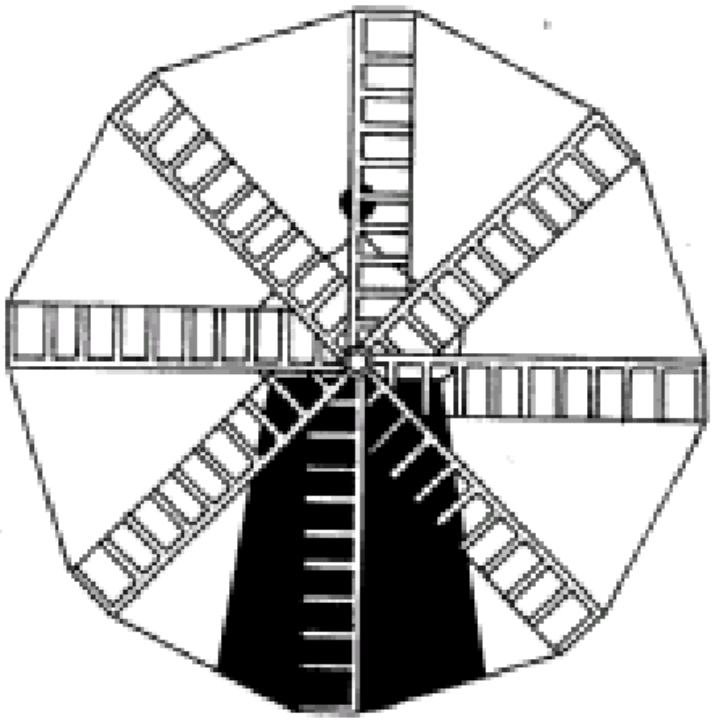
Science Policy

Heckington St. Andrew's C of E Primary School

Respect + Responsibility + Relationships + Resilience + Reverence
Five Rs = Ready for Life
"I have come that they may have life, and have it to the full." John 10:10



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Contents

Heckington St Andrew's CE Primary School adopts this policy and its underpinning principles towards the teaching and learning of science from EYFS to Year 6.

1. The Nature of Science

Our school views the acquisition of scientific knowledge and skills as very important. Science has an importance and relevance to children's everyday lives.
Science in the National Curriculum is a core subject. The National Curriculum for science describes it as a subject that 'develops a sense of excitement and curiosity about natural phenomena in the world around them. It also teaches essential aspects of knowledge, processes and uses of science'.

The National curriculum is set down under four areas:

- Working Scientifically
- Biology: Life Processes and Living Things
- Chemistry: Materials and their Properties
- Physics: Physical Processes

Science is about children developing a sense of enquiry and extending their knowledge and understanding of the world around them. It includes knowledge about living things, materials and physical processes. Science is concerned with investigation and children using an enquiring mind to add to their knowledge of how the world is constructed.

Throughout the school, children will be developing skills of working scientifically through observation, questioning, predicting, hypothesising, communicating and drawing conclusions. This will lead to children learning to work as scientists, planning and undertaking scientific investigations. Science offers a purposeful vehicle through which skills in other areas such as literacy and numeracy can be developed in a meaningful way.

2. Aim

All children will work within age related expectations in science at Heckington St Andrew's through a systematic approach to the teaching and learning of biology, physics and chemistry.

All children have an entitlement to access the National Curriculum Programme of study of science. By planning within a cross curricular framework, children will be provided with effective learning opportunities at an appropriate level. All children will undertake a scientific enquiry at least once each half term.

3. Intent

- ***We want our children to develop an intrinsic desire to question the ways the world around them works, through progression of skills in enquiry to***

compliment study in biology, physics and chemistry.

- ***We have placed equal emphasis upon study of key theories and practical skills in the sciences alongside the skills to work scientifically.***
- ***We aim to inspire our children by modelling an approach of curiosity, questioning and scientific working with a love of learning more about how and why things happen.***
- ***We acknowledge that to understand scientific terminology and apply its vocabulary to learning, pupils need to access experiential learning to commit skills to long term memory.***
- ***We aim to meet the needs of all learners in our curriculum- challenging them and enabling them to problem solve and undertake learning at a deeper level.***

4. Legislation and Guidance

This policy reflects the requirements of the National Curriculum programmes of study, which all maintained schools in England must teach.
It also reflects requirements for inclusion and equality as set out in the Special Educational Needs and Disability Code of Practice 2014 and Equality Act 2010, and refers to curriculum-related expectations of governing boards set out in the Department for Education's Governance Handbook.
In addition, this policy acknowledges the requirements for promoting the learning and development of children set out in the Early Years Foundation Stage (EYFS) statutory framework.

5. Implementation

Throughout Key Stage 1 and 2, science will be taught as a separate subject and on occasions with cross-curricular links when appropriate.

Children will be taught in their normal class group.

All teachers will be responsible for the planning and teaching of science.

Oak class follow the Early Years Foundation Stage Curriculum and plan Science through Knowledge and Understanding of the World Early Learning Goals. Also they will be given the opportunities to observe everyday objects and events, making use of all their senses, asking questions, looking for similarities and differences and developing the skills of sorting and classifying.

In Oak class, everyday equipment is readily available in order that the children may investigate using appropriate tools. All other science equipment is held in a central resource area and is made available in each classroom as necessary in order that children may select the most appropriate equipment. All staff will be responsible for loaning and returning the equipment to the central store. The science subject leader will be responsible for ordering and replenishing perishable/renewable resources.

