

Curriculum Model for Science

Possibilities <i>This driver helps pupils to build aspirations and identify available opportunities for their future lives</i>	Initiative <i>This driver helps pupils to grow as independent learners and develops resourcefulness in a variety of situations</i>	Community & Environment <i>This driver develops a sense of belonging and nurtures curiosity about, and empathy for, local, national and global issues</i>	Health & Well-being <i>This driver underpins every aspect of our curriculum. It helps to guide children's life choices and nurtures emotional growth</i>
Investigation skills Higher order thinking skills To be able to hypothesise	Promotes curiosity Logical reasoning Questioning skills	Investigating the local area Habitats/seashore Canvey marshes wildlife park	Knowledge of human development Nutrition Exercise
Characteristics of a Scientist			
<ul style="list-style-type: none"> The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings. Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations. Excellent subject knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings. High levels of originality, imagination or innovation in the application of skills. The ability to undertake practical work in a variety of contexts, including fieldwork. A passion for science and its application in the past, present and future technologies. 			
At the end of Key Stage One the children will be able to ...			
<ul style="list-style-type: none"> 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 in answering questions 			
The children will be able to ...			
Plants	<ul style="list-style-type: none"> 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. 		
Animals and humans	<ul style="list-style-type: none"> 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, air, food). Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene. Describe and compare the structure of a variety of common animals. 		
Living things	<ul style="list-style-type: none"> 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.. 		
Materials	<ul style="list-style-type: none"> 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. 		

Seasonal change & weather	<ul style="list-style-type: none"> • Observe changes across the four seasons • Observe and describe weather associated with the seasons and how day length varies.
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		Milestone 1		
		Basic	Advancing	Deep
Working scientifically	Ask simple questions	<ul style="list-style-type: none"> • With the support of a teacher, simple questions can be asked using: How? What will happen if? Why? • With the support of a teacher, questions can be sorted into those that can be answered by trying them out and those that cannot 	<ul style="list-style-type: none"> • Generally, simple questions are asked. • Generally, questions that can be tested can be asked. • Generally, questions can be sorted into those that can be answered by trying it out and those that cannot 	<ul style="list-style-type: none"> • Without support, simple questions re asked. • Questions that lead to scientific enquiry are asked independently
	Observe closely, using simple equipment	<ul style="list-style-type: none"> • With the support of a teacher, close observations are made and instructions are followed for using simple equipment correctly and safely. • Generally, close observations are made, equipment is chosen from a limited range and simple equipment is used correctly 	<ul style="list-style-type: none"> • Close observations are made over tome, using simple equipment. 	<ul style="list-style-type: none"> • Without support, an explanation can be given as to why something has happened, using appropriate scientific vocabulary • Close observations are made independently, using simple equipment
	Perform simple tests	<ul style="list-style-type: none"> • With the support of a teacher, simple tests are performed. 	<ul style="list-style-type: none"> • General, simple tests are performed. 	<ul style="list-style-type: none"> • More complex tests, such as fair tests, are beginning to be performed.
	Identify and classify	<ul style="list-style-type: none"> • With the support of a teacher, there is an ability to classify. 	<ul style="list-style-type: none"> • Generally, there is an ability to classify 	<ul style="list-style-type: none"> • There is an ability to independently classify using more complicated taxonomies etc
	Use observations and ideas to suggest answers to questions	<ul style="list-style-type: none"> • With the support of a teacher, observations and ideas are used to suggest 'why' something has happened and to answer questions. • With guidance, some measurements of what is observed occur. These observations are non-standard, eg loud, quiet, short, long 	<ul style="list-style-type: none"> • Observations and ideas are used to suggest answers to questions, using appropriate vocabulary • Generally, systematic observations and measurements of what is observed are made using appropriate vocabulary 	<ul style="list-style-type: none"> • Observations and ideas are used to suggest answers to questions independently. • Without support, systematic observations and measurements of what is observed are made.
	Gather and record data to help in answering questions	<ul style="list-style-type: none"> • With support, data is gathered and recorded to help in answering questions; drawings and tables are used to show evidence 	<ul style="list-style-type: none"> • Generally, observations are recorded using ICT and on paper, using text, drawings and labelled diagrams • Generally data is gathered and recorded help in answering questions • Prepared tables and block graphs are generally used to help record data. • Secondary sources are used to find evidence 	<ul style="list-style-type: none"> • Observations are recorded independently using ICT and on paper, using text, drawings and labelled diagrams. • Prepared tables and block graphs are used to present information without support. • Independently, data is gathered and recorded to help in answering questions

