

Stanah Primary School



Science Policy 2023 - 24

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1 Aims and objectives (Intent)

1.1 Our Science Vision

At Stanah, we believe our children, as scientists, should explore, investigate and ask questions through stimulating, challenging, exciting, hands on and practical experiences, that encourages a deeper understanding of the real world.

1.2 The aims of science are to enable children to:

- preparing our children for life in an increasingly scientific and technological world;
- to enable children to ask and answer Scientific questions and to solve problems;
- plan and carry out scientific investigations, using equipment, including computers, correctly;
- know and understand the life processes of living things;
- know and understand the physical processes of materials, electricity, light, sound and natural forces;
- know about the nature of the solar system, including the earth;
- evaluate evidence and present their conclusions clearly and accurately.

1.3 Along with the children and the staff, the Science lead has developed 'Science Principles' of 'Science is Outstanding when'...

- Hands on - Practical, interactive, exploring
- Ask 'What if?' questions
- Scientific vocabulary
- Real life links
- Exciting resources and opportunities

1.4 Science to be taught once a week to allow the children to be exposed to rich scientific vocabulary and knowledge and to ensure the curriculum is covered to the highest standard.

2 Teaching and learning (Implementation)

2.1 We use a variety of teaching and learning styles in Science lessons. Our principal aim is to develop children's knowledge, skills and knowledge. Sometimes this is done through whole class teaching, while at other times we support the children in working scientifically whilst conducting their own investigations. We encourage the children

to ask, as well as answer, scientific questions. They have the opportunity to use a variety of data, such as statistics, graphs, pictures and photographs. Computing is used in lessons to enhance the children's learning and provide further ways of recording learning. They take part in role play and discussions and they present findings to the rest of the class. We involve the children in 'real' scientific activities wherever possible, for example, researching local environmental sites or problems and carrying out practical experiments/enquiries then analysing the results.

2.2 We recognise that there are children of widely different scientific abilities in all classes 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 by:

- setting common 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 just the task at their level);
- In most classes the children are grouped by mixed ability for Science so that the children can support each other, work together and learn from each other. If necessary, the children could be grouped by ability depending of the nature/skill of the session;
- 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.

2.3 We also try to encourage AFL opportunities using a variety of devices (such as cups) to enable children to show understanding of key concepts learnt in a creative cross curricular way as well as standard ways of recording and assessing in science. For example:

- An explanation report for the Water Cycle
- A recount story of a day in the life of a bee showing understanding of deforestation.
- A report of the science experiment the children have completed- including a prediction, method, results and conclusion.

3 Science Curriculum Planning

3.1 The school uses the National Curriculum of work as a basis for planning, and this is enhanced with material from the Lancashire Key Learning Indicators.

- 3.2 We carry out our curriculum planning in science in two phases (long-term and medium-term). The long-term plan maps the scientific topics studied in each term during the key stage. The science leader works this out in conjunction with the curriculum leads. In the majority of cases, we combine the scientific study with work in other subject areas.
- 3.3 Our medium-term plans, which we have based on the national scheme of work in science, give details of each unit of work for each term. The science lead collects and reviews these plans when appropriate. The medium term plans give an overview of what the children should be learning in that topic.
- 3.4 We have planned the topics in science so that they build upon prior learning (see progression map). 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 Children and staff are aware of when they work scientifically, through the use of the scientific enquiry logos, that are displayed in each classroom.
- 3.6 Science Principles Posters are displayed in classrooms so the children are aware of the expectations of an outstanding science lesson. (Please see our science principles in the Intent section)



3.7 Retrieval practice is built into the curriculum. If there is no science topic within the term, staff are expected to continue with retrieval practice of previously taught science knowledge (Ebbinghaus's forgetting curve).

4 Foundation Stage

4.1 Science is taught under the heading Understanding The World in the foundation stage curriculum. It focuses mainly on the where they live and the natural world that surrounds them. Understanding the world, allows the children to explore and seek to find answers to their own questions arising from everyday adventures within the classroom's indoor and outdoor setting. Reception encourages all children to show care and concern for all living things in our world and be able to start to think about the similarities, differences, patterns and changes that happen around us.

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, writing, speaking and listening. Some of the texts that the children study in English are of a scientific nature (such as the Kapok Tree). The children develop oral skills in science lessons through discussions and through recounting their observations of scientific experiments. They develop their creative writing skills through writing reports, recounts and completing projects as well as recording information.

