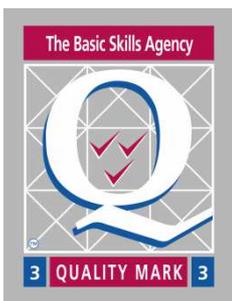




# LIPSON VALE PRIMARY SCHOOL

## Science Policy



INVESTOR IN PEOPLE



## Lipson Vale Primary School - Science Policy

**Updated: Summer 2015**

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**Introduction:**

This policy outlines the teaching, organisation and management of the Science taught and learnt at Lipson Vale Primary School. The school's policy for Science follows The National Curriculum 2014 for Science Guidelines and the Early Years Foundation Stage Framework 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 a variety of different scientific enquiries that help them to answer 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.
- are encouraged to understand how Science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Where suitable, adaptations have been made to suit our school's environment and ethos.

**Aims:**

A high-quality Science education provides foundations for understanding the world. Through building key knowledge and understanding of concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of curiosity about natural phenomena.

- For staff to work cooperatively to deliver a broad and balanced Science education which incorporates a range of teaching styles to suit individual needs.
- For children to have the right to equal opportunities in Science in our school regardless of their background, religion, race, gender, physical or intellectual ability.
- For children to become curious about the world around them and the things that they observe, experience and explore.
- For children to use their experiences to develop understanding of the key scientific ideas.
- For children to develop skills of sorting, classifying, planning, predicting, questioning and drawing conclusions from data.
- For children to acquire and refine practical skills necessary to investigate ideas and questions safely.
- For children to practise mathematical skills and enhance literacy skills (where possible) within real contexts.
- For children to develop language skills through talking about their work and presenting their findings.

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- For children to use progressively technical scientific and mathematical vocabulary and draw diagrams and charts to communicate scientific ideas.
- For children to use a range of media including ICT to extract scientific information.
- For children to work cooperatively with others, listening to their ideas and treating these with respect.
- For children to develop respect for the environment and living things, including themselves and each other.
- For children to develop responsibility for their own health and safety and that of others when undertaking scientific activities.

### **Teaching Science**

To provide adequate time for developing scientific knowledge, skills and understanding, each teacher will provide weekly Science lessons. These may vary in length but will usually last for about one and a half hours in Key Stage 1, and up to two hours in Key Stage 2. Some teachers have found it more effective to 'block' units of work rather than teach them as an integrated part of the topic for the term. At Foundation level, Science is an integral part of topic learning and should be embedded throughout activities. At this stage, the 'understanding the world' area of learning commands at least one hour of structured time per week and is evident throughout other learning tasks. Cross-curricular links will also be made to other subjects so that pupils can develop and apply their scientific skills.

It is important that the teacher identifies the most appropriate teaching strategy to suit the purpose of the particular learning situation and should use their flair, enthusiasm and professional judgement to identify the most sensible, enjoyable and safe methods for the work being conducted.

There are a variety of ways in which the teaching may be effective and our school aims to encourage learning through investigation, with an emphasis on first-hand experience. Science lessons have no imposed formal structure but should typically contain some of the following elements:

*Discussion:* what they already know from experience, what they have learnt so far, what they will be finding out next. Where necessary, mind mapping and question boards are appropriate methods for recording these discussions if desired.

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*Teaching:* directly to the whole class or through group or individual work.

*Practical tasks or investigative work:* working within groups or individually, practising scientific skills, finding out answers, being encouraged to think scientifically. Where groups are required, the teacher should consider which type of grouping will best suit the needs of the children.

*Recording:* writing about what they have found out, drawing charts and tables and diagrams, using the computer and other media to record what they have done or found out about.

*Communicating:* sharing ideas, predictions, knowledge, and what they have found out with each other, the teacher, other classes and adults as appropriate.

### **Out of class and Homework**

The weekly Science lesson(s) will provide opportunities for the children to develop scientific skills, knowledge and understanding according to the National Curriculum. However, Science lessons should be a vehicle to motivate children to extend their learning beyond the classroom.

Although no formal regular homework is given in this subject area, teachers will encourage children to find out information and practise scientific skills out of school time. In addition, they will provide opportunities to share and value the children's efforts outside school, within future lessons or during class time.

### **School Overview of Science**

The programmes of study for Science are set out year-by-year for key stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. 'Working scientifically' specifies the understanding of the nature, processes and methods of Science for each year group and should not be taught as a separate strand. This element should be embedded throughout the delivery of the Science curriculum.

Each unit of learning is taught and developed during the children's time at the school through a variety of Science topics which have been adapted from the National Curriculum 2014. Cross-curricular links are also made where possible to enhance the learning of Science.

In the foundation stage, appropriate activities which develop young children's understanding of the world around them are to be planned weekly in line with the Early Years Foundation Stage Profile 2014 using the necessary strands.

