Bredbury St Mark's

Science Curriculum Booklet

Contents

Why is Science important at Bredbury St Mark's?

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all children should be taught essential aspects of the knowledge, methods, processes and uses of science.

Children are naturally curious. Science at primary school should nurture this curiosity and allow them to ask questions and develop the skills they need to answer those questions.

Primary science helps children to:

- investigate problems
- learn how science works
- discover why science matters in the world

Knowledge / Concept skills

Working Scientifically	Plants	Animals, including humans
➢ Asking questions ➢ Observing and measuring Planning and setting up different types of enquiries ➢ Identifying and classifying ➢ Performing tests ➢ Gathering and recording data ➢ Using equipment ➢ Reporting, presenting and communicating data/findings	➢ Basic structure ➢ What they need to grow ➢ Life cycles ➢ Reproduction ➢ Classification	➢ The human body ➢ Classification of animals ➢ Survival ➢ Food and hygiene ➢ Nutrition ➢ Skeleton and muscles ➢ Digestive system and teeth ➢ Food chains ➢ Human development ➢ Circulatory system ➢ Diet and exercise
Everyday materials	Living things	The Physical World
➢ Properties ➢ Explore and compare for uses ➢ States of matter ➢ Dissolving and separating materials ➢ Reversible and irreversible changes	➢ Habitats ➢ Food chains ➢ Classification ➢ Life cycles ➢ Reproduction ➢ Evolution and inheritance	➢ Rocks ➢ Light ➢ Forces and magnets ➢ Sound ➢ Electricity ➢ Earth and space ➢ Electricity

What are the key subject discipline skills in Science at Bredbury St Mark's?

- Being curious to ask questions about what they notice
- Developing their understanding of scientific ideas by using different types of scientific enquiry:
  - Observing changes over a period of time
  - Noticing patterns
  - Grouping and classifying things
  - Carrying our simple comparative tests
  - Finding things out using secondary sources of information
- Using scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways
- Selecting and using scientific equipment and resources in a safe and knowledgeable way
- Understanding resilience in science e.g. how else could we find an answer to our question?

Ensuring progression:

Key Skills Sheets by Year Group

Year 1	I can …
Working scientifically	Ask you questions.
	Use a magnifying glass.
	Perform experiments.
	Group things together by their features.
	Find the answer to questions by looking carefully at things.
	Collect my results and write them down.
Plants	Name the four key parts of a flowering plant.
	Name the four key parts of a tree.
	Name some evergreen plants.
Animals including humans	Tell you the names of some common: • Fish • Amphibians • Reptiles • Birds • Mammals
	Tell you the names of some common: • Meat eating animals (carnivores) • Plant eating animals (herbivores) • Animals that eat both plants and meat (omnivores)
	Tell you the differences between some common: • Fish • Amphibians • Reptiles • Birds • Mammals
	Tell you what kinds of animals are kept as pets.
	Label the human body using the right words.
Everyday Materials	Tell you the difference between an object and what it is made from.
	Tell you the names of some materials.
	Tell you about the properties of some everyday materials.
	Group together materials by their features.
Seasonal change	Tell you what is different about each season
	Tell you the kind of weather we experience in each season.
	Tell you how the length of the day changes in each season.

Year 2	I can …
Working scientifically	Ask you questions and understand that they can be answered in different ways.
	Use a microscope/magnifying glass.
	Perform experiments.
	Group things together by their features.
	Suggest the answer to a question by making observations.
	Collect my results and record them to help me answer questions.
Living things and their habitats	Tell you the differences between something that is living, things that are no longer alive and things that have never been alive.
	Tell you how different habitats provide for different animals and plants.
	Tell you how different animals and plants depend on each other.
	Tell you about micro-habitats.
	Tell you about different plants in their habitats.
	Tell you about different animals in their habitats.
	Tell you how a food chain works.
	Name different food sources of different animals.
Plants	Tell you how seeds and bulbs grow into plants.
	Tell you why plants need water, light and heat to grow and stay healthy.
Animals, including humans	Tell you what happens to animals over time.
	Tell you the names of different animals' young.
	Tell you what animals and humans need to survive.
	Tell you why exercise is important.
	Tell you why a healthy diet is important.
	Tell you why it is important to make sure you are clean.
Everyday materials	Tell you what different materials are used for.
	Tell you why some objects cannot be made from other materials.
	Tell you how I can change the shape of solid objects.