5.2 **Mathematics-** Science contributes to the teaching of mathematics in a number of ways. The children use weights and measures and learn to use and apply number. Through working on investigations they learn to estimate and predict. They develop the skills of accurate observation and recording of events using a wide variety of graphs and diagrams suited to the task. They use numbers in many of their answers and conclusions.

5.3 **Computing-** Children use computing in science lessons where appropriate. They use it to support their work in science by learning how to find, select, and analyse information on the Internet and on scientific programmes. Children use computing to record, present and interpret data and to review, modify and evaluate their work and improve its presentation.

5.4 **PSHE-** Science makes a significant contribution to the teaching of personal, social and health education. This is mainly in two areas. Firstly, the subject matter lends itself to raising matters of citizenship and social welfare. For example, children study the way

people recycle material and how environments are changed for better or worse. Secondly, children benefit from the nature of the subject in that it gives them opportunities to take part in debates and discussions. They organize campaigns on matters of concern to them, such as helping the poor or homeless. The Christian ethos of the school has a key role in this. Science promotes the concept of positive citizenship.

6 Teaching Science to children with special educational needs

6.1 We teach science to all children, whatever their ability. Science forms part of the school curriculum policy to provide a broad and balanced education for all children. We provide learning opportunities that are matched to the needs of children with learning difficulties. We provide learning in line with our SEND and Inclusion policies. Our work in science takes into account the targets set in the child's personal plan.

7 Professional Development of Staff and Use of Resources

7.1 We have sufficient resources for all science teaching units in the school. We keep these in the Science Cupboard, upstairs, near the Y6 classrooms, where it is separated into each element of the curriculum. There is a wide range of resources to support teachers as well as real life and creative investigations equipment. There is also a collection of additional science equipment and resource books in the science cupboard. The library contains a good supply of science topic books, and computer software on the laptops.

7.2 The science leader consults staff on a regular basis with regard to resources as well as keeping abreast of the latest developments in science to ensure the school has the best available resources to ensure effective delivery of the curriculum. This is reflected in yearly curriculum bids to ensure maximum support and practical work being undertaken

7.3 The staff are encouraged to share good practice with each other through staff meetings and team teaching for continuous professional development.

7.4 Staff are given the opportunity to further their professional development through CPD courses.

8 Use of intervention and further challenge

8.1 Science work is differentiated based on our chilli challenge and all children should be able to access work independently.

8.2 During summary days, staff should use this time to intervene and teach an objective again to a pupil who has not understood an objective.

8.3 Staff will challenge pupils through their questioning and chilli challenge.

9 Science Ambassadors

9.1 Each class to have a science ambassador Possible roles:

- Help the Science lead to implement new initiatives in class -
- Complete pupil voice questionnaires

10 Assessment and Recording (Impact)

10.1 Children's work is assessed each session using AfL. Staff will have access to each objective that is covered in their year group. Teachers should use this as their formative assessment and highlight and date off when the children have covered the relevant objective. Any names of who have excelled or not met the objective must be noted. Alongside this they must input their formative assessments onto OTrack at the teachers' earliest convenience.

10.2 We assess children's work in science by making informal judgements as we observe and question them during lessons. On completion of a piece of work, activity or investigation, the teacher marks the work and comments as necessary with challenging questions to stretch the children's understanding.

10.3 At the end of a term s/he makes a summary judgement about the work of each pupil in relation to the objectives inputted onto OTrack. We use these grades as the basis for assessing the progress of each child and we pass this information on to the next teacher at the end of the year. A best fit science level is recorded at the end of each half term on to the schools tracking system below. These objectives must be added onto OTrack.

	POS 1	POS 2	POS 3	POS 4	POS 5	POS 6
81	74	100	89	100	49	49
81	76	100	85	100	49	47
81	74	100	83	100	49	49
81	74	100	100	100	49	51
81	74	100	89	100	49	44
81	76	100	88	100	49	42
81	76	100	100	100	49	51
81	74	100	85	100	51	47
81	76	100	83	100	49	51
81	76	100	81	100	51	35
81	74	100	78	100	49	40
81	74	100	85	100	49	51

POS 5 KPI

Explain that unsupported objects fall ... between the Earth and the falling object.

