

Jotmans Hall Primary School

Science Policy



Written by: Janet Robinson
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Introduction

At Jotmans Hall Primary School we believe that by studying Science, children develop their curiosity, observation and ability to question phenomena and events in the World round them. It allows them to develop original ideas, trains them to be open-minded while collecting evidence and develops their ability to analyse and evaluate objectively.

Science has many cross-curricular links with other subjects and develops invaluable life skills, such as communication, problem solving and critical analysis.

The teaching of literacy, numeracy and ICT is promoted strongly in science as part of the school's drive to raise standards in English, mathematics and ICT.

Literacy

Pupils are encouraged to develop their speaking and listening and writing skills to describe their observations and record and explain their results. In Science, they should be applying the same literacy skills as they are using in their English work.

Numeracy

Pupils are expected to use their knowledge and understanding of measurement and data handling. In Science, they should be applying the same numeracy skills as they are using in their mathematics' work.

Information and Communications Technology (ICT)

Pupils use ICT to: locate and research information (CD ROM, internet); record findings (using text, data and tables); simulate experimental conditions and gain confidence in using computers, calculators, cameras and recording devices.

ICT is embedded throughout all curriculum subjects. Children should, wherever possible, cover ICT objectives through their cross-curricular work. All staff and pupils must adhere to the E-Safety Policy, a copy of which can be found on the Safeguarding Notice Board.

Personal, Social and Health Education

Health education is taught as part of the **Animals Including Humans** topic particularly in Years 2, 3, 4 and 6.

The National Curriculum Science programme of study enables the children to acquire the concepts, skills, positive attitude and knowledge necessary to develop their understanding of the World.

Aims & Objectives

- Follow the schools Principles of Science Teaching and Learning. Make Science relevant, meaningful and enjoyable by creating class Science principles, i.e. **Science is going well when** ...
(ref Appendix B for School Science Principles)
- Teach Science from the starting point of the children's existing knowledge and understanding.

Encourage children to develop creative thinking skills and raise questions for investigations (ref. *Thinking Skills*)

Children should be encouraged to argue about and debate science concepts.

Children should be encouraged to be scientific and ask questions about the world around them.

- Teach Science through the practical **Working Scientifically** investigations of classification; observing over time; pattern seeking; fair tests and research. Developing the skills of planning, observation, recording, concluding and evaluation (ref. *Problem Solving Across the Curriculum*).

Children should be learning science through active investigations and enquiry based learning.

- To develop thinking skills and the skills of co-operation and debate through working collaboratively and learning from each other.
- Through practical work develop children's ability to use equipment and resources correctly, with accuracy and care; and to understand the importance of personal and group safety.
- To develop the use of ICT, both in the teaching and children's research and presentation (ref. *Information and Communications Technology (ICT)*)

Curriculum

In Reception, the 'Early Learning Goals' (DFES 2003) are followed, which gives the children opportunities to find out about the World they live in. The school ensures curriculum continuity by following the two-year rolling programme of science units of work and by close liaison between staff at the planning stages.

Long Term Planning is included in Appendix A:

- rolling programme for Years 1 & 2, Years 3 & 4 and Years 5 & 6
- **Animals Including Humans** topic is taught sequentially according to year group separate to the rolling programmes.
- the summary of statutory requirements for **Working Scientifically**

In the Science File on the Teacher Drive of the school's network there are:

- Medium Term Plans from Scholastic,
- Medium Term Plans, lesson plans and resources from Hamilton Trust (for most of the new topics)

The curriculum is a 'minimum entitlement' for pupils. Additional topics can be taught to broaden and extend the children's knowledge and understanding. The **LCP Science Resource Files** scheme of work can be used to supplement the new curriculum.

The new curriculum also has more emphasis on using outdoor environment. The different habitats within the school grounds, i.e. pond, field, garden, bushes and trees could be used for continuous study and observation, e.g. class photo diary of a habitat, yearly science diary on flora or a half term survey of an area on fauna.

To develop thinking skills in Science, 'Let's Think through Science! 6& 6' and 'Let's Think through Science! 8 & 9' activities supplement the Curriculum.

Assessment

Refer to Assessment Policy

Monitoring

During the School year: Book Audit – three books from each class will be surveyed by the Subject Leader.

Lesson Observations – one observation each for Reception, KS1, KS2 Middle School, KS2 Upper School.

At the end of the School year: Three books for year group within each class to be given to Subject Leader. These books cover the whole ability range (top, middle and bottom) for each year group within each class.

Each Class Teacher should highlight the criteria taught per topic on the Science rolling program as a record of their class's coverage of the curriculum that year. This record should then be passed to the next year's teacher for highlighting.

Any gaps in the teaching will become evident and can therefore be rectified, so ensuring that all the statutory requirements for science are taught.

Marking and Feedback

Refer to Marking and Feedback Policy

Resources

Medium Term Plans - ref. **Curriculum**

Long Term Plans - ref. **APPENDIX A**

Science Rolling Program and **Working Scientifically** Summary of Statutory Requirements

Teacher's resources including assessment papers, LCP scheme of work, Be Safe, etc. - Cedar class shelves.

