Science

Curriculum Intent

It is our intent that children will leave our schools resilient, emotionally literate, aspirational, effective communicators who are happy and therefore ready for the next stage of their life through the behaviour, knowledge and skills they have learnt whilst in our care. If we can achieve this for our children then we believe we are giving them the best opportunity to achieve success in their life. Through an inclusive and stimulating environment we will develop every child and allow them to write their own story in life. This intent is defined as our REACH principles.

Resilient: Every child is resilient.
Emotionally Literate: Every child is aware of their feelings and those of others.
Aspirational: Every child aspires for more in their learning and in life.
Communicators: Every child is an effective communicator.
Happy: Every child has the right to be happy. Bilton Community Federation

Our vision is to empower children to make a positive impact on the world and to apply the following values in all they do: **Care, Co-operation, Honesty, Forgiveness, Respect and Resilience.**

Science
at
Bawnmore Community Infant School
is great because:

- Teachers plan exciting science lessons which are taught regularly as part of the Learning Challenge Curriculum. Children lead their learning by asking questions and are encouraged to have enquiring minds.
- Children are fully involved in practical investigations and are given opportunities to talk about their learning, developing their use of appropriate scientific vocabulary.
- When possible teachers invite visitors into the classroom and regular opportunities are planned to explore the school grounds and local area to enhance learning opportunities.
- Children are encouraged to value the opinions of everyone in the class and lessons are differentiated where necessary to ensure all children are challenged and fully engaged in their learning.

These principles were developed by the staff and children at Bawnmore Community Infant School

Curriculum Overview

EYFS Long Term Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Learning Challenge Question	What makes me marvellous?	What colours do we see at this time of year?	Are all children the same?	Do we know any superheroes?	What story could our magic carpet take us to?	What is a minibeast?
Science Curriculum Focus	Talk about how we have changed since we were babies	Observe seasonal change		Make superhero potions	Observe seasonal change	Observe seasonal change Observe minibeasts. Learn about lifecycles

Year 1 Long Term Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Learning Challenge Question	Would you invite a tiger to tea?(6 weeks) Summer(1 week)	What is in the toy box? Autumn 1 week	Why can't a tiger live at the North Pole? (Winter 1 week)	What do aliens think of life on planet earth? (Spring 1 week)	Are we nearly there yet?	What can we find in the woods? Summer (1 week)
Science Curriculum Focus	Animals and their features Autumn weather and seasons	Autumn weather and seasons Materials	Winter weather and seasons Animals in different habitats	Animals including humans Spring weather and seasons	Plants and growing	Plants Animals Including British wildlife Summer weather and seasons

Year 2 Long Term Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Learning Challenge Question						
Science Curriculum Focus	Materials Plant bulbs	Living Things Habitats	Needs for survival humans/animals Materials	Growing Plants Living things Needs for survival plants Healthy Living Exercise balance diet hygiene	Living Things Lifecycles	Materials Habitats

Working Scientifically Progression of skills

	EYFS	Year 1	Year 2
Ask and answer questions	Explore and answer simple questions about objects and environment through guided exploration.	Use everyday language and some specific vocabulary to ask and answer questions.	Suggest ideas, ask and answer simple questions and begin to use secondary sources e.g. topic books and explorify video clips.
Make observations	Look carefully and talk about what they can see.	Observe a range of objects and materials and describe what they can see.	Observe closely, use hand lens and microscopes where appropriate to describe and look for changes over time.
Identify and classify	Develop ideas of grouping and sorting.	Sort and group objects and living things according to simple observational features.	Decide how to group and sort looking for similarities and differences.
Perform simple tests	Engage in experiences and opportunities to explore.	Follow instructions to complete simple tests.	Follow instructions to complete simple tests.
Record and report	Create simple representations	Talk about their findings and use pictures to record findings.	Talk about their findings and use pictures and simple tables to record findings.

