YR – Y6 Science Overview

'At Ashford Park, we are scientists!'

In Reception, the characteristics of effective learning from the Statutory Framework for the Early Years Foundation Stage are the foundations on which the **working scientifically skills** build in Key Stage 1.

Children begin to explore, enquire and investigate the world around them by trialling and developing the following skills:

We are curious about the world around us and ask lots of questions!

We measure and compare things to help us put things into perspective and to become designers.

We are creative and love to experiment with all types of artistic styles and media.

We record and organise our findings to help us to make sense of the world.

We use our senses and simple equipment to make observations.

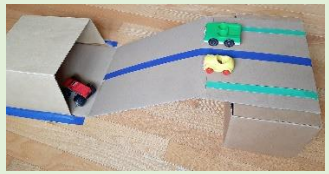
In Reception, we begin to build our knowledge about the world around us by exploring different areas of science, including:

Animals, plants and humans. We investigate growth

The seasons. Across the year, we observe the seasonal

Earth and space. We investigate what we can find in outer space.

Light and sound. We investigate light, playing with our own shadows and creating



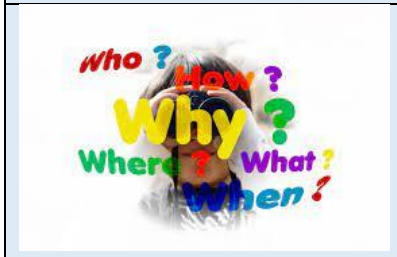
Forces: how things work, move and travel. We explore natural forces and how they affect the world around us.

YR – Y6 Science Overview

'At Ashford Park, we are scientists!'

through plants and caterpillars. We learn about the life cycles and metamorphosis. We also reflect on how we have and will change as humans.	changes and how it effects our environment and animals.	We find out about space exploration and astronauts such as **Tim Peake**.	different pitch sounds. We learn that sound travels.	

In Year 1 and Year 2, we learn how to behave like scientists by practising specific skills and scientific methods such as:

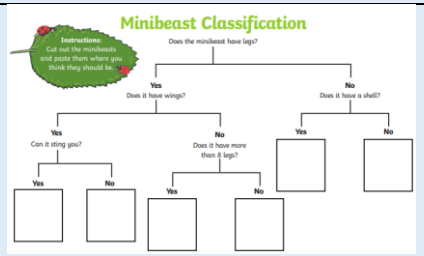


Asking questions and recognising that they may be answered in different ways.

Gathering and recording data to help in answering questions.

We use our own observations and ideas to suggest answers to questions.

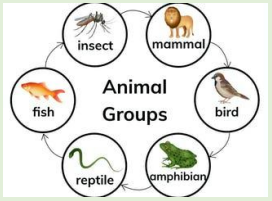
We perform simple tests.



We are experts at identifying and classifying all sorts of interesting things!

YR – Y6 Science Overview

'At Ashford Park, we are scientists!'

In Key Stage 1, Years 1 and 2, we learn all about the following areas of science:						
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Year 1	 **Everyday materials** We will identify and name a variety of everyday materials, distinguishing from the object and the material it is made from. We will begin to describe the simple properties of these materials and group them accordingly.	 **Seasonal Changes** As meteorologists we will observe the changes across the four seasons. We will record and describe the weather in autumn and winter and discuss how the day length varies. We will also learn about the scientist **George James Symons** who invented the rain gauge.	 **Animals, including Humans** We will identify and name a variety of common animals, comparing the structure and learning which animals are carnivores, herbivores and omnivores. We will learn about the work of **Jane Goodall** and observe our own chosen animals. We will also learn about the basic parts of the human body and say	 **Seasonal Changes** As meteorologists we will observe the changes across the four seasons. We will record and describe the weather in spring and summer and discuss how the day length varies.	 **Plants** As botanists we will identify and name a variety of common wild and garden plants. We will then learn about and describe the basic structure of common flowering plants. We will study the work of **Beatrix Potter** as a botanist and natural scientist.	 **Everyday materials** We will build on our prior learning of everyday materials by comparing and grouping everyday materials based on their simple physical properties. We will learn about the work of **Charles Macintosh** and investigate and test materials which are waterproof.

YR – Y6 Science Overview

'At Ashford Park, we are scientists!'

			which part is identified with which sense.			

