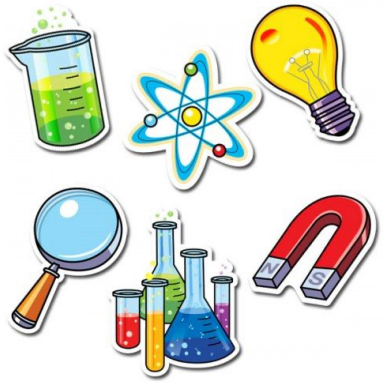
Science Curriculum

Blackmore Primary School

	Curriculum Intent At Blackmore Primary School we aim to provide an engaging and balanced curriculum which nurtures and embraces children's interests and potential. We inspire them to become life-long learners with the skills to prepare them for their futures.	**Key Resources & Provision** Grammarsaurus Health and Safety British Science Week	**Subject Leader** Miss Palmer 
Our Place In Our World	• Broaden Horizons • Explore Diversity • Positive Change		
Life Skills & Attitudes	• Communication • Self-directed, engaged • Making Connections		
Ambition & Possibilities	• Future Aspirations • Opportunities and Careers • Everything Is Possible		

Science Curriculum Overview EYFS /KS1

Year group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Food	Favourite Stories	People Who Help Us	Transport	The Sea	Animals

By the end of the year pupils will…

- Demonstrate an inquisitive nature about the world around them.
- Describe weather and seasonal change.
- Name body parts and talk about basic bodily functions.
- Explore a range of materials and their uses.
- Learn about different types of animals and habitats.
- Identify and explore pets, British wildlife and zoo animals.
- Identify and describe a range of minibeasts.
- Explore the immediate and local environment.
- Experiment to see which materials float and which sink.
- Find out how to grow plants from seeds.
- Explore and investigate change.

Year 1	**Animals including humans:** How can we group animals and what makes us humans?	**Seasonal changes**: What are the seasons?	**Materials:** Why do we use different materials for different things?	**Plants** : How can we identify different plants and trees?

By the end of the year pupils will…

- Be able to ask simple questions and recognise that they can be answered in different ways
- Use simple equipment to observe
- Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees
- Identify and describe the basic structure of a variety of common flowering plants, including trees
- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
- 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 (fish, amphibians, reptiles, birds and mammals including
- Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense
- 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
- Observe changes across the 4 seasons
- Observe and describe weather associated with the seasons and how day length varies

Year 2	**Living things and their habitats**	**Seasonal changes**	**Materials**	**Plants**	**Animals including humans**

	How do we know something is alive?	What changes occur throughout the seasons?	How are materials chosen in design?	How do seeds and bulbs grow into health plants?	Why do we need to keep healthy?
By the end of the year pupils will… • Ask questions and recognise that they can be answered in different ways, including the use of scientific language • Use simple equipment to observe closely, including changes over time • explore and compare the differences between things that are living, dead, and things 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 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 • 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 • Notice that animals, including humans, have offspring which grow into adults • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching					

Science Curriculum Overview KS2

<table>
<tr><td>Year 3</td><td>Animals including humans
How does the structure inside our body support us and how can we keep it healthy?</td><td>Forces and magnets
How do magnets work?</td><td>Plants
How does each part of a plant fulfil its function?</td><td>Light
What is light?</td><td>Rocks
How can we classify rocks?</td></tr>
<tr><td colspan="6">By the end of the year pupils will…
Ask relevant questions and use different types of scientific enquiry to answer them
Set up simple practical enquiries, comparative and fair tests
Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant
Investigate the way in which water is transported within plants
Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal
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
Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
Describe in simple terms how fossils are formed when things that have lived are trapped within rock
Recognise that soils are made from rocks and organic matter
Recognise that they need light in order to see things and that dark is the absence of light
Notice that light is reflected from surfaces
Recognise that light from the sun can be dangerous and that there are ways to protect their eyes
Recognise that shadows are formed when the light from a light source is blocked by an opaque object
Find patterns in the way that the size of shadows change
Compare how things move on different surfaces
Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance
Observe how magnets attract or repel each other and attract some materials and not others
Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials
Describe magnets as having 2 poles
Predict whether 2 magnets will attract or repel each other, depending on which poles are facing</td></tr>
<tr><td>Year 4</td><td>Living things and their habitats:
Which living things can be found in the local area?</td><td>States of matter:
Can materials change shape?</td><td>Animals including humans:
What happens to the food that we eat?</td><td>Electricity:
What is electricity?</td><td>Sound:
What is sound?</td></tr>
</table>

By the end of the year pupils will…

- Ask relevant questions and use different types of scientific enquiry to answer them
- Set up simple practical enquiries, comparative and fair tests
- 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
- 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
- Construct and interpret a variety of food chains, identifying producers, predators and prey
- Compare and group materials together, according to whether they are solids, liquids or gases
- Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature
- 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
- 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

Year 5	**Earth and Space** How does the Earth fit into our solar system?	**Living things and their habitats** How do living things reproduce, and why is this important in a life cycle?	**Forces** Are there different types of forces?	**Properties and changes of materials** How do materials change?	**Animals including humans** How do we change as we grow old?

By the end of the year pupils will…

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings if needed
- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- Describe the life process of reproduction in some plants and animals
- Describe the changes as humans develop to old age
- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
- Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- Demonstrate that dissolving, mixing and changes of state are reversible changes
- Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning

<table>
<tr><td colspan="6">and the action of acid on bicarbonate of soda
• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
• Identify the effects of air resistance, water resistance and friction, that act between moving surfaces
• Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</td></tr>
<tr><td>Year 6</td><td>Living things and their habitats:

What is classification?</td><td>Electricity:

How can circuits vary?</td><td>Animals including humans:

How do an animal's living systems work together to maintain a healthy body?</td><td>Evolution and inheritance:

What is evolution?</td><td>Light:
How does light help us understand the world around us?</td></tr>
<tr><td colspan="6">By the end of the year pupils will…
• Plan scientific enquiries to answer their own or others' questions, including recognising and controlling variables where necessary
• Take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings if needed
• 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
• Give reasons for classifying plants and animals based on specific characteristics
• 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
• 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
• 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
• Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
• Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
• Use recognised symbols when representing a simple circuit in a diagram</td></tr>
</table>