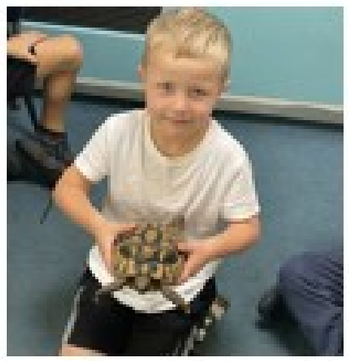
Year 1 Plants

Key Vocabulary	Key Learning National Curriculum Objectives	Key Questions and Knowledge Exploring Plants
leaves trunk branch root seed bulb flower stem wild garden deciduous evergreen growing dead	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. Identify and name the roots, trunk, branches and leaves of trees. 	Plants grow from seeds/bulbs Plants need light and water to grow and survive Plants are important We can eat parts of lots of plants What trees can we find in our school grounds? Which tree has the biggest leaves in the school grounds? What happens when we plant a bean? What wild plants can we find in our school grounds? What plants are growing in the school garden? Which trees are evergreen? What happens to deciduous trees in winter? Which flowers can we identify?

Year 1 Seasonal Change

Key Vocabulary	Key Learning National Curriculum Objectives	Key Questions and Knowledge Seasonal Change
Seasons Spring Summer Autumn Winter windy sunny, snow rain temperature thermometer weather	Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. 	Weather can change There are lots of different types of weather: Rain, Sun, Cloud, Wind, Snow, etc Days are longer and hotter in the summer. Days are shorter and colder in the winter. There are four seasons: Spring, Summer, Autumn, Winter What is the temperature today? Why do you think leaves turn brown in Winter? What effect does rain have on the environment? Do all trees lose their leaves in Winter? How does the weather affect me? What would happen if there was too much rain? What would happen if there wasn't enough rain? In which season is the temperature the highest? How long does a puddle take to dry up? Can we identify and classify trees in different seasons?

Year 1 Animals including Humans

Key Vocabulary	Key Learning National Curriculum Objectives	Key Questions and Knowledge Exploring Animals including Humans
amphibians birds fish mammals reptiles carnivores herbivore omnivore sight hearing touch taste smell head neck ear mouth shoulder hand fingers leg foot thumb eye nose knee toes shin wrist teeth elbow	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 is associated with each sense. 	There are many different animals with different characteristics. Animals have senses to help individuals survive. When animals sense things they are able to respond. Animals need food to survive. Animals need a variety of food to help them grow, repair their bodies, be active and stay healthy. What do animals eat? Do all animals eat the same food? What is the same/different about birds? What can we find out about reptiles? How can we organise all the zoo animals? What are our five senses? What are the names for the parts of our bodies? Do older children have bigger hands? Investigate by holding unifix in hands

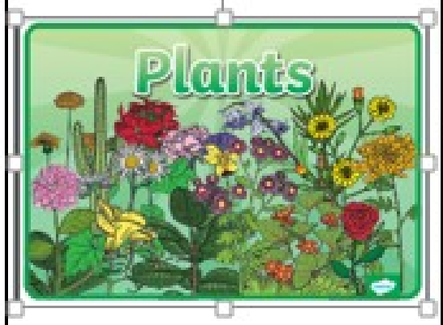
Year 1 Materials

Key Vocabulary	Key Learning National Curriculum Objectives	Key Questions and Knowledge Materials
materials fabric wood plastic metal water rock brick glass hard soft stretchy stiff shiny dull rough smooth flexible waterproof/not waterproof absorbent opaque transparent	Distinguish between and object and the material from which it is made. Identify and name a variety of everyday materials, including wood, metal, plastic, glass, 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 properties. 	There are many different materials that have different properties. Materials that have similar properties are grouped into metals, rocks, fabrics, wood, plastic and ceramics (including glass). The properties of a material determine whether they are suitable for a purpose Which fabric would make the softest blanket? Which material could be used to make a waterproof hat for the teacher when she is on the playground at playtime? Which material could I wrap my ice egg / snowman in to stop it melting? Can you sort the materials? What happens to ice in the classroom?

