



Science

2022-2024

Reviewed: September 2022
Next Review Date: September 2024

Friskney All Saints Mission Statement and Vision

‘Trust Shows The Way’

Our small rural school welcomes and includes everyone as a child of God. We recognise that every person has value and deserves the best we can give. Our education **explores old and new horizons**, and strives to **deliver a rigorous curriculum of excellence** so that each person is empowered to **realise their gifts** to the full. We offer challenge, support and loving commitment so that each person can engage in the world with resilience, hope and wisdom. We have faith in God and faith in each other.

“Show me the way I should go, for to you I entrust my life.”

Psalm 143.8

Our Vision is underpinned by our school values of Love, Trust, Kindness, Hope and Respect:

Exploring Old and New Horizons - Respect

Striving for Excellence – Hope, Trust

Realising our Gifts – Love, Kindness

The Science Leader is Jane Banham

1 General Aims and objectives of the school

It is the policy of Friskney All Saints Primary School to actively encourage the involvement and enthusiasm of all staff and pupils in the Science education of children.

- 1.1 Science is one of three core subjects in the National Curriculum, and plays equal importance alongside English and Mathematics.
- 1.2 This policy was written by the Leader in September 2022 and presented to the Headteacher and Teaching staff for consultation. This policy outlines the guiding principles by which this school will implement Science in the National Curriculum (2014) in England.
- 1.3 Science teaches an understanding of natural phenomena. It aims to stimulate a child's curiosity in finding out why things happen in the way that they do. Science is a body of knowledge built up through experimental testing of ideas it teaches methods of enquiry and investigation to stimulate creative thought. Where possible children learn to ask scientific questions and begin to appreciate the way in which science will affect the future on a personal, national and global level. Science in our school is about developing children's ideas and ways of working that enable them to make sense of the

world in which they live through investigation, as well as using and applying their skills from and to other areas of the curriculum.

We believe that a broad and balanced science education is the entitlement for all children, regardless of ethnic origin, gender, class, aptitude or disability. Our aims in teaching science include the following.

1.4

Our rationale for teaching science

- ☐ Preparing our children for life in an increasingly scientific and technological world.
- ☐ Fostering concern about, and active care for, our environment.
- ☐ Helping our children acquire a growing understanding of scientific ideas.
- ☐ Helping develop and extend our children's scientific conceptual understanding of their world.
- ☐ Developing our children's understanding of the international and collaborative nature of science.

Attitudes

- ☐ Encouraging the development of positive attitudes to science.
- ☐ Building on our children's natural curiosity and developing a scientific approach to problems.
- ☐ Encouraging open-mindedness, self-assessment, perseverance and responsibility.
- ☐ Building our children's self-confidence to enable them to work independently appropriate to their age group and task.
- ☐ Developing our children's social skills to work cooperatively with others.
- ☐ Providing our children with an enjoyable experience of science, so that they will develop a deep and lasting interest and may be motivated to study or work in a science related job/ career in the future.

Skills

- ☐ Giving our children an understanding of scientific processes.
- ☐ Helping our children to acquire practical scientific skills.
- ☐ Developing the skills of investigation - including asking questions, understanding different enquiry types, observing, measuring, predicting, experimenting, communicating, interpreting, explaining and evaluating.
- ☐ Developing the use of scientific language and the opportunity to use a variety of recording methods.
- ☐ Enabling our children to become effective communicators including with explanations of scientific ideas, facts and application to real life situations.

2 Teaching and learning style

- 2.1 We encourage teachers to teach science in ways that are imaginative, purposeful, well managed and enjoyable whilst at the same time making links between science and other curriculum subjects. We use a variety of teaching and learning styles in science lessons. Our principal aim is to develop children's practical skills, knowledge and understanding. We encourage the children to ask, as well as answer, their own scientific questions. They have the opportunity to use and apply their maths skills in science including using graphs, measuring etc. They use Computing in science lessons to enhance their learning e.g using data loggers, for research purposes or to reinforce

learning in other ways. Wherever possible, we involve the pupils in real scientific activities, e.g. investigating a local environment such as the beach, local habitats such as the Village field, local farm, cemetery and churchyard, school field, school garden etc or carrying out a range of practical investigations in the outdoors including on school trips.

2.2 We recognise that in all classes, children have a wide range of scientific abilities, and we ensure that we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways:

- setting tasks which are open-ended and can have a variety of responses;
- setting tasks of increasing difficulty (we do not expect all children to complete all tasks);
- grouping children by ability in the room, and setting different tasks for each ability group e.g. so that not all work is paper recorded to allow pupils with high science ability but a low English skill to still '**show**' their ability in science through science and not be assessed on their ability to write it all down.
- providing resources of different complexity, matched to the ability of the child;
- using classroom assistants to support the work of individual children or groups of children where appropriate.

3 Science curriculum planning

3.1 Science is a core subject in the National Curriculum. The school has developed its own long term plan in order to ensure coverage of the different enquiry types over the year and through the years although teachers may use a variety of resources to meet the short term planning requirements.

3.2 We carry out our curriculum planning in science in three phases (long-term, medium-term and short-term). The long-term plan maps the scientific topics studied in each term during the Key Stages which are closely linked (where appropriate) to overall thematic approaches e.g. Yr6 World War II.

3.3 Our medium and short term plans give details of each unit of work for each term. Short term plans include: Learning objectives, science vocabulary to be used, differentiation and areas of Working Scientifically to be covered.

