Science Policy

Evidence of intentions and practice - for the information of staff, governors, parents, LA, OFSTED and DfE

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PARKSTONE PRIMARY SCHOOL

Science Policy

1 Introduction

1.1 This policy outlines the teaching and management of the Science taught and learnt at Parkstone Primary School. The school's policy for Science is based on the Early Years Foundation Stage Framework and the 2014 National Curriculum for Key Stages 1 and 2. The policy has been drawn up to reflect our whole school approach to science and has been discussed with staff and has the agreement of the Governing Body.

2 The importance of science in the curriculum

2.1 Children naturally explore the world around them from a very early age. They do this in practical ways using their natural curiosity and interacting with their physical environment. Primary Science should capitalise on children's natural abilities and interests. Use of first hand experience must be an essential characteristic of primary science so that children come face to face with phenomena and learn directly about the way things are and why they behave as they do.

2.2 At Key Stage 1 pupils observe, explore and ask questions about living things, materials and physical phenomena. They begin to work together to collect evidence to help them answer questions and to link this to simple scientific ideas. They begin to evaluate evidence and consider whether tests or comparisons are fair. They use reference materials to find out more about scientific ideas. They share ideas and communicate them using scientific language, drawings, charts and tables with the help of ICT if it is appropriate.

2.3 At Key Stage 2 pupils learn about a wider range of living things, materials and physical phenomena. They make links between ideas and explain things using simple models and theories. They apply their knowledge and understanding of scientific ideas to familiar phenomena, everyday things and their personal health. They think about the effects of scientific and technological developments on the environment and in other contexts. They carry out more systematic investigations, working on their own and with others. They use a range of reference sources in their work. They talk about their work and its significance, using a wide range of scientific language, conventional diagrams, charts, graphs and ICT to communicate their ideas.

3 Aims and Philosophy

3.1 The school aims to:

- stimulate and excite children's curiosity about changes and events in the world;
- satisfy this curiosity with knowledge;
- engage children as learners at many levels through linking ideas with practical experience;
- help children to learn to question and discuss scientific issues that may affect their own lives;
- help children develop, model and evaluate explanations through scientific methods of collecting evidence using critical and creative thought;
- show children how major scientific ideas contribute to technological change and how this impacts on improving the quality of our everyday lives;

3.2 Parkstone Primary School will endeavour to provide the highest possible quality of science education. It will meet the requirements specified in the National Curriculum orders and by the headteacher, staff, parents and governors.

3.3 The school will offer a caring, supportive and disciplined framework to enable children to benefit to the full from the educational provision provided.

4 Expectations

4.1 Since the introduction of the new National Curriculum in September 2014 (NC2014), new expectations have been set for each year group, detailing what the expected achievement should be by the end of each Year group.

4.2 It is expected that all children are taught the statutory requirements set out within the document. Additional non-statutory guidance is also available for each year group and we are covering both of these elements within our science planning.

4.3 Children will now be judged on whether they are working in-line, above or below age related expectations. At Parkstone we have broken these expectations down into key stages:

- Keys stage 1- Year 1 and 2.
- Lower Key stage 2 – Year 3 and 4.
- Upper Key stage 2 – Year 5 and 6.

5 Entitlement and curriculum provision

5.1 As a core subject in the curriculum, science encompasses essential concepts, knowledge and skills which help other learning to take place effectively. Competence in communication, problem solving, study skills, information technology, numeracy and cooperation are common to science and other curricular areas, and therefore can be the basis for linking the subjects in a thematic approach to primary science.

5.2 Some aspects of the Science curriculum are considered easier to teach as pure Science. This is particularly so in the later primary years of schooling. For other areas, however, and in the earlier years the boundaries between Science and other subjects is less clearly defined.

5.3 The curriculum time afforded to Science follows nationally agreed guidelines. The hours prescribed are not necessarily input as an equal weekly figure but as a proportion over a whole year. Long term plans address this issue.

5.4 In delivering the recommended programmes of study for KS1 and KS2 the children at Parkstone are taught using varying styles. Some investigations involve class or group activities which encourage the sharing of ideas and information and foster social awareness and responsibility. Other investigations undertaken independently encourage self-reliance, independence of thought and opportunities for critical reflection on their own and others results.

6 Teaching and learning

6.1 All lessons have clear learning objectives which are shared and reviewed with the children effectively. They make effective links with other curriculum areas and subjects, especially literacy, numeracy and ICT.

6.2 A variety of strategies, including questioning, discussion, concept mapping and marking, are used to assess progress. The information is used to identify what is taught next. For all units of Science there is an initial assessment sheet that is completed by the children, focussing on the main concepts of that are of maths. Children go back and annotate this sheet throughout the unit, clearly showing the new science learning that has taken place.

6.3 Activities inspire the children to experiment and investigate the world around them and to help them raise their own questions such as "Why...?", "How...?" and "What happens if...?".

6.4 Activities develop the skills of enquiry, observation, locating sources of information, selecting appropriate equipment and using it safely, measuring and checking results, making comparisons and communicating results and findings. They are challenging, motivating and extend children's learning.

6.5 Pupils have frequent opportunities to develop their skills in, and take responsibility for, planning investigative work, selecting relevant resources, making decisions about sources of information, carrying out activities safely and deciding on the best form of communicating their findings.

6.6 Skills in the 'working scientifically' strand of the NC2014, are taught through fair testing, research, classifying and sorting, observations over time and pattern seeking.

6.7 All classes use floor books at the beginning of the lesson to allow children to work together in small groups to get them ready for scientific learning. Floor books may also be used to revisit previous skills and concepts. These are used to develop thoughts and ideas from individuals over each unit of work.