Year 3	I can …
Working scientifically	Ask questions and conduct experiments to answer them.
	Set up a fair practical experiment.
	Take accurate measurements using: - Thermometers - Data loggers - Rulers
	Record what I have found out using scientific vocabulary.
	Write what I have found out in a report.
	Present what I have found to the class.
	Use the results I have found to draw conclusions.
	Tell you what is different, what has stayed the same and what has changed in an experiment.
	Use the evidence from my own and other people's experiments to support what I have found.
Plants	Tell you what the roots of a plant do.
	Tell you about the role of the stem or trunk of a plant.
	Tell you about role of the leaves of a plant.
	Tell you about the role of the flowers of a plant.
	Tell you why different plants need different amounts of water, light and heat to grow and stay healthy.
	Tell you how water is transported inside plants.
	Tell you about the lifecycle of a flowering plant.
Rocks	Compare and group different kinds of rocks based on their: • Appearance • Physical properties
	Describe how fossils are formed.
	Explain what soil is made from.
Light	Explain why we need light to see things.
	Explain that dark is the absence of light.
	Tell you why the sun is dangerous to the eyes.
	Tell you how shadows are formed.
	Tell you about reflected light.
	Tell you why shadows are sometimes long and sometimes short.
Forces and magnets	Tell you how things move on different surfaces.
	Describe magnetic force.
	Describe how magnets attract and repel each other.
	Tell you some materials that are magnetic.
	Tell you some materials that are not magnetic.
	Group together materials based on whether or not they are magnetic.
	Tell you about the poles of a magnet.

Year 4	I can …
Working scientifically	Ask relevant questions.
	Use different types of experiments to answer questions.
	Make careful observations and take accurate measurements using: • Thermometers • Data loggers • Rulers
	Classify my results and present the data.
	Record my in a report using: • Graphs • Charts • Diagrams
	Deliver an oral report on my findings.
	Use the evidence from my results to give you a conclusion.
	Evaluate the experiment and suggest improvements.
Living things and their habitats	Tell you about how different living things can be grouped together.
	Tell you about how environmental changes can affect living things.
	Show you how to use a classification key.
	Tell you about the lifecycle of a flowering plant.
Animals including humans	Tell you about the different parts of the human digestive system.
	Tell you about the different types of teeth I have in my mouth.
	Draw a food chain.
States of matter	Group materials by state (solid, liquid, gas).
	Describe what happens to water as it is heated and cooled.
	Measure temperature in degrees Celsius.
	Tell you about the water cycle.
Sound	Tell you how sounds are made.
	Tell you how sound travels to your ear.
	Tell you how the pitch of a sound depends on the object that produced it.
	Describe volume in terms of vibrations.
	Tell you what happens to a sound when you get further away from the source.
Electricity	Tell you some appliances that run on electricity.
	Build a series electrical circuit and identify each element.
	Tell you, by looking, whether a light will switch on in a circuit.
	Tell you about how switches work in a circuit.
	Tell you a list of common conductors.
	Tell you a list of common insulators.
	Tell you why metal is a good conductor.

Year 5	I can …
Working scientifically	Plan different kinds of fair experiments.
	Tell you how I control variables in my experiments.
	Take accurate measurements using lots of different scientific equipment.
	Tell you why it is important to take repeated measurements.
	Record data using: • Labelled scientific diagrams • Classification keys • Tables • Bar charts • Line charts
	Make predictions about how other tests will work using my results.
	Present my findings in a written report with an introduction, results and conclusion.
	Present my findings in an oral presentation with an introduction, conclusion and results.
	Tell you about other experiments that have been done to support or disprove ideas.
Living things and their habitats	Describe the differences between the life cycles of: • A mammal. • A bird. • An insect. • An amphibian.
	Describe the reproductive cycle of a plant.
	Describe the reproductive cycle of an animal.
Animals including humans	Describe how humans change as they age.
Sates of matter	Classify materials by: • Transparency • Hardness - Solubility • Electrical conductivity • Thermal conductivity • Response to magnets
	Tell you about how some materials dissolve to form a solution.
	Tell you how to separate materials in a solution.
	Decide how best to separate mixtures.
	Tell you, using evidence, why some materials are best suited to different uses.
	Tell you why some state changes are reversible, and some are not.
Forces and magnets	Tell you about the effects of air resistance, water resistance and friction.
	Tell you how mechanisms allow a smaller force to have cause a greater effect.
Earth and space	I can tell you the shape of the Moon, Sun and Earth
	Tell you how the planets in our solar system move in relation to the Sun.
	Tell you how the Moon moves relative to the Earth.
	Explain how day turns into night.
	Explain why objects fall to Earth.