Large bulky or heavy resources - rocks, forces ramps, pond dipping nets and trays, electrical boxes - Cedar class shelves.

All other resources organised by topic and stored in labelled shelving unit boxes - Hall Resource.

A record book for new resource requirements is also in this cupboard - Cupboard

Science reference books for children - School Library.

Science posters and large science books - poster cupboard in Middle School Area.

Health & Safety

Pupils will be taught to use scientific equipment safely when using it during practical activities. Class Teachers, Teaching Assistants and the Subject Leader will check equipment regularly and report any damage, taking defective equipment out of action. The school has adopted the ASE book 'Be Safe' as its model risk assessment and therefore this should be consulted when necessary. Two copies of the book are held with the LCP science scheme of work and other teacher resources in Cedar class.

If an activity is not covered by 'Be Safe' then we will contact

CLEAPSS (School Science Service Helpline 01895251496) for further advice.

Inclusion Statement

At Jotmans Hall Primary School, we are aware that some children have difficulty accessing the curriculum. Therefore, in line with the Disability and Discrimination Act of 2005 and Equality Act 2010, and the SEN and Disability Code of Practice 2014, resources and material will be adapted and reasonable adjustments made to make sure that this subject is accessible to all the children in our care.

Children identified as Gifted and Talented in Science have the opportunity to attend extra-curricular activities throughout the year.

Cross-Curricular Project Work

In the Foundation Stage and Key Stage 1, Foundation subjects are taught through a topic based approach, making cross-curricular links where possible. 'The Learning Journey' (or wheel) can be used as a long term planning tool. A new topic is covered each term, from a rolling programme.

In Key Stage 2, Foundation subjects are taught as separate units, but cross-curricular links are made wherever possible. These refer to a subject based rolling programme.

During the Summer Term the Class Teachers are free to choose a topic, through which the children will have the opportunity to apply skills learnt in the previous terms.

It is the responsibility of the Class Teachers to ensure that the key objectives are covered and that there is a progression of skills. The Subject Leader should check that this is happening through the School.

Outdoor Learning

Jotmans Hall Primary School aims to develop outdoor education for all of the children in our school. It can provide positive opportunities for active learning, promote skills of enquiry, problem solving, communication, co-operation, creativity and evaluation. Our school grounds provide a variety of different activities, terrains and habitats already but we plan to develop these further to support this agenda. We believe that the outdoor learning environment has much to offer children. It can afford relevant, engaging experiences that support learning in all areas of the curriculum, including Literacy and Maths. These may be presented as building on existing outdoor play, transferring activities normally carried out indoors, school projects, environmental education or off-site visits.

Thinking Skills

Thinking skills are essential in 'learning how to learn'. When Teachers focus on creative and well-trying ways of thinking, standards rise, learning is accelerated and pupils grow in confidence and self-esteem.

At Jotmans Hall we are using the 'Let's Think' materials to develop thinking skills. Learners will be encouraged to share a common language and perception, respond to a challenge, think better in groups, think about their own learning and use their thinking in different situations throughout the curriculum.

In the Foundation Stage and Key Stage 1, Thinking Skills will be taught through Literacy, Maths or Science or taught as a discrete Thinking Skills lesson.

In Key Stage 2, years 3-5, Thinking Skills will be taught through Science. In year 6, Thinking Skills will be taught through Literacy, Maths or Science or taught as a discrete Thinking Skills lesson.

Problem Solving Across the Curriculum

Effective problem solving and investigating is an important part of learning and teaching throughout the whole curriculum.

Children should explore types of problem solving and investigating to prompt previous knowledge, probe understanding, and promote and extend their thinking.

Problem solving activities or investigations:

- are effective (natural) strategies for learning.
- are active approaches to learning
- give children responsibility for their learning

Problem solving should permeate through all learning objectives and should not be seen as a 'bolt-on' activity. In shared work Teachers can use short problem-solving or investigative activities to:

- refer to previous work and pose questions to assess children's prior knowledge.
- demonstrate and scaffold investigations and problem solving, making

explicit the key strategies applied.

- use an investigation or problem to teach the objective
- model the various methods of recording (e.g. tabulation, diagrams, etc)
- teach children how to interpret, select and use information
- encourage opportunities for thinking aloud and communicating with others.

In independent time Teachers can provide short or extended problem-solving or investigative activities to:

- support children in drawing out patterns principles, conclusions, justifying answers or identifying relationships
- promote the social context for positive dialogue
- support children in developing a wide range of strategies in order to develop the skills of working systematically, including finding all possibilities
- help children record their thinking in a variety of ways including diagrammatic representation and simple algebraic notation.

In the plenary the Teacher may use a problem-solving or investigative activity to:

- assess children's understanding of the objectives being taught
- prepare children for the next lesson or series of lessons
- provide opportunities to communicate children's different approaches to the specific problem solving activities in order to address any misconceptions

