ST PETER'S CATHOLIC PRIMARY SCHOOL

Science Policy

Agreed by Governors _____

Chair of Governors _____

INTRODUCTION

1.1 Science is a core subject of the National Curriculum. This document describes the policy for its implementation at St Peter's Catholic Primary School.

1.2 All class teachers are responsible for the implementation of this policy. They work under the guidance of the Science Leader and the Senior Management Team who are responsible for the implementation, monitoring and evaluation of the subject.

2 STATEMENT OF PRINCIPLE: LEARNING SCIENCE

2.1 In their early experiences of the world, pupils develop ideas that enable them to make sense of the things that happen around them. The ideas of very young children are essentially scientific in that they fit the available evidence, even though they tend to be limited to concrete, observational, and can fall short of, or may not even be consistent with, formal accepted scientific theories. The aim of science education is to give pupils more explanatory power so that their ideas can become useful concepts.

2.2 It is the teacher's role to give pupils opportunities to develop these concepts through a progression of skills as experience and cognitive ability widen. It is important to recognise that the ideas, which the child brings with them to the classroom, are valid and must form the basis for the development so that any changes make sense to the child.

2.3 Young people in particular show considerable curiosity, finding many ways to investigate and explain their world. Scientists too are curious; they seek explanations for observed phenomena. The scientist chooses from the knowledge and ideas that have been previously established to devise systematic studies into scientific processes.

2.4 For the pupil learning science, as for the scientist, the way understanding develops depends both on existing ideas and in the processes by which those ideas are used and tested in new situations.

2.5 Young people will be learning about the new things and developing skills, which, in time, will give them access to further areas of knowledge. School science is a reflection of science in the 'real' world, where scientists learn from each other and extend the boundaries of knowledge by research.

3. AIMS AND OBJECTIVES

3.1 The National Curriculum Document 2013 contains the Programmes of Study which form the framework on which the teachers can base the application of their professional skills. This aids

the delivery of an effective science education programme that meets the needs of the children in the first two Key Stages.

3.2 **Aims**

At St Peter's Catholic Primary School, the aims of the science programme fall into the following categories:

Knowledge and Understanding
Children should:

- *be curious about things they observe, exploring the world about them with all their senses;*
- *develop understanding of key scientific ideas and make links between different experiences;*
- *begin to think about models to try to make sense of things they cannot directly experience.*

Processes and Skills
Children should:

- *acquire and refine practical skills so as to investigate questions safely;*
- *develop skills of predicting, asking questions, making inferences, concluding and evaluating based on available evidence;*
- *practise and use mathematical skills and be aware of their use as an aid to understanding.*

Language and Communication
Children should:

- *use scientific and mathematical language including technical vocabulary and conventions;*
- *use diagrams and charts to communicate scientific ideas;*
- *read non-fiction and extract relevant information to support their understanding;*
- *use sustained and systematic writing of different kinds to present ideas.*

Values and Attitudes
Children should:

- *work with others, listening to their ideas and treating these with respect;*
- *develop respect for the environment, living things and for their own and each other's health and safety;*
- *gain an insight into the complexity, diversity and wonder of the universe.*

3.3 **Assessment and Monitoring**
Staff assess attainment and achievement in Science using the Progression Continuum and Target Tracker. Termly data monitoring takes place during Pupil Progress meetings.

4. PRINCIPLES AND APPROACHES TO THE SCIENCE EDUCATION

At St Peter's the Science Education Programme will adhere to the following principles:

4.1 **Breath**

Throughout the primary age range, pupils will be introduced to a broad science education encompassing the main concepts from a whole range of science, to the technological applications and social consequences of science and to a range of scientific skills and processes.

4.2 **Balance**

A broad science curriculum cannot be achieved purely through the knowledge content. Balance will be achieved by encouraging the development of scientific process skills as well as knowledge and understanding.

4.3 **Relevance**

Science work will draw extensively on everyday environment and experience of pupils and will be presented in a way that allows pupils to see its relevance to their lives in a context that is familiar to them.