Year 6	I can …
Working scientifically	Plan different kinds of fair experiments.
	Recognise why controlling variables is important and explain in how I do this in my experiments.
	Take accurate measurements using scientific equipment.
	Take repeated measurements when appropriate.
	Record data using: • Labelled scientific diagrams • Classification keys • Tables • Bar charts • Line charts
	Draw conclusions from my results and describe relationships in results.
	Present my findings in a written report with an introduction, results and conclusion.
	Present my findings in an oral presentation.
	Identify scientific evidence that has been used to support or refute ideas or arguments.
Living things and their habitats	Describe how living things are classified into broad groups according to common observable characteristics.
	Classify plants and animals into groups.
	Tell you why I have classified them into those groups.
Animals, including humans.	Identify and name the main parts of the human circulatory system.
	Describe the functions of the heart, blood vessels and blood.
	Tell you about the impact of diet, exercise, drugs and lifestyle on the function of the human body.
	Describe ways in which nutrients and water are transported within animals.
	Describe the ways in which nutrients and water are transported within humans.
Evolution and inheritance	Tell you about how fossils provide information about living things that lived on Earth millions of years ago.
	Tell you about why the offspring of living things are similar but not identical to their parents.
	Tell you how animals and plants adapt to suit their environment.
	Explain how evolution is caused by the ability to adapt to environment.
Light	Tell you about how light appears to travel.
	Tell you about how objects need to reflect light to be visible.
	Explain how we are able to see things because of light travelling.
	Explain why shadows are the same shape as the objects that cast them.
Electricity	Explain how the brightness of a lamp, or volume of a buzzer, is associated with the number and voltage of cells used in a circuit.
	Compare and give reasons for variations in how components function in circuits.
	Use recognised symbols to represent a simple circuit in a diagram.

End Points: EYFS

Children can:

- understand ‘why’ questions, like: “Why do you think the caterpillar got so fat?”

Personal, Social and Emotional Development

- make healthy choices about food, drink, activity and toothbrushing
- know and talk about the different factors that support their overall health and wellbeing:
    - regular physical activity
    - healthy eating
    - toothbrushing
    - sensible amounts of ‘screen time’
    - having a good sleep routine
    - being a safe pedestrian
- manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices

Understanding the world

- 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
- explore the natural world around them.
- describe what they see, hear and feel while they are outside.
- recognise some environments that are different to the one in which they live.
- understand the effect of changing seasons on the natural world around them.
- explore the natural world around them, making observations and drawing pictures of animals and plants.
- know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.
- understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

End Points: Year 1

Children can:

Plants

- 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

Animals, including humans

- 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 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

Everyday materials

- 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

Seasonal changes

- Observe changes across the 4 seasons
- Observe and describe weather associated with the seasons and how day length varies

End Points: Year 2

Children can:

Living things and their habitats

- 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

Plants

- 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

Animals, including humans

- 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

Uses of everyday materials

- 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

End Points: Year 3

Children can:

Plants

- 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.

Animals, including humans

- identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they gain nutrition from what they eat
- identify that humans and some other animals have skeletons and muscles for support, protection and movement.

Rocks

- 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.

Light

- 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

Forces and magnets

- compare how things move on different surfaces
- notice that some forces need contact between two 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 two poles
- predict whether two magnets will attract or repel each other, depending on which poles are facing

End Points: Year 4

Children can:

Living things and their habitats

- 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

Animals, including humans

- 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

States of matter

- 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

Sound

- 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 from which it was produced
- find patterns between the volume of a sound and the strength of the vibrations from which they were produced
- recognise that sounds become fainter as the distance from the sound source increases

Electricity

- 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

End Points: Year 5

Children can:

Living things and their habitats

- 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.

Animals, including humans

- describe the changes as humans develop to old age

Properties and changes of materials

- 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 and the action of acid on bicarbonate of soda

Earth and space

- describe the movement of the Earth, and other planets, relative to the Sun in the solar system
- describe the movement of the Moon relative to the Earth
- describe the Sun, Earth and Moon as approximately spherical bodies
- use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky

Forces

- 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

End Points: Year 6

Children can:

Living things and their habitats

- 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.

Animals including humans

- 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.