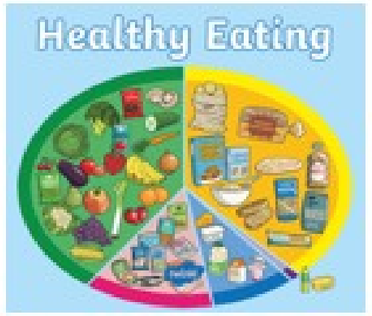
Year 2 Materials

Key Vocabulary	Key Learning National Curriculum Objectives	Key Questions and Knowledge Materials
materials fabric wood plastic metal water rock brick glass hard soft stretchy stiff shiny dull rough smooth flexible waterproof/not waterproof absorbent opaque transparent twisting squashing bending change stretch	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 shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 	Which materials absorb the most water? Which paper is best for wrapping a present? Which material would be best for Cinderella's mop? What happens to the candy cane in different liquids? Which materials will float and which will sink? How do we choose the best material? Which material would be ridiculous and which would be sensible?

Year 2 Plants

Key Vocabulary	Key Learning National Curriculum Objectives	Key Questions and Knowledge Exploring plants
leaves trunk branch root seed bulb flower stem wild garden deciduous evergreen growing dead observe grow compare record temperature predict measure diagram germinate warmth sunlight	Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and warmth to grow and stay healthy. 	Plants grow from seeds/bulbs Plants need light, water and warmth to grow and survive We can eat different parts of the plants (leaves, stems, roots, seeds, fruit) Do all plants need water? Why do seeds look different? Can plants grow as big in the shade? What is a bulb? Which plants grow from bulbs How tall will our sunflowers grow? Do cress seeds grow quicker inside or outside? Do bigger seeds grow into bigger plants? What should I do to grow a healthy plant?

Year 2 Animals including Humans

Key Vocabulary	Key Learning National Curriculum Objectives	Key Questions and Knowledge Exploring Animals including Humans
amphibians birds fish mammals reptiles carnivores herbivore omnivore sight hearing touch taste smell living healthy diet exercise hygiene survive water food air thirsty hungry protein carbohydrate energy lifecycle	Know that animals, including humans, have offspring which grow into adults. Know the basic stages in a life cycle for animals, including humans. Find out 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. 	Different animals move in different ways to help them survive. Exercise keeps animal's bodies in good condition and increases survival chances. All animals eventually die. Animals reproduce new animals when they reach maturity. Animals grow until maturity and then don't grow any larger. Do all animals grow and change? How and why do we grow and change? Why is it important to wash our hands? What is a balanced diet? Why do we need to do exercise? Which offspring belongs to which animal? How would you group things to show which are living, dead, or have never been alive? What happens to bread after we have touched it? Boys are better at skipping than girls? How can we investigate this?

Year 2 Living Things and their Habitats

Key Vocabulary	Key Learning National Curriculum Objectives	Key Questions and Knowledge Exploring Living Things and their Habitats
amphibians birds fish mammals reptiles carnivores herbivore omnivore sight hearing touch taste smell living dead never alive habitats, micro-habitats food food chain leaf litter shelter sea shore woodland ocean rainforest conditions desert damp shade	Explore and compare the difference 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 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 the different sources of food. 	Some things are living, some were once living but now dead and some things never lived. There is variation between living things. Different animals and plants live in different places. Living things are adapted to survive in different habitats. Environmental change can affect plants and animals that live there. What animals are living in our school grounds? Do all animals eat the same thing? How are animals and plants 'adapted' to live in their habitats Why do animals and plants like to live in different places? Which animals hibernate and why? How do habitats change over our school year? Where can we find snails in our school grounds? What conditions do woodlice prefer to live in? How are the animals in African savannah different to the ones that we find in Britain?