Years 1 to 6 curriculum coverage is mapped out as part of the whole school curriculum progression. This ensures scientific learning can be applied to wider topics in order to promote relevancy, purpose and to offer wider application of skills across English and Maths.

During Key Stage 1 children will be given the opportunity to observe, explore and ask questions about living things, materials and phenomena. They will work together to collect evidence to help the answer questions and link this to simple scientific ideas. They will evaluate evidence and consider whether tests and comparisons are fair. Children will be given the opportunity to express their ideas through a variety of methods including charts and diagrams.

During Key Stage 2 children will build on work previously carried out in Key Stage 1 to extend and develop their ideas. They will begin to think about the positive and negative effects of scientific and technological developments on the environments and other contexts. Children will need to develop a more systematic approach to investigations, working in a variety of situations including teamwork. They will be encouraged to use a range of reference materials. Children will be given lots of opportunity to communicate their ideas and findings. These ideas will be communicated using a wide range of scientific language, conventional diagrams, charts, graphs, concept cartoons, KWL grids and concept maps.

All children undertake a scientific investigation at least once a term. The elements of working scientifically underpin all learning and investigation, reinforcing theoretical learning through opportunities to pose questions, develop and test theories and to relate learning to that of scientists and engineers that have made a significant impact.

Sequences of learning form a structure that follows:

- Big question and a memorable hook
- Review of prior learning and terminology
- Theoretical learning and application of new terminology
- Making connections and testing new ideas through practical learning experiences
- Investigations
- Review of investigations
- Developing answers to, and conclusions supporting, the original big question

The order of the specific focus is determined by the class teacher as appropriate to the needs of the children to ensure each stage of enquiry provides ample opportunity to consolidate key knowledge.

Whenever an investigation is taking place, children will be encouraged to develop the idea of fair testing. Activities are planned in such a way as to encourage full and active participation by all children irrespective of ability. Quality First teaching underpins practise to support all ability pupils to participate and access the learning opportunities presented.

Fundamental links with English, Maths and ICT are made when planning activities as appropriate to determine age appropriate outcomes in learning. Wherever applicable children use ICT to support their work in science. In KS2 children use data loggers and applications to document findings.

All children are made aware of the relevance to health and safety when undertaking work in science.

Specialised equipment is held in a central resource area.

6. Impact

Science skills are assessed whole class feedback and time for pupils to respond. Learning journeys allow children to identify when an objective has been met. Teacher assessments are made based on the skills and knowledge gained by the individual not the work covered by the unit. End of term internal moderation, book scrutiny and pupil voice form final assessment judgments and identify what support a pupil requires to achieve age related expectations before the end of the academic year.

7. Health and Safety

All science activities comply with the guidelines in the schools health and safety policy. Children will be encouraged to discuss safety implications concerning themselves and others when undertaking work in science.
When working with tools, equipment and materials, in practical activities and in different environments, including those that are unfamiliar, pupils will be taught:

- about hazards, risks and risk control
- to recognise hazards, assess consequences risks and take steps to control the risks to themselves and others
- to use information to assess the immediate and cumulative risks
- to manage their environment to ensure the health and safety of themselves and others
- to explain the steps they can take to control risks
- children will wear suitable protective equipment when undertaking investigative or field studies

8. Background Documentation

This policy was informed by reference to the Statutory Orders for science and guidance from the National Curriculum.

9. Inclusion

Teachers set high expectations for all pupils. They will use appropriate assessment to set ambitious targets and plan challenging work for all groups, including:

- More able pupils
- Pupils with low prior attainment
- Pupils from disadvantaged backgrounds
- Pupils with SEN
- Pupils with English as an additional language (EAL)

Teachers will plan lessons so that pupils with SEN and/or disabilities can study every National Curriculum subject, wherever possible, and ensure that there are no barriers to every pupil achieving.

Teachers will also take account of the needs of pupils whose first language is not English. Lessons will be planned so that teaching opportunities help pupils to develop their English, and to support pupils to take part in all subjects.
Further information can be found in our statement of equality information and objectives, and in our SEN policy and information report.

10. Monitoring Arrangements

The Headteacher has the overall responsibility for the quality of provision provided for the pupils and the outcome for Science in terms of both attainment and progress. Monitoring and evaluating tasks will be undertaken in partnership with the Science Leader. These tasks will link into a programme of monitoring, Strategic Development Plan priorities and actions, as well as performance management of teaching staff. The Headteacher and Science Leader will report their findings through regular reports, including the termly HT reports, to governors and provide feedback to staff to celebrate strengths and identify aspects for improvements.

The Science Leader will monitor and evaluate the planning and standards achieved by pupils. They will also evaluate the quality of teaching and learning in Science through observations, learning walks, data analysis, book scrutinies and pupil interviews. They will provide written feedback to governors, the Headteacher and staff to celebrate strengths and identify aspects for improvement.

The Science Subject Link Governor will act as a critical friend and will meet termly with the Science Leader and analyse a range of evidence. They will produce a written report which will be shared with governors.

11. Links with other policies

This policy links to the following policies and procedures:

- EYFS policy
- Assessment policy
- SEN policy and information report
- Equality information and objectives
- RSE Policy
- Curriculum Policy

This policy will be reviewed every four years by the Curriculum and Standards Committee. At every review, the policy will be shared with the full governing board.