YR – Y6 Science Overview

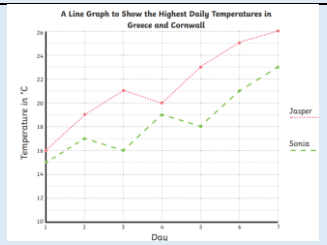
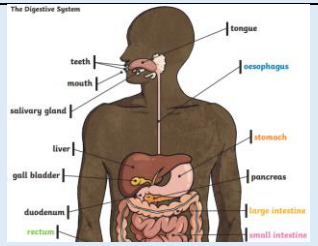
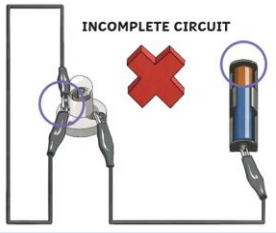
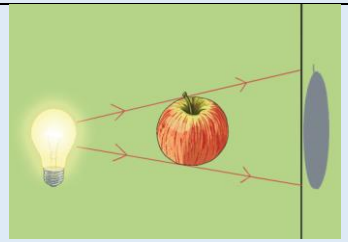
'At Ashford Park, we are scientists!'

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 2	 **Uses of everyday materials** Exploring the suitability and use of everyday materials through **John Dunlop's** invention of the air-filled rubber tyre. Select suitable materials for a specific purpose.	 **Animals, including humans** Understanding the life cycle of different animals. Exploring the importance of hygiene and exercise.	 **Animals, including humans** Identifying and comparing the basic needs of both animals and humans for survival. Recognising how different animals obtain food through creating simple food chains.	 **Uses of everyday materials** Identify and explore how the shape of materials can be changed through scientific experiments.	 **Living things and their habitats** Understand the difference of living, dead and never been alive. Identify different animals and their habitats, including microhabitats.	 **Plants** Observe and describe how plants grow over time. Understand the basic needs of a plant in order to grow.

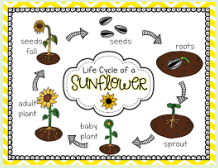
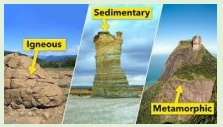
YR – Y6 Science Overview

'At Ashford Park, we are scientists!'

In Lower Key Stage 2 – Years 3 and 4, we learn how to behave like scientists by practising specific skills and scientific methods such as:

 Take 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.	 Setting up simple practical enquiries, comparative and fair tests.	 Using straightforward scientific evidence to answer questions or to support their findings.

In Lower Key Stage 2, Years 3 and 4, we make links to our prior learning and begin to learn about new areas of science such as:

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	 **Light** We will be learning how reflections and shadows are formed and understanding	 **Rocks** We will be learning about **Mary Anning**, and the fossils that she discovered. As palaeontologists, we	 **Plants** We will explore the requirements of a plant for life and growth and	 **Animals, Including Humans** As biologists we will identify the	 **Rocks** As geologists we will investigate and compare the different types of rocks based on their appearance	 **Forces and Magnets** As physicians, we will understand how magnets work and investigate the different materials

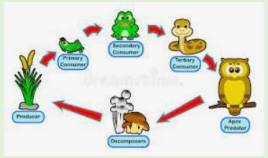
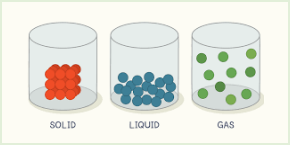
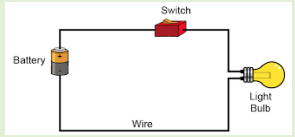
YR – Y6 Science Overview

'At Ashford Park, we are scientists!'

	how shadows may change in size.	will explore how fossils are formed and what fossils can tell us about the past.	investigate ways in which water is transported within a plant. As biologists, we will explore the part that flowers play in the life-cycle of a flowering plant.	need for a skeleton in both humans and animals and the importance it plays in everyday life. We will explore the nutrients needed for animals and humans to maintain a healthy diet.	and physical properties. We will recognise the importance of soil and organic matter.	that attract and repel magnets. We will explore how objects move on different surfaces and how the amount of force applied impacts this.

YR – Y6 Science Overview

'At Ashford Park, we are scientists!'

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 4	 **Living things and their habitats** We will construct and interpret a variety of food chains, identifying producers, predators and prey. We will then recognise that this can sometimes pose dangers to living things.	 **Animals, including humans** We will identify the different types of teeth. After this, we will be describing the simple functions of teeth and the digestive system in humans**.**	 **States of matter** We will explore the different states of matter, comparing and grouping materials by whether they are solids, liquids or gases. After investigating the changes to materials when they are heated or cooled, we will then identify the parts played by evaporation and condensation within the water cycle.	 **Electricity** We will identify appliances that run on electricity then begin to develop our understanding of how these appliances work by constructing simple series circuits, which include bulbs, buzzers and switches. We will continue to develop our knowledge of properties of shape by investigating whether a material is an electrical conductor or insulator.	 **Sound** We will identify how sounds are made and recognise that vibrations from a sound travel through medium to the ear (and its particular parts). After this, we will be finding patterns between pitch of a sound and the features of the object that produced it and patterns between volume of a sound and the strength of the vibrations travelling through the medium. Prepare to also find out who **Alexander Graham Bell** is and how his contributions to science	 **Living things and their habitats** We will learn that living things are grouped in a variety of ways, recording this by using classification keys. We will then recognise that the environment can change and this can sometimes pose dangers to the living things and their existence. To aid our understanding of this exciting learning, we will study the works of the scientist,

