



BIDSTON AVENUE PRIMARY SCHOOL

SCIENCE SUBJECT POLICY September 2022

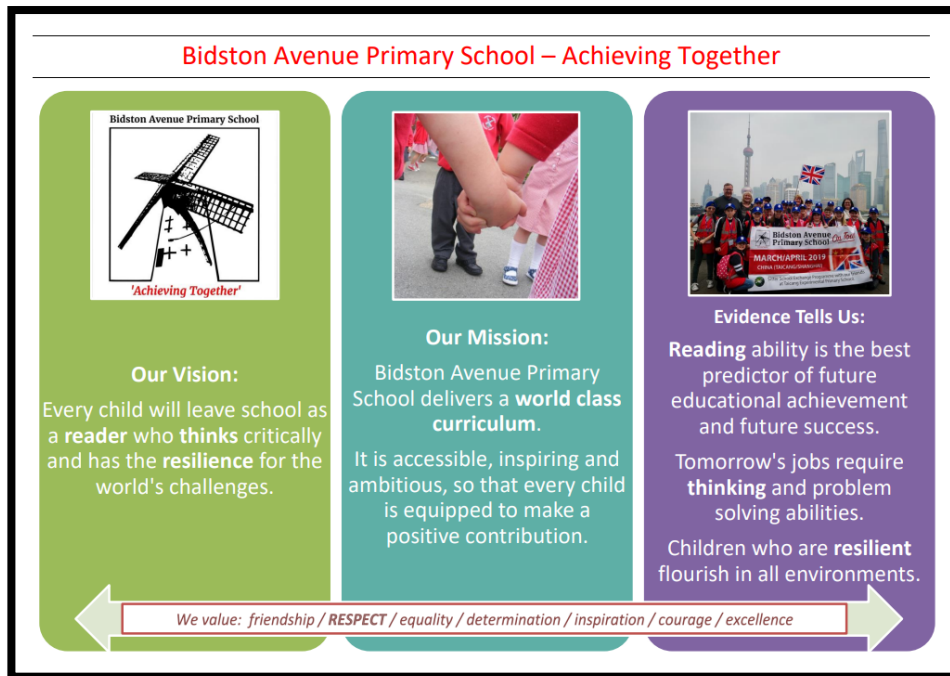
Approved by the Governing Body of Bidston Avenue Primary School

Autumn 2022

Signed: _____

CLlr George Davies (Chair of Governors)

Bidston Avenue Primary School – Achieving Together



Intent

Purpose

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 pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Aims

- All pupils develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- All pupils develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- All pupils are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future

Supporting our Vision

'Science was born as a result and consequence of philosophy; it cannot survive without a philosophical base. If philosophy perishes, science will be next to go' Ayn Rand

We encourage the pupils to be curious and ask questions about natural phenomena and to be excited by the process of understanding about the world around them. Knowledge and scientific vocabulary is introduced and developed throughout our school. Pupils are taught to work scientifically to carry out fair tests and experiments using equipment to gather, record and where appropriate, analyse data. Throughout their life in school, the pupils will learn about Seasonal Change, Animals including Humans, Materials, Plants, Living Things and their Habitats, Light, Forces and Magnets, Rocks, Sound, Electricity, Earth and Space and Evolution and Inheritance. Links are made to enhance learning. We have good links with local schools where the pupils have the opportunity to visit Science departments and Staff from local Secondary schools come to our school to teach our pupils and advise our staff with lessons and content. We value work with local industries. Visits by specialists in Industry e.g. Eureka Merseyside and STEM Ambassadors have allowed the pupils first-hand experience of how Science can be used in their future occupations and careers and every opportunity is made to develop and embed this to secure their thirst and life-long learning through Science.

The drivers that shape our curriculum



Reader

At Bidston Avenue we understand that developing scientific literacy will enable all pupils to access the curriculum and master key concepts. The Steps to Read scheme and high-quality texts are used to develop pupil's understanding of scientific language. All children move through content together, so that more time is spent on supporting the acquisition of a common science language and also technical terminology for each unit of work.



Thinker

Through the science curriculum at Bidston Avenue, we teach the children about the role that scientists, discoverers and researchers have by being "Thinkers" in society and the wider world. Critical thinking in Chemistry, Physics and Scientific Enquiry make and shape the world around us and the way that we live our lives. Our pupils develop their science thinking by being encouraged to look for pattern seeking, observations over time, comparative/fair testing, identifying, grouping and classifying, carrying out research to reason logically and explain their thinking. Pupils are given time in lessons to think deeply about their science and answer their own questions by working collaboratively.



