



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

Immersion Curriculum: Y5/6

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 Key Stage 2 (Year 5/6)	National Curriculum Objectives: By the end of the Year 6
Evolution and Inheritance		<ul style="list-style-type: none"> 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. 	<p>Working Scientifically:</p> <ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments. <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> 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
Duration	Cycle		
2 weeks	A Term 4		
Making it Real		<p style="text-align: center;">Ongoing Milestones:</p> <ul style="list-style-type: none"> 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. 	<p>Key Vocabulary: Evolution, evolve, fossil, offspring, adaptation.</p> <p>Appropriate vocabulary will be selected from this list based on content.</p>
<p>Explore fossils found locally and news articles about dinosaur bones.</p>		<ul style="list-style-type: none"> 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. 	

Focus:		Milestone for end of Key Stage 2 (Year 5/6)	National Curriculum Objectives: By the end of the Year 6
Classifying and Grouping Living Things		<ul style="list-style-type: none"> • <i>Relate knowledge of plants to studies of evolution and inheritance.</i> • <i>Relate knowledge of plants to studies of all living things.</i> • Describe how living things are classified into broad groups according to common observable characteristics. • Give reasons for classifying plants and animals based on specific characteristics. 	<p>Working Scientifically:</p> <ul style="list-style-type: none"> • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals • give reasons for classifying plants and animals based on specific characteristics
Duration	Cycle		
2 weeks	A Term 2	<p>Ongoing Milestones:</p> <ul style="list-style-type: none"> • 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. 	
Making it Real		<ul style="list-style-type: none"> • 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. 	<p>Key Vocabulary: Vertebrate and invertebrate, warm and cold blooded; mammal, bird, fish, reptile, amphibian, insect, arachnid, molluscs, annelids, crustaceans, move, respire, sense, grow, excrete, reproduce, nutrition.</p> <p>Appropriate vocabulary will be selected from this list based on content.</p>
Link to animals found in the local environment and pets some children may have.			

Focus:		Milestone for end of Key Stage 2 (Year 5/6)	National Curriculum Objectives: By the end of the Year 6
Sound		<ul style="list-style-type: none"> 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. 	<p>Working Scientifically:</p> <ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments <p>Recap:</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 5	<p>Ongoing Milestones:</p> <ul style="list-style-type: none"> 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. 	
Making it Real		<ul style="list-style-type: none"> 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. 	
Link to the new school bell in the bell tower: how far can the chime be heard? Is it louder indoors or outdoors?		<p>Key Vocabulary: sound, pitch, vibration, medium, volume, pitch, waves.</p> <p>Appropriate vocabulary will be selected from this list based on content.</p>	

Focus:		Milestone for end of Key Stage 2 (Year 5/6)	National Curriculum Objectives: By the end of the Year 6
Humans		<ul style="list-style-type: none"> 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. 	<p>Working Scientifically:</p> <ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans describe the changes as humans develop to old age. <p>Key Vocabulary: Foetus, baby, child, adolescent, adult; Circulatory system; heart, blood vessel, vein, artery; Nutrients; Respiratory system; Fair test.</p> <p>Appropriate vocabulary will be selected from this list based on content.</p>
Duration	Cycle	<ul style="list-style-type: none"> Recognise the importance of diet, exercise, drugs and lifestyle on the way the human body functions. 	
2 weeks	A Term 1	<ul style="list-style-type: none"> Describe the ways in which nutrients and water are transported within animals, including humans. <p>Ongoing Milestones:</p> <ul style="list-style-type: none"> 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. 	
Making it Real		<ul style="list-style-type: none"> 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. 	
Link to exercise and physical activities: pupils to observe own behaviours and measurements.			

Focus:		Milestone for end of Key Stage 2 (Year 5/6)	National Curriculum Objectives: By the end of the Year 6
Light		<ul style="list-style-type: none"> Understand that light appears to travel in straight lines. 	<p>Working Scientifically:</p> <ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations identifying scientific evidence that has been used to support or refute ideas or arguments <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> 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 <p>Key Vocabulary: Straight line, source, reflect, shade, shadow, opaque, transparent, translucent.</p> <p>Appropriate vocabulary will be selected from this list based on content.</p>
Duration	Cycle	<ul style="list-style-type: none"> Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eyes. 	
2 weeks	A Term 4	<ul style="list-style-type: none"> Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them, and to predict the size of shadows when the position of the light source changes. 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. <p>Ongoing Milestones:</p> <ul style="list-style-type: none"> 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. 	
Making it Real		<ul style="list-style-type: none"> 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. 	
Discuss issue of: no street lighting on the common.			