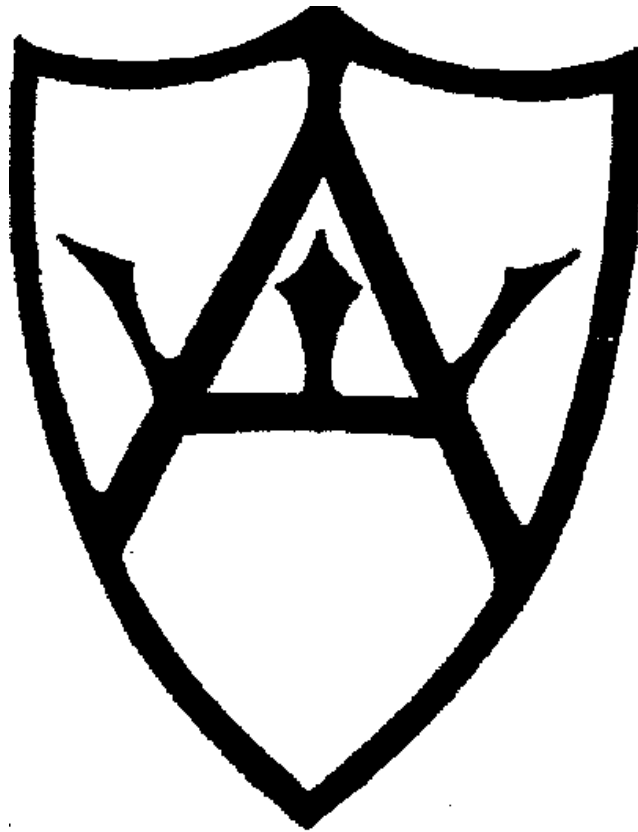


Alfriston School



Science Policy

Reviewed by staff: Dec 2017

Introduction

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

(The National Curriculum in England: Science Programmes of Study, May 2015)

The National Curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics;
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them;
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Principles of Good Science at Alfriston

- Children's natural sense of wonder and **curiosity** about the world is encouraged and valued;
- Children are encouraged and enabled to raise relevant and meaningful questions and suggestions for enquiry and be **creative** in their approach to exploring the answers using both first-hand experiences and secondary sources;
- Children have the opportunity to engage in scientific enquiry **independently and collaboratively** including observations over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing and research using secondary sources;
- Children show **determination** in developing their skills of planning, prediction, observation, interpretation, questioning, fair testing, researching, collection of data, measuring and recording results, hypothesising, communication and evaluation through their practical investigations;
- Progression in science skills is evident throughout the school;
- Children use accurate scientific vocabulary in context;
- Children are encouraged to treat the living and non-living environment with respect and sensitivity;
- Children are helped to recognise and assess risks and hazards to themselves and to others when working with living things and materials and to take action to control them.

Teaching and Learning

At Alfriston, we use a variety of teaching and learning styles in science lessons with the principle aim of developing children's knowledge, understanding and skills. This may be through whole class teaching, collaborative active enquiry or individual study.

Curriculum

Science is a core subject in the National Curriculum and we use the objectives from this to support planning and to assess children's progress.

Early Years

We teach science in the Reception class as an integral part of the topic work covered during the year. As Reception is part of the Early Years Foundation Stage, we relate the scientific aspects of the children's work to the objectives set out in Early Learning Goal 14: Understanding of the World: The World.

At this stage, children are:

- Developing crucial knowledge, skills and understanding that help them make sense of the world;
- Involving themselves in activities based on interests and first hand experiences that encourage exploration, observation, problem solving, prediction, decision making and discussion;
- Experiencing a wide range of activities, indoors and outdoors, including adult focussed, child initiated and independent play;
- Encouraged by staff to challenge and extend their thinking and develop their 'scientific' vocabulary.

Key Stage 1 and 2

KS1 follow a topic based 2-year cycle and KS2 follow a topic based 4-year cycle ensuring all science units are covered. Where the term's topic is not a science focus, then science will still be taught discretely each week. Specific information about the topics taught or planned for science can be found on our school website.

At this stage children are:

- Engaging in regular opportunities to develop their scientific enquiry skills;
- Building upon prior science learning, both knowledge and skill based;
- Developing high quality, purposeful talk for science using correct scientific vocabulary;
- Recording findings in a variety of stimulating and purposeful ways;
- Making links across different subjects including English, maths, computing and DT;
- Encouraged to evaluate their own science learning by responding to written and verbal feedback and make judgements about how they can improve their scientific skills;
- Engaging in independent science based home learning projects, where applicable;

Promoting Science

- School visits are organised, where possible, to enhance and extend learning;
- Local resources, such as Jane Green (astronomer) are used to support units of work;
- Each year the school participates in National Science Week;
- Each KS1 and 2 classroom has a 'Science Working Wall' to promote and celebrate science and encourage independence in learning. It will contain relevant information for current teaching including key scientific vocabulary, questions, success ladder, targets, results from experiments and celebratory work.

Resources

- All resources are stored centrally in the hall cupboard that leads out to the playground.
- Resources are organised in trays or boxes.
- Staff are responsible for informing the science coordinator when resources need updating or when consumables are running low.
- The Edukent Scheme of Work is saved in the Science Curriculum folder on the network drive. It is a resource to use for ideas, reference and guidance.

Equal opportunities

All children at Alfriston are given equal opportunities in all areas of science including boys and girls, children with SEN, children with disabilities and children from different ethnic and religious groups. Positive attempts will be made to develop and use a wide range of resources and activities which reflect the interests and cultural background of all pupils.

Assessment

Assessment is an integral and continuous part of the teaching and learning process at Alfriston and much of it is done informally as part of teacher's day to day work. Teachers and staff integrate the use of formative assessment strategies such as effective questioning, clear learning objectives, the use of success criteria, effective feedback and response to marking and observing children participating in activities. Findings from these assessments are used to inform future planning.

Early Years

Children are assessed termly in 'Understanding of the World' and data entered into SIMs to monitor progress. Assessments are made through observations of the children engaging with activities in an enriched learning environment and also through adult directed tasks.

KS1 and KS2

We make termly summative judgements of each child's 'working scientifically' skills. Some of the evidence base for these assessments may come from day-to-day work, but evidence may also come from specific tasks or questioning. We use these judgements to assess progress and achievements against individual targets. We identify and target those children not making expected progress and intervene accordingly.

Data is entered onto SIMs at the end of Autumn 2, Spring 2 and Summer 2. Progress in science is reported to parents through end of year reports.

Health and Safety

It is important that children are taught the relevant rules of safety when undertaking experiments and investigations and that materials and equipment are handled carefully. Teachers will refer to the 'orange folder' in the office for specific risk assessments. It is the teacher's responsibility to make sure that all helpers (TAs, parents etc.) are aware of safety implications connected with any science activity they are undertaking.

The Role of Subject Leader

- Ensures teachers understand the requirements of the National Curriculum and supports lesson planning. Leads by example by setting high standards in their own teaching;
- Regularly attends local Science Network Group meetings to keep up-to-date with local and national developments and disseminates this information to staff;
- Prepares, organises and leads CPD;
- Observes colleagues with a view to identifying the support they need;
- Discusses regularly with the Headteacher and science governor the progress of implementing the National Curriculum for science in school;
- Monitors and evaluates science provision in the school by conducting regular planning and work scrutiny, 'book looks' with focus children, lesson observations, learning walks and assessment data analysis.