Evolution and inheritance

- 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

Light

- 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

Electricity

- 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

Assessment in Science

- Children will be assessed and their progression recorded in line with the school's Assessment Policy.
- Children will be assessed continuously throughout the year.
- Throughout the year, teachers will plan on-going creative assessment opportunities in order to gauge whether children have achieved the key learning objectives.
- Assessment in science is based upon scientific knowledge and understanding, rather than achievement in English or maths.
- Assessment will be undertaken in various forms, including the following:
    - Talking to children and asking questions
    - Discussing children's work with them
    - Marking work against the learning objective
    - Specific assignments for individual pupils
    - Observing practical tasks and activities
    - Pupils' self-evaluation of their work
    - Classroom tests
- Formative assessment, which is carried out informally throughout the year, enables teachers to identify children's understanding of subjects and informs their immediate lesson planning.
- In terms of summative assessments, the results of end of year assessments will be passed to relevant members of staff, such as the pupil's future teacher.
- Parents will be provided with information about their child's progress during the summer term every year. This will include information on their child's attitude towards science and the child's understanding of the subject including investigation skills.
- Verbal reports will be provided at Parent's Evenings during the Autumn and Spring terms.
- Children with special educational needs and disabilities (SEND) will be monitored by the Special Educational Needs Coordinator.

SCIENCE LONG TERM PLAN 2023-2024

AGE PHASE	YEAR Group	AUTUMN		SPRING		SUMMER	
EYFS	Nurs & Rec	**Ourselves**	**Light and Shadows**	**Materials**	**Plants**	**Animals and habitats**	**Magnets & Electricity**
KS1	1	**ANIMALS INCLUDING HUMANS** (Humans: Basic Structure & Senses)	**EVERYDAY MATERIALS** (Name deserve and sort everyday materials)		**PLANTS** (Introducing Common Names and Basic Structure & ongoing nature journals)	**ANIMALS ~~INCL HUMANS~~** (Other Animals: carnivores, herbivores and omnivores.)	**PLANTS** (Theme continued with a block at end of year as well as throughout year)
		Observe plants <u>throughout the year</u> **Observe seasonal changes (Light and Astronomy) <u>throughout the year</u> (including sunlight, weather and link with plants)**					
	2	**LIVING THINGS & THEIR HABITATS** this creative context includes key learning for	**ANIMALS, ~~INCL HUMANS~~** (Animal survival and growth)	**USES OF EVERYDAY MATERIALS**	**PLANTS** (Growing Plants)	**HEALTH / ANIMALS, INCL HUMANS** (Humans: Grow & Stay Healthy)	
		Observe plants and animals in the local environment <u>throughout the year</u>					
KS2	3	**ANIMALS, INCL HUMANS** (Skeletons and Movement)	**LIGHT** (Need for light to see, shadows, reflective surfaces)	**ROCKS** (Group different rocks, how they are formed. Fossils)	**PLANTS** (Function including how water is transported. Life cycle of plants)	**FORCES AND MAGNETS**	**HEALTH ANIMALS, INCL HUMANS** (Health & Nutrition)
	4	**PROPERTIES & CHANGES OF MATERIALS** (States of matter. Change state, Evaporation, condensation)	**SOUND** (How sound is made, travels. Pitch and volume)	**ELECTRICITY** (Simple circuits, switches conductors and insulators)	**LIVING THINGS & THEIR HABITATS** (Group living things, use classification keys. Change in environment can threaten life)	**ANIMALS, INCLUDING HUMANS** (Basic function of digestive system. Teeth, food chains)	
		Observe life cycles of plants and animals in the local environment <u>throughout the year</u>					
	5 & 6	**LIVING THINGS & THEIR HABITATS** (Classification, including microorganisms, plants and animals)	**EVOLUTION & INHERITANCE** (Fossil. Offspring different to parents. Animal adaptation – Evolution incl. adaptations)	**ANIMALS, INCL HUMANS** (Circulatory system and exercise)	**ANIMALS, INCL HUMANS** (Keeping Healthy, Diet & Lifestyle)	**LIGHT** (Travels in straight lines. How light allows us to see. How shadows formed – shape)	**<u>ELECTRICITY</u>** (Brightness of lamp, volume of buzzer, symbols circuit diagrams)

Knowledge Organisers

EYFS

<table>
<tr>
<td>
<u>Ways of Communication</u>
Please join us on
Twitter – #Bredbury St Marks
Facebook – Bredbury St Marks Primary School
New Parent App – PA Connect
DoJo – ask for login details

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Spring 2
2022
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<td>
<u>Routines and Reminders</u>
PE Kit –black shorts, white t-shirt,
Wellies – named and left at school
School starts at 8.50 and finishes 3.10pm
Please try to order your child's school dinner at home as you know what they like!
Please remember to bring your child's home Learning Folder in daily.