4.4 **Differentiation**

Differentiation is an **essential** aspect of successful teaching and learning. Differentiation will be created by the class teacher for each unit of work. Advice will be provided on what is expected at each year and what an exceeding child will be able to do.

4.5 **Special Educational Needs**

The intellectual and practical demands of activities will be suited to the needs and abilities of **all** pupils. The content will be sufficiently demanding to challenge the most able and gifted pupils to the full, giving opportunities for these children to develop their skills, knowledge and understanding further, whilst being accessible to, and achievable for pupils will additional needs. At St Peter's, alternative methods may be found for those children whose poor literacy skills impede their written work output. For example through the use of scribes, key questioning, cloze procedures etc.

4.6 **Cultural Diversity**

Delivery must take account of ethnic and cultural diversity within the school population and within society, to include all children and allow them to feel that science is accessible to them. This is achieved through the use, where appropriate, of multi-cultural resources.

4.7 **Continuity**

If continuity is to be encouraged, the pupils' early achievements must not be ignored or under valued, but instead built upon and used as a foundation for their learning. The sequence of individual units in the Kent Scheme used in school ensures continuity within and across both Key Stages, with even coverage of Attainment Targets and Programmes of Study.

4.8 **Progression**

Science education forms a coherent series of experiences for pupils as they progress through the school. To ensure progress, teaching provides opportunities for children as they move through Key Stage 1 and 2 to progress

- *from using everyday language to increasingly precise use of scientific vocabulary*
- *from explaining phenomena in terms of their own ideas to explaining phenomena in terms of accepted ideas or models*

- *from needing concrete activities to building abstract models of situations*
- *from unstructured exploration to systematic investigation of a question*
- *from using simple drawings to communicate information to using more conventional diagrams and graphs*

Progression through working scientifically document will be provided and used during Scrutiny to ensure progression.

4.9 **Equal Opportunities**

A common balanced curriculum will help provide equal access to both sexes. The avoidance of gender stereotyping and the involvement of girls' and boys' own perspectives on problems, issues and ideas are important in creating genuinely equal curricular opportunities. It is also important to bear in mind the make up of groups so as to avoid some members of the group monopolising and controlling activities and also in the provision of positive role models wherever possible.

(Please see the Equal Opportunities Policy Document).

5 INFORMATION AND COMMUNICATION TECHNOLOGY

There are lots of opportunities for using ICT in Science.

5.1 ICT can be used to **collect and record data** through sensors and probes e.g. temperature.

5.2 **Present information**. Children can collate e-diaries using texts, photographs, tables and data. Programs can also be used to assist with data handling and presentation.

5.3 Children can also use apps and programs to **simulate science experiments** in electricity, biology and elements of forces.

5.4 **Researching information** using websites and E-books.

6 MANAGEMENT AND ORGANISATION

6.1 **Management and Planning**

It is the role of the Science Leader and the Senior Management Team to manage the subject and look to having targets for the development of Science particular to the needs of St Peter's Catholic Primary School. There are targets both for short term and the long term and can be referred to in the School Development Plan.

6.2 **Roles of Responsibility – The Class Teacher**

The role of the teacher is that of fulfilling an active rather than a passive role of helping children to develop ideas and explore for themselves, it is not to provide answers to short circuit children's thinking.

The teacher should:

1. Provide the materials, time and physical arrangements for children to study and interact with things from their environment.
2. Provide tasks that encourage discussion amongst small groups.
3. Organise whole-class discussions as this can help to develop constructive criticism, lead to discussions about the work and help clarify misunderstandings.
4. Ensure that children know how to use equipment and have the necessary skills in order to be able to draw graphs, tables, charts etc.
5. Provide books, displays, visits, visitors and access to various sources of information.
6. Facilitate flexible thinking, by asking leading questions, so teacher can improve the child's observation and thought, integrating the correct terms where appropriate, test children's understanding of concepts.

6.3 Roles and Responsibility – The Science Leader

The role of the science coordinator at school is a corporate responsibility shared between the Head Teacher and the Science Leader.

