



St Michael's C E Primary

Curriculum Policy:

SCIENCE

"We are the seeds. Our school is the good ground which provides everyone with all they need to grow and achieve." *(Our children)*

St Michael's is a Church of England Primary School built on distinctive Christian Values at the very heart of its community.

We will provide:

- a welcoming, inclusive school with strong relationships across our community, that celebrates diversity;
- excellent teaching with a nurturing approach, guiding first steps to next steps;
- an inspirational and challenging curriculum which ignites curiosity, encourages resilience and grows confidence so children become lifelong learners;
- a happy, safe and stimulating environment in which children can achieve their full potential;

So that our children will flourish in all they do and become good citizens

"And some seed fell on good ground. This seed grew and made 100 times more grain." *(Luke 8:8)*

Respect, Persevere, Achieve

Science

To be read alongside school's Curriculum Aims, Teaching and Learning Policy and Assessment and Feedback Policy

Rationale

Our science curriculum ensures all children leave the school with a secure foundation of science knowledge and practical skills. Children develop a respect for the discipline through collecting, understanding and evaluating scientific evidence. As they develop their substantive knowledge, they take greater responsibility for planning and leading investigations, respecting others' views and contributions. They persevere when testing theories and drawing conclusions.

Aims

- To develop scientific knowledge and understanding
- To develop scientific enquiry skills
- To ask questions about the world they live in and make simple predictions about what might happen if...
- To look carefully at the world around them and use their 5 senses to say what it is like
- To be able to use observations to sort and measure things
- To record their findings in drawings, charts, words and tables
- To explain how to make their test fair and explain why it is fair
- To say what happened and explain trends in their results
- To have an everyday working knowledge of Science so they can apply it to their everyday lives
- To make use of ICT, Literacy and Numeracy skills

Implementation of the Policy

At St Michael's Primary School Science is taught throughout the school, establishing cross curricular links where possible, e.g. English, maths, physical and creative development. The predominant mode of working is as a whole class, although opportunities will be available for input to small groups and individuals.

We provide a stimulating environment to promote effective learning in Science and give children lots of opportunities to develop and apply investigative skills. We provide necessary resources for the children to be taught effectively and a safe environment in which to explore Science. We ensure continuity and progression in Science by liaising with colleagues on areas covered that Science experiences are focussed to enhance learning.

We provide a continuity of experience throughout the school both within and among year groups, the systematic progression through Key Stages 1 & 2 and that the National Curriculum Programmes

of Study are given appropriate coverage. Children's experiences are monitored and evaluated, resources are used to their full extent, resources and equipment are kept up to date as much as possible and staff skills and knowledge are kept up to date.

At St Michael's Primary School the Science curriculum covers the following topic areas:

Early Years

- Life cycle of an animal
- Exploring the natural world
- Differences between materials
- Life cycle of a plant
- Effects of seasonal changes
- Forces we can feel
- Explore all 5 senses

KS1

- How animals grow, what animals need,
- The Importance of exercise, diet and hygiene
- Observe change across the seasons
- Name describe and compare materials and their properties
- Naming and describing plants
- Naming and describing animals
- main parts of the human body
- Habitats and food chains
- Compare materials and their uses
- How plants grow and what plants need

LKS2

- Identify animals' needs
- Skeletons
- Forces, magnets and sorting
- magnetic materials
- Compare and group rocks by properties,
- how fossils are formed
- Light sources and shadows
- Parts and requirements of a plants and life cycles
- Digestive systems, teeth, food chains
- Solids, liquids and gases – changing state of matter
- How sounds are made, pitch and volume
- Constructing a circuit – conductors and insulators
- Classification

- Changes as humans develop to old age
- Grouping materials – reversible and irreversible changes
- Earth, planets Sun and Moon
- Gravity, air resistance, water resistance, and friction Mechanisms
- Different life cycles
- Circulatory system, impact of diet
- Changes over time, adaptation
- How light travels, light sources
- Voltage, function of components, symbols in a circuit diagram
- Group classifications of plants and animals

All teachers plan sequences of learning in Science so that they build on prior learning. Children of all abilities have the opportunities to develop their skills and knowledge in each unit and through planned progression we offer them increasing challenge as they move up through school. Teachers should access the band of objectives relevant to their year group. Teachers may select a context in which the objectives are taught.

Big Ideas in Science

Understanding and knowledge

Pupils build their knowledge and understanding around the areas of biology, chemistry and physics. They develop recall of key information and concepts

Working scientifically

Pupils build skills of scientific enquiry. They pose and answer questions, gathering data and presenting the information accurately.

St Michael's Primary School Approach to Science

At St Michael's Primary School we teach both discrete Science lessons to develop knowledge, skills and understanding but also provide a range of opportunities throughout school to employ Science skills across the curriculum. Staff use a range of quality sources of information to support planning. These include: The Association for Science Education, Primary Science Education Consultancy and STEM (Science, Technology, Engineering and Mathematics) materials.

Personal Development

The Science curriculum at St Michael's Primary School delivers spiritual, social, moral and cultural development by giving the children a sense of enjoyment and fascination in learning about the world around them through participating actively in Science activities. We promote tolerance through

looking at different people's ideas, creative responses and understanding of different cultures and styles within science. At St Michael's Primary School, pupils have the opportunity to work independently and as a team to build resilience and self-esteem through tasks, sharing ideas and resources, peer-assessment and encouraging students to support each other.

Assessment

At St Michael's Primary School we assess the children's work in Science by making informal judgements as we observe the children during lessons.

Staff will store digital evidence including photos and videos on a secure iPad or on the school network.