POS 6 KPI

Identify and name the main parts of the ... of the heart, blood vessels and blood.

POS 5 KPI

Identify the effects of air resistance, ... surfaces (causing things to slow down)

POS 6 KPI

Recognise the impact of diet, exercise, ... function (in the long term and short term).

POS 5 KPI

Recognise that some mechanisms, including ... a smaller force to have a greater effect.

POS 6 KPI

Describe the ways in which nutrients and ... within animals, including humans.

POS 5 KPI

There are different types of forces (push, ... which have different effects on objects

POS 6

The heart is a major organ and is made of muscle.

11 Monitor and Evaluation.

11.1 It is the responsibility of the science subject leader to monitor the standards of children's work and the quality of teaching in science. A variety of monitoring strategies will be used including pupil and teacher questionnaires, discussions with children, observation of the learning environment, learning walks and work samples on a formal and informal basis to ensure adequate progression and skills being taught. The yearly action plan refers to timeframes for different criteria being monitored. The science subject leader is also responsible for supporting colleagues in the teaching of Science, for being informed about current developments in the subject and for providing a strategic lead and direction for the subject in the school. If requested, the science subject leader could have specially-allocated time for fulfilling the task of reviewing samples of children's work, monitoring planning and visiting classes to observe teaching in the subject in accordance with the School Improvement Plan Priorities.

12 Low Stake Quizzes

12.1 Low stake quizzes such as a google quiz have been made for each topic across each year group. These are to be completed at the start and end of every science topic to track progression and for teachers to tailor their planning based on the children's prior knowledge.

13 Health and Safety

12.1 Responsibility

It is the responsibility of teaching and non-teaching staff and other adults to:

- Take reasonable care for their own health and safety and that of others who may be affected by their acts or omissions
- Remain familiar with this policy
- Implement the provisions of this policy
- Cooperate with the employer and other colleagues in promoting health and safety

12.2 Advice

This school is subscribed to CLEAPSS (www.cleapss.org.uk) which provides advice on health and safety for science including model risk assessments, information sheets, a helpline service and advice in the event of an emergency.

12.3 Risk Assessment

When writing schemes of learning or lesson plans, staff will note down any relevant and important health & safety information and, if necessary, reference relevant CLEAPSS guidance.

If the proposed activities or equipment are not covered by a model risk assessment in relevant CLEAPSS guides, a Special Risk Assessment must be obtained by contacting CLEAPSS.

12.4 Resources

The task of ensuring that purchased and donated equipment and materials are fit for purpose, safe to use, safely stored and appropriate for pupils to use lies with the science lead. However, all staff must be aware of their individual responsibility to ensure that this is the case every time a science activity is carried out.

Where required, equipment checks and testing, e.g. PAT testing, will be carried out in accordance with the employer's policy and manufacturer recommendations. Disposal of resources and equipment will be carried out in accordance with the employer's policy and manufacturer recommendations. For advice on safe use, storage and disposal of equipment and resources refer to CLEAPSS resources on the website

www.cleapss.org.uk

12.5 Procedures

All staff are responsible for ensuring that the necessary procedures to safely carry out science activities are implemented, including:

- Hygiene procedures such children not putting anything in or near their mouth during science
 - Personal protection such as tying back hair, tucking in loose clothing, and removing jewellery
 - Reducing workplace hazards such as having a clear work space for science activities
- For further advice refer to CLEAPSS resources at www.cleapss.org.uk

12.6 Monitoring

This policy is reviewed by the science lead, who will inform staff of the outcome at the next staff meeting and highlight any changes to the policy. The person with overall responsibility for science will monitor that this policy is being implemented.

13 INSET and Professional Development

13.1 INSET is decided in line with the School Improvement Plan, School Self Evaluation and budget allocation.

13.2 The science lead will assess and address staff training needs as part of the annual action plan process or in response to individual training needs and requests throughout the year. Individual teachers should attempt to continually develop their own skill set and knowledge, identify their own needs and inform the co-ordinator. Money is set aside from the science budget each year in order to support staff with professional development, offering support, guidance and ideas, often from an external source during an INSET day.

14 Role of the Science Lead

14.1 The Science Lead takes a leading role in promoting science in school, offers help and support to colleagues, attending INSET and keeping abreast of subject developments.