The responsibilities held by the Science Leader are as follows:-

1. To support the implementation of the school science policy.
2. To provide a consultancy agency for members of staff suggesting lines of enquiry, give advice on methods and deal with specific problems.
3. To help organise and maintain:-
    a) Schemes of work
    b) Resources
    c) Record Keeping
4. Maintain contact with outside bodies that can help with advice and/or equipment. For example: EQ and CLC at Ridgeway High School.
5. Attend courses and meetings not only to keep updated with latest developments but to exchange ideas with other teachers on the Wirral.
6. To organise INSET when applicable for the schools staff as a whole or individual members.

6.4 Organisation

The scheme of work highlights how the school plans to deliver the statutory entitlement to pupils in both Key Stages. Science is taught through cross curricular topics where appropriate. In order to ensure breath and adequate coverage, some science topics maybe taught as 'stand alone' activities.
In **Early Years**, Foundation Units from the Wirral Scheme and **Ages and Stages** are followed.

6.5 Time Allocation

The scheme is written to occupy:

- 1½ hours of time per week for KS1.

- 2 – 3 hrs per week for KS2.
- In Foundation Stage where the Foundation Units from the Wirral Scheme and Ages and Stages for Knowledge and Understanding of the World are followed, the nature of this learning dictates that time allocation is variable and dependent upon the needs of the children.

6.6 Parental Involvement and Community Links

Parents are encouraged to play an active part in classroom activities where their experiences can be used to develop children's knowledge and understanding. Similarly, all children have the opportunity to visit the CLC located at Ridgeway High School, as well as the use of visiting agencies and professions, such as nurses, in order to enhance the children's understanding and reinforce the place of science in the community.

6.7 Display

Teachers seek opportunities to display children's' work in a positive manner to motivate children and to use it as a useful teaching tool. A relevant, current science display, which encourages active participation by children and includes a scientific vocabulary word bank, is advocated where possible.

6.9 Professional Development

The teachers of St Peter's Catholic Primary School are committed to the continual development of their teaching skills in science and endeavour to keep abreast of knowledge and changes within the subject. To this end, they attend relevant courses where possible. The science Leader also disseminates information from courses and cluster group meetings on a regular basis.

7. ASSESSMENT, RECORDING AND REPORTING

7.1 For assessing the children's progress the Progression continuum and Target Tracker are used.

7.2 For more information on assessment, recording and reporting, see the school's Assessment, Recording and Reporting Policy Document.

8. HEALTH AND SAFETY

8.1 All staff has access to the school Health and Safety Policy Document and act in accordance with the guidance provided.

8.2 All staff also have access to the **Be Safe 2** document for Science and DT.

8.3 Teachers should ensure that children and adult helpers are trained in the correct and safe use of equipment before using it.

8.4 Risk assessments are completed by each class teacher every activity/lesson deemed to have an element of risk prior to the start of the lesson. The activity is assessed in terms of its potential

risk to the children and the teacher states reasonable measures to be taken to minimise this risk

8.5 All equipment, not in use, will be stored safely in a locked science cupboard located in the science cupboard in the Year 5 classroom.

9 RESOURCES AND THEIR MANAGEMENT

9.1 The school has an inventory of available resources which will be revised regularly. All staff will have access this list. Where the resources are stored centrally in the Science cupboard, equipment should be returned in good order. Staff should inform the Leader if consumables need replenishing, equipment is faulty or specific resources are required.

9.2 Resources are organised (grouped) according to topic and key stage for ease of access and recognition.

9.3 The Leader is responsible for the selection and purchase of the main resources from the Science budget in consultation with class teachers and the Senior Management Team – budget constraints permitting.

9.4 Class teachers may purchase basic consumable items to supplement the main resources, for example, salt, pepper, seeds, balloons etc.

10 REVIEW

The Senior Management Team and the Science Leader will review this policy document every 2 years. The monitoring procedures described will apply to ensure all pupils have successful experiences and learn effectively in this subject area. Monitoring will also highlight areas that require targeting to maintain the high levels of achievement at St Peter's Catholic Primary School.