Dates to look forward to:
Parents Evening
Stay and Play sessions in the classroom
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<td>
<u>Personal Social and Emotional Development</u>
Justice
Friends – what makes a good friend
</td>
<td colspan="2">
<u>Communication and Language</u>
Reading stories about our topic
Talking about familiar people and places
Taking turns when speaking
Putting our hands up when we want to talk during carpet time
Asking and responding to questions
</td>
<td>
<u>Physical Development</u>
Gross Motor Skills – throwing and catching
Fine Motor skills – continuing to develop muscle control in fingers, pencil control, scissor control, drawing, handwriting
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<tr>
<td>
<u>Literacy</u>
Set 2 Phonic sounds – air, ir, ou, oy
digraphs
CCVC and CVCC words – flat, plan, drop, land etc
Phase 2 and 3 HFWs – said, are, your, was, what,
</td>
<td>
<u>Maths</u>
Weight
Number bonds to 10
Addition
Subtraction
Exploring patterns
</td>
<td>
<u>Knowledge of the World</u>
Spring
Habitats
Floating and Sinking
ICT-Logging on, printing out, mouse control
</td>
<td>
<u>Expressive Arts and Design</u>
Dance – moving to music, fast, slow, high, low
Music – Songs about Spring, Easter
Art – 2D and 3D modelling
Drama –Role Play different scenarios
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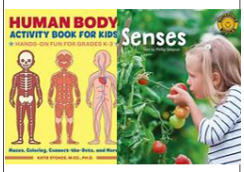
Knowledge Organisers

YEAR ONE (Autumn 1)

Big Question: How many different types of animal are there?	
LQ1	How many human body parts can I remember? *(words > colour-code a body)*
LQ 2	What are our senses? (sight, hearing) Which body part links to which sense?
LQ 3	What are our senses? (touch, smell, taste) Which body part links to which sense?
LQ 4	How do our senses help us?
LQ 5	In what ways can people be different?
LQ 6	Investigation lesson – how are people different? Eye colour (complete prepared table)
End Product	Can play and lead 'Simon Says'
Links to previous learning	'Myself' (Reception)
Future learning	Living Things and Their Habitats (Year 2)
Cross-curricular links	Empathy Team work

Exciting Books



Sticky Knowledge	Vocabulary
• I know there are five senses: smell, touch, taste, hear and feel. • I can show you the main body parts of my body • I can show you the parts of my body which link to my senses	back, head, neck, arms, elbows, legs, knees, face, teeth, fingers, toes senses, taste, sight, hearing, smell, touch ears, eyes, hands, mouth, nose

YEAR TWO (Autumn 1)

Big Question: Who lives in a house like this?	
LQ1	Can I compare the differences between things that are living, dead and have never been alive?
LQ 2	Can I map a habitat and identify its inhabitants?
LQ 3	Can I record data that I have collected in from an observation in a microhabitat?
LQ 4	Can I find out about a variety of different habitats and identify animals there?
LQ 5	Can I explain why animals are suited to different habitats?
LQ 6	Can I create a food chain to show how different animals get their food?
End Product	Mini-booklets on the unit including a piece of learning from each lesson. Share the booklets with another class.
Links to previous learning	Animals including Humans (Year 1)
Future learning	Living things throughout KS2.
Cross-curricular links	Making bug hotels and microhabitats

Exciting Books

Sticky Knowledge	Vocabulary
• I know that a habitat is a place where living things e.g. animals and plants, can find all the things they need to survive. • I understand that microhabitats are small sections where things exist that are different to the environment around them. • I know that living things need food, water, air, space to move / grow and some shelter. • I know some habitats are large e.g. ocean, and some are very small e.g. under a log. • I can name a range of habitats in our local area. • I understand that a food chain is where a living thing relies on the next as a source of food e.g. worms depend on plants (as they feed on dead leaves) > plants depend on worms (make the soil healthy by digging holes and allowing air in) > birds come along and eat worms. • I know that animals and plants depend on each other to survive.	living dead never been alive suited / suitable basic need: food food chain shelter move feed names of local habitats: pond woodland names of micro-habitats: under logs bushes Planters