Biology	To understand plants	<ul style="list-style-type: none"> • With the support of a teacher, a variety of common plants and trees are identified and names. • With the support of a teacher, plants and trees can be classified as deciduous and evergreen • With support, the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers, is identified and described • Observations are made of how seeds and bulbs grow into mature plants and, with support, this process can be described. • With support, the basic conditions required for plants to survive (food, water, air, warmth and light) are described. 	<ul style="list-style-type: none"> • Generally, a variety of common plants and trees, and those classified as deciduous and evergreen, are identified and named. • The basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers, is identified and described. • Generally observations are made and descriptions are given of how seeds and bulbs grow into mature plants. • The conditions required for plants to grow and stay healthy (food, air, warmth and light) are identified and described. 	<ul style="list-style-type: none"> • Without support, a variety of common plants and trees and those classified as deciduous and evergreen are identified and named. • The basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers, is identified and described independently • Without support, observations are made and descriptions are given of how seeds and bulbs grow into mature plants. • Without support, the conditions required for plants to grow and stay healthy (food, water, air, warmth and light) are identified and described. • Explanations are beginning to be offered for changes in living things eg light or water altering plants growth.
	To understand animals and humans	<ul style="list-style-type: none"> • With support, some common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates are identified and named. • Generally, a variety of common animals that are carnivores, herbivores and omnivores are identified and, with the support of a teacher, these animals are named. • With the support of a teacher the structure of a variety of common animals is described. • With the support of a teacher, the basic parts f the human body are recognised and named. With support, the part of the body associated with each sense can be identified. • With prompts, there is an awareness that animals have offspring which grow into adults. • With support, the basic needs of animals, including humans, for survival are described. • With the support of a teacher, the importance for humans of exercise, hygiene and diet is described. • With the support of a teacher, basic descriptions of the structure of common animals are given. 	<ul style="list-style-type: none"> • Generally, some common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates are identified and named. • Generally, living things can be sorted into groups with justification as to why they have been placed into these groups. • A variety of common animals that are carnivores, herbivores and omnivores are identified and named. • Generally, the structure of a variety of common animals, eg spine, tail, fur, wings, is described. These structures can then be compared. • The basic parts of the human body are identified, named, drawn and labelled the part of the body associated with each sense is identified. • The changes as young animals, including humans growing into adults are described • The basic needs of animals including humans, for survival are investigated and described. • Generally, the importance for humans of exercise, eating the right amounts of different types of food and hygiene is described. • The structure and variety of common animals are described. Some details are left out. 	<ul style="list-style-type: none"> • Common animals are classified as birds, fish, amphibians, reptiles, mammals and invertebrates independently. • A variety of common animals that are carnivores, herbivores and omnivores are independently and confidently identified and named. • The structure of a variety of common animals is described independently. These structures are hen compared and reasons for their differences are suggested. • Parts of the human body are identified, named, drawn and labelled independently. The part of the body associated with each sense is identified. • The changes as young animals, including humans growing into adults are described well using scientific vocabulary. • The basic needs of animals including humans, for survival, are investigated and described independently. • Without support, the importance for humans of exercise, eating the right amounts of different types of food and hygiene is described. • Without prompts or reminders common animals are described. • The terms birds, fish, amphibians, reptile, mammals and invertebrates are used accurately.

	To investigate living things	<ul style="list-style-type: none"> • With the support of a teacher, the differences between things that are living, that are dead and that have never been alive are described. • With the support of a teacher, the fact that living things live in habitats is identified. • There are the beginnings of an understanding of how different habitats provide for the basic needs of different kinds of animals and plants, eg the desert is the habitat for cacti and camels (living things that can store water for an amount of time) 	<ul style="list-style-type: none"> • Generally, the differences between things that are living, that are dead and that have never been alive are explored and compared. • Generally, the fact that most living things live in habitats to which they are suited is identified. • Generally the way in which different habitats provide for the basic needs of different kinds of animals and plants is described eg rainforest, coral reefs and the tundra are all habitats where particular kinds of plants and animals might be found. 	<ul style="list-style-type: none"> • The differences between things that are living, that are dead and that have never been alive are explored and compared. • The fact that most living things live in habitats to which they are suited is independently identified. • Without support, the way in which different habitats provide for the basic needs of different kinds of animals and plants is described eg rainforest, coral reefs and the tundra are all habitats where particular kinds of plants and animals might be found. • Without prompts, a variety of plants and animals are named and described. • Animal habitats are identified, described and there is an awareness of why habitats are suitable for an animal • Simple food chains are described and explained
Chemistry	To investigate materials	<ul style="list-style-type: none"> • With the support of a teacher, there is the ability to distinguish between an object and the material from which it is made. • With support, a variety of everyday materials are identified and named. • With support, the simplest physical properties eg strength, flexibility and transparency, of a variety of everyday materials can be described. • With the support of a teacher, a variety of everyday materials can be grouped on the basis of their simple physical properties. • With the support of a teacher, there is an ability to find out how the shapes of solid objects made from some materials can be changed. • With support, the uses of a variety of everyday materials, including wood, plastic, metal, glass, brick/rock, paper/cardboard can be identified. 	<ul style="list-style-type: none"> • Generally, there is an ability to distinguish between an object and the material from which it is made, with some corrections if needed. • Generally, a variety of everyday materials are identified and named. • The simple physical properties, eg strength, flexibility and transparency, of a variety of everyday materials are described. • Generally, a variety of everyday materials are grouped and compared on the basis of their simple physical properties, using appropriate vocabulary. • Generally, there is an ability to find out how the shapes of solid objects made from some materials can be changed. • The uses of a variety of everyday materials, including wood, plastic, metal, glass, brick/rock, paper/cardboard are identified and compared. 	<ul style="list-style-type: none"> • There is an ability to distinguish between an object and the material from which it is made. • A variety of everyday materials are identified, name and compared. • The simple physical properties of everyday materials are described. More complex physical properties of a variety of materials eg waterproof, rigid, magnetic, hard, conductor, insulator, absorbent, are beginning to be described. • Without support, a variety of everyday materials are grouped and compared on the basis of their simple physical properties • There is an ability to independently find out how the shapes of solid objects made from some materials can be changed. • Without support, the uses of a variety of everyday materials, including wood, plastic, metal, glass, brick/rock, paper/cardboard are identified and compared.
Physics	To understand the Earth's movement in space	<ul style="list-style-type: none"> • With the support of a teacher, simple changes across the four seasons are observed. • With the support of a teacher, the weather associated with the seasons and the variation in day length is observed and described. 	<ul style="list-style-type: none"> • Changes across the four seasons are observed and discussed. • Generally, the weather associated with the seasons and the variation in day length is observed and described. 	<ul style="list-style-type: none"> • The changes across the four seasons are observed and discussed independently, and a clear explanation can be given as to how the four seasons in the UK occur. • Without support, the weather associated with the seasons and the variation in day length is observed and described.