Resilience

The science curriculum is designed in such a way as to promote scientific resilience and self-confidence as all pupils have access to the same science and move through the content together. Pupils will be exposed to rich and challenging science which they will navigate using resources, classroom talk and science models and representations. Progression of learning is carefully and purposefully sequenced to deepen children's scientific knowledge. Children are encouraged to work collaboratively and use problem solving skills – look at the situation rationally and come up with solutions that will make a difference so they become accustomed to using each other's thinking as a social support and knowing when they need to ask for help. We focus on praising the effort and the scientific thinking and help children to recognise that emotional resilience - failing and wrong answers are part of a rich scientific journey and we support our learners to value the science misconceptions and understand that setbacks can happen in investigations so they can appreciate successes. Physical resilience, making positive lifestyle choices, through diet and exercise and how people age play, a crucial role in understanding health.

Supporting our Values

In all we do, we promote the following values

- Respect
- Friendship
- Determination
- Excellence
- Courage
- Inspiration
- Equality

Opportunities for promoting acquisition of Cultural Capital

Here at Bidston Avenue, we aim to give our children as many real-life Science experiences as possible.

Here are some of the Cultural Capital experiences we have.

- STEM Ambassador Visits
- Working with Eureka Mersey and Professionals in Science Industry.
- Links with Secondary School
- Wirral Young Chamber of Commerce

We understand that for pupils to be successful they need to be given rich and sustained opportunities to enhance their cultural capital. Our Science curriculum teaches about Science in the UK and the wider world. The pupils are encouraged to see the career opportunities available in the field of Science through the Wirral Young Chamber of Commerce project and our ongoing Co-creation work with Eureka Mersey.

We aim to develop links with local businesses and organisations to give pupils 'real world' experiences within the field of Science.

RRSA

Article 28: You have the right to a good quality education. You should be encouraged to go to school to the highest level you can.



Implementation

Bidston Avenue Primary School delivers a world class curriculum. It is accessible, inspiring and ambitious, so that every child is equipped to make a positive contribution.

In ensuring high standards of teaching and learning in science, we implement a curriculum that is progressive throughout the whole school.

Planning

It is our statutory duty to implement the National Curriculum and Science in the Early Years Foundation Stage requirements for Science with clear regard to our school intent. We also use ideas and resources drawn from the Rising Stars Switched on Science Scheme. We follow the units of work set out in the scheme, but we can adapt the order of these units to fit our specific needs and provide mastery, progression and continuity. The units are also organised to enable cross-curricular links with other subjects to ensure connections are made in the pupils learning, in particular literacy and numeracy.

The long-term plan is organised over a year and Science topics are taught using Rising Stars, Switched on Science which have National Curriculum objectives in each lesson. This must be personalised by the class teacher to meet the individual needs of their class.

The subject leader reviews the science curriculum map annually to ensure all children have access to all units of work and therefore their statutory entitlement.

Long Term Plan

BIDSTON AVENUE PRIMARY SCHOOL - Science Curriculum Map								
		Term						
		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Key Stage 1	Year 1	Plants and Animals	Who am I?	Celebrations	Polar Places	On Safari	Holiday	Year 1
	Year 2	Healthy Me	Our Local Environment	Spring 1 Materials Monster Spring 2 Squash, Bend, Twist and Stretch		Young Gardeners	Little Masterchefs	Year 2
Lower Key Stage 2	Year 3	Forces and Magnets	Food and Our Bodies	Spring 1 Light and Shadows Spring 2 The Nappy Challenge		How does your garden grow?	Rocks and Fossils	Year 3
	Year 4	Teeth and Eating	What's that sound?	Looking at States	Power it up	Summer 1 Living Things Spring 2 The Big Build		Year 4
Upper Key Stage 2	Year 5	Out of this World	Let's get Moving	Material World	Amazing Changes	Summer 1 Growing Up and Growing Old Summer 2 Circle of Life		Year 5
	Year 6	Classifying Living Things	Electricity	Healthy Bodies	Evolution and Inheritance	Summer 1 The Titanic Summer 2 Light		Year 6

Teaching and Learning

Most science work is based on a practical activity, working in small groups, pairs, or as a class. Science can be taught in many ways but practical creative activities can be better suited to group work. A variety of teaching methods and teaching organisations are used. However, some areas of science lend themselves better to a more formal approach, where the teacher is input is central. For example, practical activities for work on 'Earth in Space' are very limited. At times teacher demonstration may work more effectively or be safer when teaching a whole class.

