

Science Curriculum – 2 Year Cycle - KS1



Intent

Learning is a change to long term memory. Our aim is to ensure that our students experience a wide breadth of study based on the national curriculum and have, by the end of each key stage, long-term memory of curriculum knowledge.

We aim to inspire in pupils a curiosity and fascination of the world through Biology, Chemistry and Physics. Teaching will equip children with scientific knowledge, methods, processes and uses of science so that they can explain what is occurring, predict how things will behave, and analyse causes.

Through the continued development of oracy skills, we will expand pupil's scientific vocabulary which will deepen as they progress through school. Through our science curriculum, we intend to inspire pupils to develop a fascination of science and an enquiring mind to answer their own questions.

Implementation

Science is taught through the 'Threshold Concept' of Working Scientifically. The threshold concept is delivered through the knowledge categories of Biology, Chemistry and Physics. Deliberate practise of these, whereby knowledge will be revisited, will enable a gradual deepening of their understanding.

Teachers will utilise investigations, purposeful experiences through visits and visitors, and a range of teaching styles in order to develop their understanding of science so that it is in their long-term memory.

Teachers will provide knowledge for children to use to plan investigations, make predictions, carry out observations, collect data and develop hypotheses, in order to deepen children's understanding.

Impact

Because learning is a change to long term memory it is impossible to see impact in the short term. However, we do use probabilistic assessment based on deliberate practise. This means that we look at the practices taking place to determine whether they are appropriate, related to our end of key stage goals. We use comparative judgements against Milestone statements, in the tasks we set (POP tasks) and in tracking students' work over time. We use lesson observations to see if the pedagogical style matches our depth expectations.

Impact is also measured through key questioning skills built into lessons, progress tests and child-led assessment against the objective (WAGBA), and summative assessments aimed at targeting next steps in learning.

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Year Group	Cycle	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
<i>Threshold Concepts</i>								
1/2	A	Animals, Including Humans (Y1) <ul style="list-style-type: none"> - Identify/name common animals including fish, amphibians, reptiles, birds and mammals. - Carnivores / herbivores / omnivores. - Describe and compare structure of common animals. - Basic parts of human body and which part is associated with which sense. - Describe the importance for humans to exercise. 	Animals, Including Humans (Y2) <ul style="list-style-type: none"> - Animals have offspring that grow into adults. - What animals, including humans, need to survive (water/food/air). - Describe the importance for humans to eat the right amounts of different types of food and hygiene. 	British Science Week (2wks) Project Week (2 wks) Remaining 2 weeks begin Summer topic	Living Things and their Habitats (Y2) <ul style="list-style-type: none"> - Explore and compare the differences between things that are living, dead and things that have never been alive. - 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. - Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. - Identify and name a variety of plants and animals in their habitats, including microhabitats. 			
		Seasonal Changes: Autumn		Seasonal Changes: Winter		Seasonal Changes: Spring		Summer
		<ul style="list-style-type: none"> - Characteristics of each season and changes across 4 seasons - Observe and describe weather associated with each season and day length varies 						
		Essential – there must be an investigation in each half term and this needs to be evidenced in books.						

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B	<p>Plants (Y1)</p> <ul style="list-style-type: none"> - Basic structure of a variety of common flowering plants, trees (1) - Name a variety of common wild and garden plants (include deciduous/evergreen trees (1)) 	<p>Everyday Materials (Y1)</p> <ul style="list-style-type: none"> - Distinguish between an object and the material from which it is made (1) - Describe the simple physical properties of a variety of everyday materials (1) - Compare and group together a variety of everyday materials on the basis of simple physical properties (1) 	<p>British Science Week (2wks)</p> <p>Project Week (2 wks)</p> <p>Remaining 2 weeks begin Summer topic</p>	<p>Plants (Y2)</p> <ul style="list-style-type: none"> - Observe and describe how seeds/bulbs grow. (2) - Describe how plants need water, light and suitable temp to grow and be healthy (2) 	<p>Uses of Everyday Materials (Y2)</p> <ul style="list-style-type: none"> - Name and identify the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard (1/2) - Show shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching (2)
	<p>Seasonal Changes: Autumn</p>	<p>Seasonal Changes: Winter</p>		<p>Seasonal Changes: Spring</p>	<p>Summer</p>
	<ul style="list-style-type: none"> - Characteristics of each season and changes across 4 seasons - Observe and describe weather associated with each season and day length varies <p>Essential – there must be an investigation in each half term and this needs to be evidenced in books.</p>				

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Key Stage 1 Teaching Sequence for Science (Milestone 1) CYCLE A <i>Threshold Concepts</i>			
Weeks	Autumn Term	Spring Term	Summer Term
Topic Title:	Animals, Including Humans (Y1) <i>Understand animals and humans</i> <i>Understand the Earth's movement in space</i> <i>Work Scientifically</i>	Animals, Including Humans (Y2) <i>Understand animals and humans</i> <i>Understand the Earth's movement in space</i> <i>Work Scientifically</i>	Living Things and their Habitats (Y2) <i>Investigate living things</i> <i>Understand the Earth's movement in space</i> <i>Work Scientifically</i>
1	Seasonal changes – Autumn	Seasonal changes - Winter	Seasonal changes - Spring
2	<i>What do we know? – Cold Task</i> Identify/name common animals including fish, amphibians, reptiles, birds and mammals.	<i>Retrieval Quiz – Seasonal Changes</i> Experiment – measuring rainfall	Seasonal changes - Summer
3	<i>Retrieval Quiz – types of animals</i> Animals: Carnivores / herbivores / omnivores	<i>What do we know? – Cold Task</i> Animals: Animals have offspring that grow into adults.	Seasonal Changes – all 4 seasons https://www.outstandingscience.co.uk/index.php?action=view_page&page=view_unit&unit=1d
4	<i>Retrieval Quiz – animal groups / needs</i> Animals: Describe and compare structure of common animals	<i>Retrieval Quiz – offspring names</i> Animals: What animals need to survive (water/food/air).	POP Task – Seasons
5	POP Task – Animals	<i>Retrieval Quiz – needs for survival</i> Humans: Describe the importance for humans to eat the right amounts of different types of food and hygiene.	<i>What do we know? – Cold Task</i> Living things and their habitats: explore and compare the differences between things that are living, dead and things that have never been alive
6	Humans: Basic parts of human body and which part is associated with which sense	<i>Retrieval – last lesson</i>	<i>Retrieval Quiz – last lesson</i>

