

The Grange Primary School Science Policy 2022-2023

Subject leaders:

Riykena Gathercole

Lucy Hoggard

Written in September 2022. To be reviewed every 3 years unless there are changes that needs reflecting in this policy.

Intent

Science in our school is about developing children's ideas and ways of working that allow them to make sense of the world around us through investigation, as well as using and applying process skills.

We believe that a broad and balanced science education is the entitlement of all children, regardless of ethnic origin, gender, class, aptitude or disability.

We aim to make teaching and learning in Science fun and exciting!

Our aims in teaching Science include the following:

- Preparing our children for life in an increasingly scientific and technological world.
- Fostering concern about, and active care for our environment.
- Helping develop and extend our children's scientific concept of their world.

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.
- Developing our children's social skills to work cooperatively with others.
- Providing our children with fun and enjoyable experiences of science, so that they will develop a lasting interest and become self-motivated to study science further and ask questions.

Skills

- Giving our children an understanding of scientific processes.
- Helping our children acquire practical scientific skills.
- Developing the skills of investigation – including observing, measuring, predicting, hypothesising, experimenting, interpreting, explaining and evaluating.
- Developing the use of scientific vocabulary.
- Enabling our children to become effective communicators of scientific ideas, facts and data.

Implementation

Science teaching focuses on enabling children to think as scientists; we encourage children to be biologists, chemists and physicists. We place an emphasis on experimenting and investigating using resources and pictorial images to promote a visual and sensory stimulus to engage children. Teaching should equip pupils to ask perceptive questions, think critically, weigh evidence, sift arguments, and develop perspective and judgement. We encourage workshops to come into school and talk about their experiences. We ensure that we are active in trips using science as a cross curricular approach. A range of strategies are used to stimulate children's interest in science. Effective use of resources

such as; videos, computing resources, experimental equipment gives opportunities for experiential learning.

We recognise that children are widely different in abilities in science and we seek to provide suitable learning opportunities for all children by matching the challenge of the task, to the ability of the child. We achieve this by;

- Setting statements which are open ended and can have a variety of responses (hypothesis);
- Setting tasks varying in difficulty through chilli challenges which children are encouraged to choose their own level of challenge;
- Grouping children using the KAGAN method so that there are mixed abilities of children on tables to offer peer critique and mentoring.;
- Providing resources of different complexity depending on the ability of the child;
- Using classroom assistants to support children individually or in groups.

Impact of Science

Key Stage 1

Working scientifically

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

Lower Key Stage 2

Working scientifically

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers

- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

Upper Key Stage 2

Working scientifically

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments

Monitoring and Review

Monitoring of the standards of children's work and the quality of teaching in science is the responsibility of the science subject team.

This is done by:

- Book scrutiny
- Pupil interviews
- Long term and medium term plan reviews
- Learning walks

The work of the science subject leader also involves supporting colleagues in the teaching of science, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The science subject leader

liaises with the curriculum team. They evaluate the strengths and weaknesses in the subject and indicate areas for further improvement.

Science Curriculum Planning

We approach the teaching of science through outlining specific science coverage in each year group through medium term planning which is implemented through a topic based approach. Teachers make sure that they cover the full science curriculum and assess half termly against coverage.

We carry out curriculum planning in three phrases; long-term, medium term and short term planning. The long term planning uses the curriculum handbook to ensure full coverage across a year group. The medium term plan sequences the TLCs, and the short term plan specifies the activities and provision made for children to achieve their learning challenge of each lesson (This can be in the form of PowerPoints or ProWise presentations).

Assessment

We assess children's work in Science by using Otrack assessment statements within each year group. Assessment is separated into scientific knowledge and working scientifically. Children are individually assessed within each category as either secure or below (Working at age related expectations or working below age related expectations).

The science subject leader keeps samples of children's work in the science subject folder. Teachers also use assessment strategies as part of their lessons e.g games, quizzes, posters ect.

Equal Opportunities/Differentiation

All children are offered a curriculum appropriate to their abilities which builds upon prior knowledge. It is up to the teacher to differentiate the activities and provide extension work or added support so that all children may enjoy the learning process. Children who are considerably below their programme of study are exposed to the curriculum progression document.

British Values.

Individual liberty of views, tolerance, mutual respect and listening to others' views is taught through the topics where different views/ethics are involved; for example in topics such as evolution. Practical activities in science require students to engage in **team work** and show **mutual respect** for each other.

Communication

Communication is represented in numerous ways within science. During lessons pupils use communication to discuss and debate, make predictions, opportunities for reasoning and during activities which use enquiry skills children work together to find solutions.

Resources

All science resources are kept in a centralised area, separated in topics. Teacher resources are also stored in this area. Teachers have also been given a list of resources.

Signed: Riykena Gathercole

Date: 6.9.22