comparative and fair tests. making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. identifying differences, similarities or changes related to simple scientific ideas and processes. using straightforward scientific evidence to answer questions or to support their findings.
Duration	Cycle		
2 weeks	A Term 3	<p style="text-align: center;">Ongoing Milestones:</p> <ul style="list-style-type: none"> 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. 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. Use straightforward, scientific evidence to answer questions or to support. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> 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. construct and interpret a variety of food chains, identifying producers, predators and prey.
Making it Real			
Exploring skeletons and x-rays from different creatures; invertebrate hunting in the Guardianship.			<p>Key Vocabulary: producer, predators and prey, skeleton, bone, muscle, animal, classify, food chain/ web, nutrition, adaptation, environment, enquiry, experiment, predict, research, observe, record, key, result, conclude.</p> <p>Appropriate vocabulary will be selected from this list based on content.</p>

Focus:		Milestone for end of Lower Key Stage 2 (Year 3/4)	National Curriculum Objectives: By the end of the Year 4
Living Things in their Habitats		<ul style="list-style-type: none"> 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. 	<p>Working scientifically:</p> <ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them. setting up simple practical enquiries, comparative and fair tests. making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. identifying differences, similarities or changes related to simple scientific ideas and processes. using straightforward scientific evidence to answer questions or to support their findings. <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> 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.
Duration	Cycle		
2 weeks	A Term 5	<p>Ongoing Milestones:</p> <ul style="list-style-type: none"> 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. 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. Use straightforward, scientific evidence to answer questions or to support their findings. 	<p>Key Vocabulary: classification, flowering/ non flowering, habitat, environment, human impact, ecology, earth, experiment, predict, research, observe, record, key, result, conclude.</p> <p>Appropriate vocabulary will be selected from this list based on content.</p>
Making it Real		<p>Visits to natural habitats around the school and common.</p>	

Focus:		Milestone for end of Lower Key Stage 2 (Year 3/4)	National Curriculum Objectives: By the end of the Year 4
Humans		<ul style="list-style-type: none"> 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. 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. Identify how plants and animals, including humans, resemble their parents in many features. <p>Ongoing Milestones:</p> <ul style="list-style-type: none"> 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. 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. Use straightforward, scientific evidence to answer questions or to support their findings. 	<p>Working scientifically:</p> <ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them. setting up simple practical enquiries, comparative and fair tests. making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. identifying differences, similarities or changes related to simple scientific ideas and processes. using straightforward scientific evidence to answer questions or to support their findings. <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> 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. 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. <p>Key Vocabulary: breath, breathe, exercise, nutrition, medicine, strength, heart, lungs, mouth, tongue, teeth, oesophagus, stomach, small and large intestine, experiment, predict, research, observe, record, key, result, conclude. Appropriate vocabulary will be selected from this list based on content.</p>
Duration	Cycle		
2 weeks	A Term 4		
Making it Real			
Real life experiments/ measurements involving real people.			

Focus:		Milestone for end of Lower Key Stage 2 (Year 3/4)	National Curriculum Objectives: By the end of the Year 4
Electricity		<ul style="list-style-type: none"> 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. <p>Linked to DT objectives:</p> <ul style="list-style-type: none"> Create series and parallel circuits. 	<p>Working scientifically:</p> <ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them. setting up simple practical enquiries, comparative and fair tests. making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. identifying differences, similarities or changes related to simple scientific ideas and processes. using straightforward scientific evidence to answer questions or to support their findings. <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> 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. <p>Key Vocabulary: electricity, current, voltage, loop, circuit, cells, wires, bulbs, switches, buzzers, switch, conductor, insulator, experiment, predict, research, observe, record, key , result, conclude.</p> <p>Appropriate vocabulary will be selected from this list based on content.</p>
Duration	Cycle	<p>Ongoing Milestones:</p> <ul style="list-style-type: none"> 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. 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. Use straightforward, scientific evidence to answer questions or to support their findings. 	
2 weeks	A Term 1		
Making it Real			
Link to eco-committee: conserving electricity by switching off lights.			

Focus:		Milestone for end of Lower Key Stage 2 (Year 3/4)	National Curriculum Objectives: By the end of the Year 4
Sound		<ul style="list-style-type: none"> Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. 	<p>Working scientifically:</p> <ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them. setting up simple practical enquiries, comparative and fair tests. making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. identifying differences, similarities or changes related to simple scientific ideas and processes. using straightforward scientific evidence to answer questions or to support their findings. <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify how sounds are made, associating some of them with something vibrating. recognise that vibrations from sounds travel through a medium to the ear. find patterns between the pitch of a sound and features of the object that produced it. find patterns between the volume of a sound and the strength of the vibrations that produced it. recognise that sounds get fainter as the distance from the sound source increases.
Duration	Cycle		
2 weeks	A Term 2	<p>Ongoing Milestones:</p> <ul style="list-style-type: none"> 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. 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. Use straightforward, scientific evidence to answer questions or to support their findings. 	
Making it Real			
Experiments which demonstrate vibration. Measuring volume using decibel meters.		<p>Key Vocabulary: hear, heard, experiment, predict, research, observe, record, result, conclude, key, sound, pitch, vibration, medium, volume, pitch, waves, loud, quiet</p> <p>Appropriate vocabulary will be selected from this list based on content.</p>	