6.8 At Parkstone, science lessons start with 'Bright Ideas' time which can take the form of a variety of science starters that are aimed at getting children in the mindset of thinking scientifically and talking scientifically.

7 Differentiation and access

7.1 In the same way as other curriculum subjects Science is delivered so as to take account of the needs and abilities of the children. The curriculum is available to all children with appropriate modification in the cases of pupils with particular needs.

7.2 Children with hearing impairment need to be supported in gaining as much access as possible to the sound section of the programmes of study by the use of visual demonstration of the properties of sounds eg use of sound level meters

8 Curriculum planning

8.1 Long term planning:
The Programmes of Study for science are covered in a two year rolling programme of units. Key Stage 1 programmes of study are covered once across Years 1 and 2 and Key Stage 2 programmes of study are covered across Years 3 and 4 and Years 5 and 6.

8.2 Medium term planning:
This identifies within each unit of work; learning objectives, success criteria, science activities, assessment opportunities, the vocabulary to be taught and used, safety issues, how information and communications technology and resources should be used.

8.3 Each phase teaches their curriculum subjects through a topic that lasts a term. The children's science learning may be included in the topic or can be taught as a stand alone unit of work. Each phase ensures that, throughout the year, the relevant areas of learning have been covered either within their topic or outside of this.

8.4 The science LTP identifies specific areas of scientific enquiry that should be completed each term. These should be completed as a minimum but more areas of scientific enquiry will be taught throughout the term.

8.5 Weekly planning:
All short term planning follows the school's format and is linked to the essentials curriculum statements for the different milestones.

9 Assessment and record keeping

9.1 Teachers are expected to use the school system of Assessment for Learning in all of their science lessons. The children's attainment should be assessed and tracked using FLIC when each objective of the NC is covered.

9.2 At the end of each term the assessment data from FLIC is collected from all classes by the school's science coordinator. This data will then be used to make a subject report at the end of each term. The report will comment on attainment and will identify areas for development.

9.4 Teachers analyse pupils' progress in the units of work they have completed at the end of each school year to complete the annual report to parents. This report takes the form of a summary of the teachers' observations and continued assessment of the pupils at work thus giving parents a view of what their children know, understand and can do.

10 The Foundation Stage

10.1 In our school we encourage the development of skills, knowledge and understanding that help reception children make sense of their world as an integral part of the school's work. The reception class follows the Early Years Foundation Stage Framework and relates the development of the children's knowledge and understanding of the world to the objectives set out in the Early Learning Goals. These underpin the curriculum planning for children from birth to five.

This learning forms the foundations for later work in design technology. These early experiences include asking questions about how things work, investigating and using a variety of construction kits, materials, tools and products, developing making skills and handling appropriate tools and construction material safely and with increasing control.

10.2 We provide a range of experiences that encourage exploration, observation, problem solving, critical thinking and discussion. These activities, indoors and outdoors, attract the children's interest and curiosity.

11 Continuity and progress

11.1 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. Study units have been assigned to each planning team appropriate to the ages of their pupils in order to avoid undue repetition.

12 Resources

12.1 The school continues to build up a comprehensive selection of resource materials to aid Science teaching.

12.2 A central resource bank is available to all staff. This is currently found in the large store room located at the end of the Year 5/ 6 corridor. It is the responsibility of individual teachers to collect resources needed for each lesson and replace the equipment tidily in the correct place. Children should not be asked to replace equipment in the store room and should never be allowed in the resource area unless accompanied by a member of staff.

12.3 The school has a subscription with science bug which provides both planning and resource materials for teachers. The subscription also comes with a class set of reference books for Years1-6 to support the activities on the website.

13 The learning environment

13.1 The profile of science should reflect its place as a core subject. Teachers should make efforts to display science at some stage during the year. All classrooms should have a science working wall that displays the current learning journey. The display should include the relevant scientific vocabulary being introduced in the current unit of work, children's work and questions asked or answered as part of the current science learning. and teachers should refer to these displays whenever possible.

14 Safe practice

14.1 Safe practice as indicated by CLEAPS and in The Association of Science Education publication, "Be Safe!" must be promoted at all times. Teachers must also take into account the school's Health and Safety policy.

13.2 Particular attention must be given to avoiding the use of anything that aggravates individual pupils' allergies. Safety issues are identified in QCA planning and risk assessments must be completed when activities are identified that are unusual and beyond the scope of normal safe practice.

14 Staff development and training opportunities

14.1 The Head Teacher discusses staff development needs and, where appropriate, these are built into the school's staff development programme. The needs of individual members of staff, both teaching and non-teaching, are identified as a result of the school's self evaluation and staff performance management programme.

14.2 Staff attending training are expected to share the information with other relevant staff and should complete a training feedback form.

15 Monitoring strategies

15.1 It is the responsibility of the science subject leader to

- monitor the standards of children's work and the quality of teaching in science through reviewing evidence of the children's work, monitoring resources and equipment, completing work/planning scrutinies and undertaking, where possible lesson observations of science teaching across the school
- support colleagues in the teaching of science
- be informed about current developments in the subject
- provide a strategic lead and direction for the subject in the school.

15.2 The science subject leader produces an annual action plan, linking to the key priorities of the School Improvement Plan, when appropriate, and provides the head teacher with an annual summary report in which they evaluate strengths and weaknesses in the subject and indicate areas for further improvement.

15.3 The teaching staff has agreed that the general school policies for the presentation, marking and integration of the subject across all other curriculum areas also apply to Science.

15.4 Following current OfSTED guidelines, although the principles of science will carry priority, the school will also look for the standard of children's written work to be at approximately the same level in science as it is in literacy.

This policy will be reviewed every two years