YR – Y6 Science Overview

'At Ashford Park, we are scientists!'

					have impacted the world today.	**Rachel Carson**, who was a marine biologist and conservationist.

YR – Y6 Science Overview

'At Ashford Park, we are scientists!'

In Year 5 and Year 6, we learn how to behave like scientists by practising all of the skills we have learnt before and by developing new scientific skills and scientific methods such as:

- 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
- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Identifying scientific evidence that has been used to support or refute ideas or arguments
- 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
- Using test results to make predictions to set up further comparative and fair tests

We are now experts at applying our:

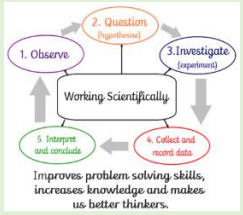
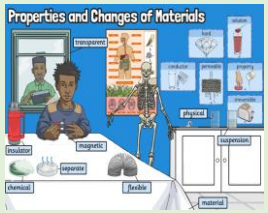
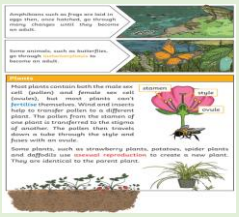
Enquiry approaches:

Enquiry skills:

YR – Y6 Science Overview

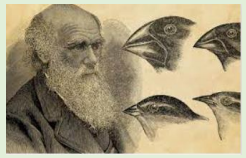
'At Ashford Park, we are scientists!'

In Upper Key Stage 2, Years 5 and 6, we build upon our scientific knowledge by learning all about the following areas of science:

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5						
	Working Scientifically Properties and changes of materials We will be embedding the process of working like scientists. Researching materials and how their features change.	**Properties and changes of materials** We will be designing and conducting experiments to investigate materials and how their features change. We will look at the contributions to science made by **Spencer Silver,** who worked as a chemist and developed pressure sensitive	**Forces** We will be developing knowledge of air resistance, water resistance and gravity through research and observation.	**Earth and Space** We will be enhancing knowledge of the solar system and the work of **Galileo Galilei**.	**Living things and their habitats** We will be investigating the reproduction of plants and exploring the different habitats of mammals, amphibians, birds and insects.	**Animals, including humans** We will be reviewing and evaluating the human changes into old age.

YR – Y6 Science Overview

'At Ashford Park, we are scientists!'

		adhesives and **Arthur Fry,** is an American inventor and scientist who worked with adhesives to create the post-it note**.**				
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Year 6	 **Evolution and inheritance** We will be learning to recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. We will then identify how animals and plants are adapted to suit their environment in different ways and	 **Light** We will be learning that light appears to travel in straight lines. We will be using the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. After this, we will be able to explain that we see things because light travels from light	 **Electricity** We will be learning how the brightness of a lamp or the volume of a buzzer is affected by the number and voltage of cells used in the circuit. We will then be able to compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of	 **Living things and their habitats** We will learn how 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. We will then be able to give reasons for classifying	 **Living things and their habitats**  As part of this learning, we will find out about the scientist **Charles Darwin,** whose 'thought experiments' helped to explain how finches evolved and suggested that living things evolved by a process of 'natural selection'.	 **Animals, including humans** We will Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. We will learn what the impact of diet, exercise, drugs and lifestyle have on the way our bodies

YR – Y6 Science Overview

'At Ashford Park, we are scientists!'

	that adaptation may lead to evolution.  As part of this learning, we will find out about the contemporary scientist **Alice Roberts**, who is an evolutionary biologist and has carried out research into how humans originated.	sources to objects and then to our eyes. Then we will use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	buzzers and the on/off position of switches. We will then be able to learning how to recognise symbols when representing a simple circuit in a diagram.	plants and animals based on specific characteristics.		function. Then we will be able to describe the ways in which nutrients and water are transported within animals, including humans.  As part of this learning, we will find out about the scientist **Santorio Santorio**, who developed a pulsilogium that could be used to match a patient's pulse.