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		Humans: Describe the importance for humans to eat the right amounts of different types of food and hygiene.	Living things and their habitats: explore and compare the differences between things that are living, dead and things that have never been alive.
7	Retrieval – last lesson Humans: Basic parts of human body and which part is associated with which sense	POP Task – Animals/Humans	Retrieval Quiz – Differences Living things and their habitats: 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
8	Humans: Describe the importance for humans to exercise	British Science Week Work	Retrieval Quiz – Habitats Living things and their habitats: 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
9	Retrieval Humans: Describe the importance for humans to exercise	British Science Week Work	Retrieval Quiz – Habitats Living things and their habitats: Identify and name a variety of plants and animals in their habitats, including microhabitats.
10	Experiment – effects of exercise?	Class chosen Science project <i>Include an experiment</i>	Retrieval Quiz – Microhabitats Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain and identify and name different sources of food.
11	POP Task – Humans	Class chosen Science project <i>Include an experiment</i>	Retrieval Quiz – Foodchains 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.
12	Any catch up / Consolidation	Any catch up / Consolidation	POP Task – Animals/Humans

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Key Stage 1 Teaching Sequence for Science (Milestone 1) CYCLE B <i>Threshold Concepts</i>			
Weeks	Autumn Term	Spring Term	Summer Term
Topic Title:	Plants (Y1) <i>Understand plants</i> <i>Understand the Earth's movement in space</i> <i>Work Scientifically</i>	Everyday Materials (Y1) <i>Investigate materials</i> <i>Understand the Earth's movement in space</i> <i>Work Scientifically</i>	Plants (Y2) Uses of Everyday Materials (Y2) <i>Investigate materials</i> <i>Understand the Earth's movement in space</i> <i>Work Scientifically</i>
1	Seasonal changes – Autumn Characteristics of Autumn	Seasonal changes – Winter Characteristics of Winter	Seasonal changes – Summer Characteristics of Spring/Summer
2	Seasonal changes – Autumn Observe and describe weather associated with the seasons and how day length varies	Seasonal changes – Spring Observe and describe weather associated with the seasons and how day length varies	POP Task – Seasons
3	Experiment – Pinecone Weather (Twinkl)?	What do we know? – Cold Task Everyday Materials: Distinguish between an object and the material from which it is made.	What do we know? – Cold Task Plants: Observe and describe how seeds/bulbs grow. Experiment
4	What do we know? – Cold Task Plants: Basic structure of a variety of common flowering plants, trees	Retrieval – material made from Everyday Materials: Compare and group together a variety of everyday materials on the basis of simple physical properties.	Retrieval – previous lesson Plants: Observe and describe how seeds/bulbs grow. Experiment
5	Retrieval – previous lesson Plants: Basic structure of a variety of common flowering plants, trees	Retrieval – previous lesson Everyday Materials: Compare and group together a variety of everyday materials on the basis of simple physical properties.	Retrieval – previous lesson Plants: Describe how plants need water, light and suitable temp to grow and be healthy.

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6	<p>Retrieval – previous lesson Plants: Basic structure of a variety of common flowering plants, trees</p>	<p>Retrieval – comparisons Everyday Materials: Describe the simple physical properties of a variety of everyday materials.</p>	<p>Retrieval – previous lesson Plants: Describe how plants need water, light and suitable temp to grow and be healthy. Experiment</p>
7	<p>Retrieval – structure Plants: Name a variety of common wild and garden plants (include deciduous/evergreen trees)</p>	<p>Retrieval - properties Everyday Materials: Describe the simple physical properties of a variety of everyday materials.</p>	<p>POP Task – Plants (Y2)</p>
8	<p>Retrieval – naming plants Plants: Name a variety of common wild and garden plants (include deciduous/evergreen trees)</p>	<p>POP Task – Everyday Materials (Y1)</p>	<p>What do we know? – Cold Task Everyday Materials: Name and identify the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard.</p>
9	<p>Retrieval – naming plants Plants: Name a variety of common wild and garden plants (include deciduous/evergreen trees)</p>	<p>British Science Week Work</p>	<p>Retrieval – previous lesson Everyday Materials: Name and identify the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard.</p>
10	<p>POP Task – Plants (Y1)</p>	<p>British Science Week Work</p>	<p>Retrieval – previous lesson Everyday Materials: Show shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>
11	<p>Any catch up / Consolidation</p>	<p>Class chosen Science project Include an <i>experiment</i></p>	<p>Everyday Materials: Show shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>
12	<p>Any catch up / Consolidation</p>	<p>Class chosen Science project Include an <i>experiment</i></p>	<p>POP Task – Everyday Materials (Y2)</p>