3.4 We have planned the topics in science so that they build on prior learning. We ensure that there are opportunities for children of all abilities to develop their skills and knowledge in each unit, and we also build progression into the science scheme of work, so that the children are increasingly challenged as they move up through the school.

3.5 Staff are encouraged to use the following guidance for time allotted to the teaching of science:

- KS1 and Foundation stage teachers should be teaching science for a minimum of one and a half hours each week.
- KS2 teachers should be teaching science for a minimum of two hours per week.

4 The Foundation Stage

- 4.1 We teach science in the Reception class as an integral part of the topic work covered during the year. Science makes a significant contribution to developing a child's knowledge and understanding of the world, e.g. through investigating the local habitat.

5 The contribution of science to teaching in other curriculum areas

5.1 English

Science contributes significantly to the teaching of English in our school by actively promoting the skills of reading such as about famous scientists in guided reading, writing, speaking and listening. Some of the texts that the children study in English are of a scientific nature and are often linked into non fiction texts. The children develop oral skills in science lessons through discussions (e.g. of the environment), playing science vocabulary games and through recounting their observations of scientific experiments. We value science as a vehicle for the development of language skills, and we encourage our children to talk constructively about their science experiences. They develop their writing skills through writing reports , instructions and by recording information using a range of genre e.g. letters, advertisements, explanations etc.

5.2 Mathematics

Science contributes to the teaching of mathematics in a number of ways. When the children use weights and measures and read the scales of Newton meters or thermometers, they are learning to use and apply number skills. Many aspects of data handling are also covered through the teaching of science. Through working on investigations, they learn to estimate and predict and link those predictions to real life occurrences. They develop accuracy in their observation and recording of events using time as a key element. The medium of science is being increasingly used as an area in which to apply their knowledge of maths.

5.3 DT

We use cross curricular links of science and DT to extend the understanding in both areas, e.g. creating their own electric quiz boards in Yr4, musical instruments in Yr 4 and cooking/ healthy eating in EYFS,KS1 and KS2 etc.

6 Science and Computing

- 6.1 Computing enhances the teaching of science in our school , because there are some tasks for which Computing is particularly useful. We use Computing for enquiry work, including data loggers which are used to assist in the collection of data and in producing tables and graphs. Children use ICT to record, present and interpret data, to review, modify and evaluate their work, and to improve its presentation e.g. use of powerpoint; with children using the internet as a basis to answer questions which need to be researched . Other resources used include short video sequences often from Youtube or science clips e.g. Tig Reporter or Explorify.

7 Science and inclusion

- 7.1 At our school, we teach science to all children, whatever their ability and individual needs. Science forms part of the school curriculum which aims to provide a broad and balanced education to all children. Through our science teaching, we provide learning opportunities which enable all pupils to make progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language, and we take all reasonable steps to achieve this. For further details, see individual whole-school policies SEND (which includes English as an Additional Language (EAL)).
- 7.2 We recognise the particular importance of first-hand experience for motivating children with learning difficulties.
- 7.3 We enable all pupils to have access to the full range of activities involved in learning science. Where children are to participate in activities outside the classroom (a trip to a local habitat, for example), we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils. We refer to CLEAPSS and Be Safe! (ASE) as part of our risk assessment procedures if and when required.

8 Assessment for learning

- 8.4 Teachers will assess children's work in science by making informal judgements during lessons using examples to support the assessment from Teaching and Assessing Primary Science (TAPS) and PLAN (ASE) resources. On completion of a piece of work written or verbal feedback is given to the child to help guide his/her progress. We always mark with a science focus especially with regards to the spelling of scientific vocabulary. (See Marking Policy)
- 8.2 Teachers make a formal assessment of the children's work in science at the end of Key Stage 1 and at the end of Key Stage 2. We report these end of KS teacher assessments to parents and carers, which we make whilst observing children's work throughout the year. Yearly assessments are also completed by all class teachers with those children who are working: At ARE, below ARE or above ARE. These results are tracked to ensure development and identify those pupils who are on track etc.
- 8.3 Reports to parents are made verbally twice a year, and written once a year.

9 Resources

- 9.1 We are constantly updating and reviewing the resources for all science teaching units in the school. We keep these in a central store in the hall. The library also contains a supply of science topic books and staff have access to a range of resources via the science leader.
- 9.2 Having due regard for Health and Safety is the responsibility of each teacher specifically for the lesson and they are aware of the need, if required, to contact CLEAPSS(phone or internet) and check in the ASE Be Safe! booklet (kept in the science cupboard) which is to be signed and dated.

10 Learning environment

- 10.1 Each classroom has a relevant science display which includes the scientific vocabulary for the area being taught and the step by step investigation procedure including enquiry types appropriate for each year group.

11 Monitoring and review

- 11.1 The coordination of the science curriculum is the responsibility of the leader, who also:
- supports colleagues in their teaching, by keeping them informed about current developments in science and providing a strategic lead and direction for this subject;
 - uses time to review evidence of the children's work, and to audit science lesson planning across the school and evaluates the strengths and weaknesses in science and indicates areas for further improvement in the school action plan.
- 11.2 The quality of teaching and learning in science is monitored and evaluated by the headteacher as part of the school's agreed cycle of lesson observations.
- 11.3 This science policy will be reviewed by the science leader, Headteacher and teaching staff.