Children should be encouraged to:

1. show curiosity and interest by exploring surroundings.
  2. observe, select and manipulate objects and materials over time. Identify simple features and significant personal events.
  3. identify obvious similarities and differences when exploring and observing. Construct in a purposeful way, using simple tools and techniques.
  4. investigate places, objects, materials and living things by using all the senses as appropriate.
  5. ask questions about why things happen and how things work.
  6. research using secondary sources.
  7. build and construct with a wide range of objects, selecting appropriate resources, tools and techniques and adapting his/her work where necessary.
  8. communicate simple planning for investigations and constructions and make simple records and evaluations of his/her own work.
  9. use a variety of approaches to answer relevant scientific questions.
  10. understand comparative and fair testing (controlled investigations).
- Overall, pupils should seek answers to questions through collecting, analysing and presenting data.

**Planning**

It is the responsibility of the class teacher/ year group teachers to undertake the Science planning for their class, or oversee it where a student may be taking the class.

Long term plans:

Long term plans (or yearly plans) are shown on the curriculum overview for each year group.

Medium term plans:

Medium term plans (or termly plans) should show an overview of what will be covered week by week. An objective or title for each week will suffice and specific details do not have to be included. Opportunities for 'Scientific Enquiry' should be included wherever possible.

Short term plans:

Short term plans (or weekly plans) should contain more detailed information about what will happen in the lesson. Teachers may also wish to include relevant vocabulary, questions they wish to ask and a resource

list. Opportunities for speaking and listening and computing should also be identified, and further details, such as groupings, can be given if needed. Where there are health and safety issues, these should be clearly shown on the planning and acted upon accordingly.

### **Assessment and record keeping**

It is the responsibility of the class teacher to maintain an overview of each child's progress in Science.

#### **Formative assessment (informal):**

Assessment in Science can take both formal and informal forms. Informal assessment can be done through observations of the children, marking their work and questioning children to identify what they have understood. Recordings of significant progress or events can also be evidenced in the lesson evaluation. Other recordings may be made into a separate mark book/observations book if desired.

#### **Summative assessment (formal):**

Currently, formal assessment in years 1 to 6 is completed in a number of ways; usually after each unit of Science learning.

Science objectives for each unit of learning by year group can be accessed from School Pupil Tracker online and used for planning and assessment to ensure that coverage of the curriculum is achieved. This information can then be relayed to the next year group during handover.

Additionally, class teachers should track, monitor and update children's progress on a regular basis using end of unit assessments or through the use of self and teacher response success ladders. Individual progress is also reported back to parents on a termly basis either through parents' evenings or a written report.

Formal assessment will be reviewed in the near future in order to address how School Pupil Tracker could be used effectively to track individual children's progress in relation to specific National Curriculum 2014 objectives. This is already being used by some teachers in school.

### **Resources**

The school holds a central bank (Science cupboard) of teachers' resource books, consumable and frequently used resources including hand lenses, magnets, thermometers and measuring equipment. Children are encouraged to choose from a range of equipment and are trained in the safe and considerate use of animals, plants and consumable materials. Expensive and less frequently used items are also kept within the central

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store. Objects which are specific to a single year group may be kept within those class rooms (eg: Sex Education videos are stored in Y6). The Science coordinator is responsible for maintaining this area and ordering any necessary items that have been identified as a need.

Ideally, all staff members should be responsible for collecting and returning necessary items to the correct place to ensure that resources are easy for all staff to find.

### **Health and Safety**

The safe use of equipment and consideration of others is promoted at all times. The Association for Science Education publication, "Be Safe!", should be used by staff as a point of reference for issues regarding health and safety. A copy of this is held in the Science cupboard and teachers are encouraged to use this as an aid. The school's "Health and Safety Policy" should be consulted for details regarding scissors, craft tools, electrical equipment, wet areas, heavy equipment and use of other tools. When planning activities, safety issues should be identified in detail in the weekly plans and acted upon accordingly. Children should be made aware of safety issues and, where appropriate, the reasons behind them. Activities which take place away from the school's premises (for example, a seashore outing) will require a risk assessment form to be filled in.

### **Management of Science**

#### *Role of Science coordinator:*

- To be enthusiastic about Science and demonstrate good practises.
- To work alongside colleagues in planning where needed (progress and activities).
- To work alongside teachers in the classroom (this will depend on release time and other available help).
- To coordinate and arrange staff in-service training as required.
- To audit resources, identify needs and order equipment in school after consultation with colleagues.
- To manage the Science budget.
- To "sample" the work of children across the age range (curriculum monitoring).
- To review and evaluate the effectiveness of teaching and learning of Science.
- To provide guidance on the implementation of the Science policy.
- To suggest appropriate assessment activities where needed.
- To provide support to those colleagues who request/require it, including help with planning and organisation.
- To monitor the planning and delivery of lessons.

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### Role of the Head Teacher:

- To lead, manage and monitor the implementation of the scheme of learning.
- With the Science coordinator and responsible governor, keep the governing body informed about the progress of the subject and the scheme of work.
- Ensure that Science remains a high profile subject in the school's development work.