Knowledge Organisers

YEAR THREE (Autumn 1)

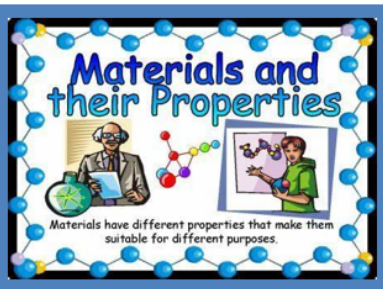
Big question Do you really need a skeleton?	
LQ1	What can I remember about animals and humans?
LQ 2	What makes up my skeleton?
LQ 3	What is the job of my skeleton?
LQ 4	Which parts of my skeleton are responsible for protection?
LQ 5	How come I can move?
LQ 6	Are all skeletons the same?
End Product	Debate – which bones are most important?
Links to previous learning	Reception - Myself Year 1 - Classifying Animals Year 2 – Survival, Reproduction,
Cross-links	Empathy Team work

Exciting Books

Sticky Knowledge	Vocabulary
• I know that humans, and some other animals, have skeletons and muscles which help them move and provide protection and support • I can remember that food contains a range of different nutrients – carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water and fibre that are needed by the body to stay healthy • I can identify and name some common animals. • I can identify a range of domestic and wild animals.	Spine Head / skull Neck Arms Elbows Legs Knees Jaw Ribs Pelvis Hips Feet Lungs Brain Endoskeleton Exoskeleton Vertebrate invertebrate Domestic, wild

YEAR FOUR (Autumn 1)

Big Question: What should I use?	
LQ1	Can I compare and group everyday materials?
LQ 2	Can I predict the best material for a given purpose? (e.g. material for a carrier bag)
LQ 3	Can I create and conduct a fair test to check my prediction? (e.g. comparative test)
LQ 4	Can I share what I have learned? (e.g. write to inform)
LQ 5	How can I keep my drink warm?
LQ 6	Can I make the bulb light up?
End Product	Create advert to sell a product based on its material properties
Links to previous learning	Writing – letter writing, persuasive writing Maths - reading scales to take results, recording in a table, line graph
Future learning	Reversible and Irreversible Changes (Year 4)
Cross-curricular skills	Speaking and Listening Electrical safety



Exciting Books

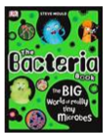
Sticky Knowledge	Vocabulary
• I understand that a materials properties include hardness, transparency, electrical / thermal conductivity and attraction to magnets. • I can describe the properties of a material using scientific vocabulary. • I understand that materials have different uses depending on their properties and state (liquid, solid, gas).	liquid solid gas state hardness transparency translucency rigid flexible density electrical / thermal conductor insulator magnetic attraction to a magnet

Knowledge Organisers

YEAR FIVE / SIX

The Big Question: Are you a fungi?	
LQ1	Can I group a range of plants?
LQ 2	Can I identify key characteristics of animals?
LQ 3	Can I group animals and explain my reasoning?
LQ 4	Can I research how Carl Linnaeus sorted living things into groups?
LQ 5	What are the different types of micro-organism?
LQ 6	Can I investigate how microorganisms grow and spread?
Final Product	A classification key for living things around school based on the system created by Carl Linnaeus
Links to previous learning	Living things and Their Habitats Year 2, 4 and 5
Future learning	Differences Between Species (Key Stage 3)
Cross-Curricular links	Computing – making classification keys, research DT – Bread Making Maths – reading scales, temperature, completing results tables Writing – non-fiction report to present results

Exciting Books



Sticky Knowledge

- I can group animals into mammals, fish, reptiles, birds, amphibians, insects, vertebrates and invertebrates.
- I know that a vertebrate animal can be either warm or cold-blooded.
- I recognise that a cold-blooded animal cannot maintain a constant body temperature so its temperature is determined by its surroundings.
- I can describe the classification system that Carl Linnaeus created in the 1700s.
- I know there are harmful and useful microorganisms and that the most common types are bacteria, viruses and fungi.
- I understand that microorganisms are inside some of our food e.g. the yeast used in making bread.

Vocabulary

species
fish
reptiles
birds
amphibians
insects
vertebrates
invertebrates

cold blooded
warm blooded

fungi
micro-organism
Monera
bacteria
yeast
viruses
algae
Carl Linnaeus

How is Science taught at Bredbury St Mark's?

