Rushey Green Primary School

SCIENCE POLICY

Mission Statement

We aim to work in partnership with parents to provide an education of the highest quality, which celebrates everyone's success in a happy, caring creative environment, where all our differences are valued.

"Our ability to generate new knowledge and use it innovatively depends upon having a scientifically literate population. And although people learn throughout their lives, good science education in schools is a vital preparation for scientific literacy in later life." ***Professor Ian Diamond, Science Education in Schools.***

Our teaching aims:

1. Following a curriculum, which engages children's natural curiosity, and creativity, which will allow them to develop their own ideas and use strategies to solve problems and make decisions.
2. Developing children's ability to work scientifically: identifying and classifying things; observing changes over time; looking for naturally-occurring patters or relationships; researching using secondary sources and pattern seeking and comparative and fair testing.
3. Teaching science based lessons, where skills and knowledge are not taught separately. Science skills are practical and experimental; used in order to acquire new knowledge. They are not right or wrong; they are developmental so that children build their scientific skills over time. Scientific skills should be developed in the pursuit of 'finding out' so that children learn to apply their skills in order to investigate science questions. Pupils learn to work collaboratively and, at times, independently.
4. Encouraging the use of scientific language, recording and techniques.
5. Building links with other curriculum areas, whenever possible, to avoid science being viewed in isolation from the whole curriculum.
6. Encouraging and enabling pupils to offer their own suggestions, and to be creative in their approach to science, and to gain enjoyment from their scientific work. Teachers need to ensure that discussion and debate are a central theme in science lessons so that pupils share and debate science knowledge.
7. Teaching science in ways that are imaginative, purposeful, well managed and enjoyable, so children will develop a deep and lasting interest and may be motivated to study science further.
8. Helping pupils to develop a spiritual, moral and social understanding about the

effects of their actions on their environment.

9. Assisting children to recognise hazards and risks when working with living things and materials and to agree safety rules.

10. Ensuring that all pupils are encouraged to reach their full potential through provision of well-differentiated science lessons.

How is Science taught through the school?

Our Science Policy follows the The National Curriculum 2014 for Science Guidelines and 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.

The programmes of study for Science are set out year-by-year for Key Stages 1 and 2. We are however, only required to teach the relevant programme of study by the end of the key stage. We have the flexibility to introduce content earlier or later than set out in the programme of study and may introduce key stage content during an earlier key stage if appropriate.

Planning and lesson content

Teachers will base their planning on the programmes of study for their relevant year groups and use the science topic overviews to ensure coverage and progression (these are supplied by the Co-ordinator). During the planning stage, year group partners discuss the opportunities to investigate actively; develop the five areas of working scientifically and assessment for learning. Medium-term Planning should include: prior assessment (knowledge harvest); shared learning intentions; main teaching activity; differentiated independent tasks; plenaries; one full science investigation and an end of unit assessment. It is the responsibility of each teacher to adapt and modify the model plans to suit their children's interests, current events, their own teaching style, the use of any support staff and the resources available.

Teaching and Learning

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

A range of teaching and learning activities is necessary if children are to acquire relevant scientific knowledge, understanding and skills. These include direct observation, sorting

and classifying, practical investigation, individual/group research, television programmes and ICT, interpreting and analysing data, discussion, expository teaching, external visits, guest speakers, recording and communicating in various forms and using reference books.

Pupils can experience science by working in different ways and the class should be organised to match the nature of the activity and the defined learning objectives, be it mixed or differentiated. The structure of groups is carefully considered to ensure maximum participation by all children i.e. quieter children of average ability may gain more by leading and supporting children with special educational needs than they would in a group of more able and extrovert children. On occasions it may be appropriate for more able children to work together on certain tasks in order to support each other in developing higher order skills and understanding.

Teachers annotate Science plans to show the emphasis given, additional ideas and deviations from the units.

When activities are planned careful consideration is given to the process skills that children need to develop. In addition teachers plan their teaching to allow for the range of learning styles represented in the class; visual, auditory and kinesthetic.

Equal opportunities / Special Educational Needs / Gifted and Talented

The school equal opportunities policy clarifies the way in which we at Rushey Green strive to ensure the equal provision for all children regardless of their gender, race, religion, class or ability.

We achieve these goals in Science by:

- Involving all of the children in oral work
- Planning differentiated work to suit the ability of the children
- Allowing access to materials and equipment
- Ensuring that course content is relevant to all pupils
- Having high expectations of every child
- Presenting pupils with positive images and role models to challenge existing stereotype views that scientists are synonymous with white male western culture. It will indicate the contribution women have made to scientific/technological achievements and that scientists come from a variety of backgrounds.
- To learn about scientific/technological achievements associated with different cultures historically

Assessment and recording

Before and after each unit of work children are assessed through a variety of tools: concept mapping, concept cartoons, questionnaires, discussions etc.

The school is using the Rising Stars materials to track individual pupil progress in Science. At the end of each half term, pupils will take an end of unit test and teachers will record pupils' progress: ***Below Expected Progress; Expected Progress or More than Expected Progress***. It is the responsibility of the Science Coordinator, during audits, to examine the

levels across the year groups and to monitor the standards of children's work throughout the school.

Children's work is kept within a folder or in a book, where marking is supportive and effective. Teachers give scientific comments, linked to the attainment targets within the national curriculum. Occasionally children will mark their own work and that of their peers. Children should be given the opportunity to evaluate their work in relation to the success criteria decided on at the start of each lesson.

Resources

Science resources are easily accessible to all staff and the majority of equipment is stored centrally in the science cupboard. Resources required for specific units of work can be located within the year group studying that chosen unit. The science Coordinator monitors science resources regularly and replenishes them as necessary.

Healthy and Safety

Whilst Primary science does not require pupils to handle dangerous chemicals etc., some science lessons involve experiments and demonstrations, which are potentially hazardous if mishandled. Teachers will always warn pupils of any foreseen dangers and ensure that, where appropriate, they take necessary precautions. Teachers can obtain guidance from the school's Health and Safety manager. We expect all our pupils to learn to take responsibility for the safety of themselves and their classmates. However, class teachers will use their professional judgment as to the suitability of such experiments for their class, bearing in mind their age and maturity. Class teachers will always supervise all activities and it will sometimes be appropriate to have other adult helpers. In the unfortunate case of an accident, the class teacher will refer the incidence to a named first aider Any accidents will be recorded as detailed in the school's Health and Safety Policy.

Pupils should be taught to be aware of the importance of safety during all scientific investigations.

Pupils should be taught to:
a) recognise hazards, assess risks and take steps to control the risks to themselves and others.

b) manage their practical work to ensure the health and safety of themselves and others.

When considering lesson planning, any relevant and important health and safety information should be recorded on the medium term planning format.

Reviewed biennially
Last reviewed on November 2014