Where possible a creative approach is used for the planning of science. The 5 types of Enquiry (Classifying, Pattern Seeking, Observing Changes over Time, Research and Fair Testing) methods are incorporated into the delivery of the units of work and Computing is used whenever possible to enhance learning.

Subject specific SEND Scaffolding

All children are 'unique'. We aim to meet all children at their point of need and therefore need to provide teaching and learning activities that develops children no matter the support they need. Meeting the range of needs presented by a class of children is undoubtedly a challenging task. However, research suggests that there are approaches which teachers can employ to support learning and improve outcomes for all pupils, including those with Special Educational Needs.

We seek to include all children in every area of the curriculum. In Science, children will experience working practically and enjoy the awe and wonder that working scientifically can offer. Photographs, picture prompts and scribes can be used to record children's evidence and demonstrate that children can succeed despite any learning difficulties they have. Small group work and paired activities are used as and when required.

Links to other subjects/curriculum areas:

- **ICT** - to collect data, analyse results and present findings.
- **History** - the lives and impact of famous scientists from the past.
- **Geography** - Animal habitats from around the world, weather systems, rock formation.
- **Maths** - Data handling.
- **English** - Posing and writing questions, presenting findings both verbally and through written observations and conclusions.
- **Art** - Using plants and animals in the local and wider environment as a starting point for art.
- **DT** - Building structures using a variety of materials, selected for their properties and effectiveness.
- **PSHE & citizenship** – Safe and independent use of equipment. Healthy eating. Opportunities for collaborative work.

Foundation Stage

Science is taught within the area of learning called 'Understanding of the World'; where there is a sub section called 'The World' and is embedded within our thematic, holistic curriculum. All activities are based on first hand experiences that encourage exploration, observation, problem solving, prediction, critical thinking, decision-making and discussion. Where appropriate the children may record their findings through pictures, paintings and jottings. Both indoor and outdoor environment is used to maximise the children's learning experiences and opportunities. Assessment takes the form of observations, photographs and discussions with the children and team moderation meetings and is recorded on individual tracking sheets, in the children's learning journals and on Target Tracker.

Roles and Responsibilities

The responsibilities held by the Science Lead are as follows:

- To ensure the implementation of the school Science Policy
- To act as consultancy for members of staff suggesting lines of enquiry, give advice on methods and deal with specific problems
- To help organise and maintain: Schemes of work and Resources
- Maintain contact with outside bodies who can help with advice and/or equipment
- Attend courses and meetings, not only to keep updated with latest developments, but to exchange ideas with other teachers on the Wirral and beyond
- To organise INSET/CPD, when applicable, for schools staff as a whole or individual members
- To monitor and analyse ARE Data (at, below and above ARE)
- To ensure Health and Safety issues is being considered at all times. Any trips outside school must include a risk assessment and be recorded on Evolve. If necessary, some lessons may involve a risk assessment.

Impact

Every child will leave as a **reader** who **thinks** critically and has the **resilience** for the world's challenges.

The impact and measure of this is to ensure children not only acquire the appropriate age-related knowledge linked to the Science curriculum, but also skills which equip them to progress from their starting points, and within their everyday lives.

Assessment

For assessing the children's progress, staff use ongoing Teacher Assessment and retrieval practice and Summative Assessments from Rising Stars. These identify whether the children are working at, below or above expectations for their year group. The objectives within these assessments fully relate to The National Curriculum. They are recorded twice a year on the KupCup System and Target Tracker.

Monitoring

The Science subject lead is responsible for monitoring the standards of children's work and the quality of teaching.

The lead supports colleagues in the teaching of Science by addressing CPD needs and by giving them information about current developments in the subject, and by providing a strategic lead and direction for the subject in the school.

The subject lead is also responsible for reviewing developments for Science identified on the School Improvement Plan, evaluating strengths and weaknesses in the subject, and indicating areas for further improvement.

Monitoring and Review

The Science subject lead is primarily responsible for monitoring the implementation of this policy.

This will be through ongoing discussion with the Senior Leadership Team and consideration of the evidence gathered in the subject file. The subject lead will report on this to the governor's curriculum committee.

The work of the subject leader is also subject to review by the head teacher as part of our performance management arrangements.

Governor Approval and Review Dates

The policy is to be reviewed annually.