Staff will use the Plan Assessment Tool <https://www.planassessment.com/teacher> and Topic Knowledge Organisers to assess learning throughout each topic and form a judgement at the end of each topic.

Gathering qualitative evidence by speaking to pupils, scrutinising pupil's work and observing lessons gives the subject leader a clear overview of standards across school.

Differentiation - scaffolding

At St Michael's Primary School we aim to encourage all children to reach their full potential through the provision of varied opportunities. We recognise that our curriculum planning must allow children to gain a progressively deeper understanding and competency as they move through our school.

More Able Learners

More able learners will be identified as part of our formative and summative assessment procedures. We will provide for their needs through a framework of high quality first teaching which focuses on ensuring the children are challenged appropriately. In addition, we will focus on developing their learning behaviours, including, greater reflection, problem solving and enquiry, making connections, higher order thinking skills and independent learning. The progress of more able learners will be rigorously tracked to ensure more able children reach their full potential.

SEND/Inclusion

Children who are identified as being on the SEND register will be given support as identified on their Individual Provision Map. A variety of support materials and advice are available from SENDCo, Mrs C Mackay. Children are supported in the first instance through quality first teaching. Lessons will be differentiated in line with the individual needs of the children. All provision for pupils with SEND is in line with the school's SEND policy.

Equal Opportunities

At St Michael's Primary School the curriculum for Science will develop enjoyment of and commitment to stimulating the best possible progress and the highest attainment for all our pupils irrespective of social background, culture, race, gender, differences in ability and disabilities. All of our pupils have a secured entitlement to participate in music curriculum and our teaching

approaches ensure the avoidance of stereotyping when planning work or organising groups. All the teaching staff agree that when using reference materials, they should reflect social and cultural diversity and provide positive images of race, gender and disability.

Resources

At St Michael's Primary School there are a range of resources to support the teaching of Science across the school. Specialist resources and equipment are stored across the school and should be returned after use.

Careers

At St Michael's all the areas of our curriculum support children's interest and understanding in careers and help to raise aspiration. Reference will be made to why Science skills are important for creativity in many jobs and also which careers rely on the need to use these specific skills.

Monitoring and Evaluation

At St Michael's Primary School the Science Coordinator monitors planning and assessments – evaluating medium term plans and taking note of annotations, amendments and suggestions made by class teachers. They ensure that the curriculum has been covered and that there are no gaps.

Sample photographs and videos of completed work and displays may be kept digitally by the Coordinator as a portfolio, in order to monitor and support the raising of standards in science within the school. The coordinator takes responsibility for addressing any needs or concerns that arise as a result of this monitoring.

To monitor and evaluate Science, the Science subject co-ordinator does the following:

- Purchases and organises the appropriate resources.
- Supports colleagues in the teaching of science.
- Keeps up-to-date on the use of science in the curriculum and regularly attends training for subject leaders held by the LA and feedback new information and ideas to staff.
- Regularly reviews and updates the science policy and contributes to the school's self-evaluation programme.
- Share CPD opportunities.
- Conducts work/evidence scrutiny to assess the standards of Teaching and Learning through the children's work.
- Liaises with staff at the Duchess's Community High School to aid subject development.
- Analyses cross-school summative data.

Science overview

September 2020 and then September 2022

	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2
EYFS	The Natural World Life cycle of an animal Exploring the natural world (Hist)		Materials Differences between materials		Plants Life cycle of a plant	
KS1	Animals including humans How animals grow What animals need Importance of exercise, diet and hygiene		Seasonal changes Observe change across the seasons (Eng)	Everyday materials Name describe and compare materials and their properties (DT/Computing)	Plants Naming and describing plants	
LKS2	Rocks Compare a group rocks by properties, how fossils are formed (Hist/Art/Eng)	Forces and magnets Forces, magnets and sorting magnetic materials	Animals including humans Identify animals' needs Skeletons	Sound How sounds are made, pitch and volume	Plants Parts and requirements of a plants and life cycles	
UKS2	Earth and space Earth, planets Sun and Moon (Eng)	Animals including humans Changes as humans develop to old age	Properties and changes of materials Grouping materials – reversible and irreversible changes	Living things and their habitats Group classifications of plants and animals (Computing)	Electricity Voltage, function of components, symbols in a circuit diagram (DT)	

September 2021 and then 2023

	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2
EYFS	Seasonal Change Effects of seasonal changes (Art)		Forces Forces we can feel		Senses Explore all 5 senses	
KS1	Animals including humans Naming and describing animals and parts of the human body (Art)		Living things and their habitat Habitats and food chains (Art/Eng)	Uses of everyday materials Compare materials and their uses	Plants How plants grow and what plants need	
LKS2	Animals including humans Digestive systems, teeth, food chains		States of matter Solids, liquids and gases – changing state of matter	Living things and their habitats Classification (Comp/Eng)	Electricity Construct a circuit – conductors and insulators (DT)	Light Light sources and shadows
UKS2	Evolution and inheritance Changes over time, adaptation (RE/Eng)		Animals including humans Circulatory system, impact of diet	Living things and their habitats Different life cycles	Forces Gravity, air resistance, water resistance, and friction Mechanisms	Light How light travels, light sources

Plan Assessment <https://www.planassessment.com/teacher>

This policy has been approved by the Governing Body and Head teacher of St. Michael's C of E Primary School.

Chair of Governors

Signed:.....

Print Name:Katja Purvis.....

Date:... ..15th June 2021.....

Head Teacher

Signed:.....

Print name:.....GAVIN JOHNSTON.....

Date:15th June 2021.....