- Science is a Core Subject and therefore taught for at least 1 hour per week, either in one or two sessions
- Planning summaries and Knowledge Organisers are completed for each unit of work/half term
- PLAN is used to support planning and ensure progression across year groups
- Knowledge rich curriculum supported by teacher use of Knowledge Organisers.
- Regular quizzing based on information in Knowledge Organisers
- 'Working scientifically' runs through every session, so that children can develop the skills they need to become accurate, careful and confident practical scientists.
- Science lessons are practical and hands-on where possible
- Each science session is linked to one of the '5 types of scientific enquiry', ensuring children's scientific enquiry skills are developed through each topic
- Ongoing formative assessments through a unit of work (linked to Knowledge Organisers and subject summary)
- Explorify (online resource) is used to further enrich children's learning through providing opportunities to extend questioning and thinking.

Science for SEND Pupils

At Bredbury St Mark's, we make Science lessons inclusive to all. Teachers anticipate what barriers to taking part and learning particular activities, lessons or a series of lessons may pose for pupils with particular SEN and/or disabilities. In some activities, children with SEN and/or disabilities will be able to take part in the same way as their peers. In others, some modifications or adjustments will be made to include everyone. For some activities, a 'parallel' activity for children with SEN and/or disabilities will be provided, so that they can work towards the same lesson objectives as their peers, but in a different way e.g. using a computer simulation of a process rather than manipulating equipment. Occasionally, children with SEN and/or disabilities will have to work on different activities, or towards different objectives, from their peers.

Specific examples of how children with SEN and/or disabilities are supported:

- Children's preferred learning styles are built on when explaining concepts, by using different media e.g. diagrams, stories, acting out processes, computer simulations, concept mapping.

- Alternatives to written recording are offered e.g. drawing, scribing, word processing, mind maps, digital images, video, voice recording.

- Support from additional adults is planned to scaffold children's learning, allowing them, increasingly, to work independently.

- To promote security and aid organisation e.g. visual timetables are used to show plans for the day or lesson; visual prompts for routines, such as how to ask for help; shared signals are developed so that pupils can convey their understanding, uncertainty or need for help.

- Language is clear, unambiguous and accessible. Key words, meanings and symbols are highlighted, explained and written up, or available in some other way. Instructions are given clearly and reinforced visually, where necessary. Pre-learning sessions may be incorporated to support understanding of new vocabulary as deemed necessary by

- Where appropriate, children are allowed time to discuss the answers to questions in pairs, before the teacher requests verbal responses.

- Children with communication impairments are given:
    - time to think about questions before being required to respond
    - time to explain, and
    - respect for their responses to questions and contributions to discussions
    - alternative means of sharing their understanding

- Marking and other feedback helps children improve their performance. Feedback is given in an appropriate form - verbally or in writing.

Science Pupil Voice Questions

Science – Pupil Voice **Date of monitoring**_____
Year group _____ **Teacher**_____
Unit _____

What is Science?	
What do we learn about in Science? *(Activities, types of investigation, knowledge)*	
Show me something you are proud of…	
Why are you proud of it?	
What did you learn?	
Is there anything else you would like to learn about …?	
How might you go about this?	
I see you did…experiment. Can you tell me what happened?	
Do you remember why that was?	
Do you think your understanding has improved?	
What makes you think that?	
Why is this in your book? *(Knowledge sheet)*	
Are they understanding / using subject knowledge / vocabulary?	

Science Pupil Voice Unit Specific Knowledge Questions

Reception (EYFS)	
Year 1	**Plants:** Can you tell me about any parts of the plant? (Show picture) **Seasons:** Do you know what season it is now? What happens during this season? Which season comes next?
Year 2	**Animals including humans:** Can you name a type of bird? Can you name a mammal? **Materials**: Can you name some different materials?
Year 3	**Animals including humans:** Can you tell me what animals and humans need to survive? **Materials**: Can you name a material and what it could be used for? What makes it suitable for that purpose?
Year 4	**Animals including humans:** Can you tell me about the types of food we need to eat to stay healthy? **Forces and magnets:** Can you tell me about magnetic forces?
Year 5	**Animals including humans:** Can you tell me about the digestive system? **States of matter:** Can you tell me about the water cycle?
Year 6	**Animals including humans:** Can you explain how a baby changes as it grows? **Earth and space:** Can you explain what causes day and night?