

# PARLEY FIRST SCHOOL



## SCIENCE POLICY

*Article 28 All children and young people have a right to a primary education. Young people should be encouraged to reach the highest level of education they are capable of.*

1. Understanding in Science best comes through the practical investigation of real questions. We aim to provide an interesting, differentiated approach to Science teaching, based on first hand experience, using a variety of teaching and learning styles. We hope to help children understand the world we live in by involving them in a wide range of practical investigations and providing them with learning opportunities, which makes Science fun!

### **Aims:**

#### **2. The Scientific Process**

At all stages children should be given appropriate opportunities to:

- make observations
- raise questions to investigate further
- find patterns in their observations
- carry out investigations and suggest explanations for the patterns of observations
- communicate in a variety of ways: oral, written, pictorial, using charts and graphs and using mathematics
- handle equipment safely and effectively
- use their knowledge when conducting investigations.

#### **3. Attitude**

Throughout our Science teaching, we hope to foster a range of desirable personal qualities which will affect children's attitudes to work and to the environment in general. Children will be encouraged to show:

- curiosity and a desire to seek knowledge
- originality and creativity of thought
- perseverance to overcome problems and try alternative ways
- self criticism to point out weaknesses and strengths
- open mindedness to consider all the evidence and change their ideas
- responsibility to work without constant supervision

- willingness to co-operate and work with others
- independence of thought and confidence to put forward their opinion
- sensitivity and respect for the natural world and others inhabiting it
- willingness to tolerate uncertainty

#### **4. Skills of Scientific Investigation**

The National Curriculum for Science (NC 1999) is divided into two main areas SC1, the skills of investigation and SC2, 3 and 4, the body of knowledge we hope to impart through our teaching. At first children's skills of investigation will be fairly limited. By repeatedly involving them in the practical investigations of real questions, the variety and complexity of the skills children are automatically using in their investigations will increase as they progress through school. The scheme of work will follow the QCA guidelines for Science.

Skills we aim to develop include:

##### 4.01 Observing

- taking note of a wide variety of features
- using several senses and instruments as appropriate
- making and recording observations objectively
- measuring when appropriate (quantifying)

##### 4.02 Patterning

- recognising similarities and differences (and sorting)
- looking at how patterns are related to one another
- trying to find out why patterns are emerging

##### 4.03 Explaining

- looking for reasons why things are happening
- looking for suggestions as to what may be the cause / effect relationship and beginning to develop hypotheses

##### 4.04 Predicting

- using established patterns to suggest probable outcomes to test

##### 4.05 Fair testing

This is the most Science specific skill. The youngest children will not at first be fair testing, but they are still doing Science!

- beginning with simple attempts to keep tests fair and recording the results
- isolating more variables (or things which need to stay the same in order to make a test fair)

##### 4.06 Using / Choosing appropriate equipment

Initially children need to be taught about the equipment available and how it can best be used. Eventually children should become more independent and be able to choose relevant equipment for an investigation.

- using the equipment accurately
- using the equipment safely

#### 4.07 Recording and communicating ideas

Children should develop and use a variety of ways of communicating their findings:

- expressing their findings to other children and their teacher orally, through drawings, simple charts, models and the written word, in group discussions and sometimes using IT
- presenting ideas to a wider range of audiences (children, parents and other adults)
- presenting information in an ordered, logical manner
- presenting information in a variety of ways so that the choice of how they plan and record is sometimes their own

Children should not be taught to write up experiments as methods, results and conclusions, since when we carry out investigations and analyse the results, our evidence only shows general trends or patterns to enable us to put forward a generalised statement about what is happening. If results do not happen as you expect them to, the investigation should not be regarded as a failure. This should be used as a learning experience to help gain better understanding of how things are.

### **5. Grouping**

Teachers within a year group or Key Stage may decide to group children according to ability for some sessions to help differentiate work. Children may sometimes work on tasks individually, in a pair, in a small group or occasionally as a class group.

### **6. Equal Opportunities**

All children have an entitlement to receive the Science curriculum regardless of gender, physical disability, ethnic religious or social background, special educational needs or behaviour.

### **7. Special Needs**

Teachers will need to provide a differentiated Science curriculum for all children, whether they are showing particular difficulties in the subject or are particularly gifted. This may be done in consultation with the year group members, the Science co-ordinator, the Assessment co-ordinator and the SEN co-ordinator.

### **8. Assessment and Evaluation Procedures**

Any assessment should be closely linked with the learning intention, so could focus on one of the areas of knowledge (SC 2, 3, 4) or an aspect/s of investigational work (SC 1). Assessment will be made based on discussions with children, observation of the way they tackle tasks, organise and use materials, make predictions about what they are doing and explain the outcome.

Teachers may want to note down children's thoughts, achievements or issues which may have arisen, on an observation sheet or as a comment on children's work. At times this may be an incidental remark judged to be important as evidence for assessment, or at others it may focus on a planned activity and specific learning intention.

## **9. Record Keeping Procedures**

Individual Science record sheets for AT1 (Scientific Enquiry) are updated annually and passed on to the next year group. The online tracking and target-setting document is completed termly. This shows the current attainment and expected progress for each pupil.

## **10. Links within Science**

The skills of Science (SC1) relate to the other programmes of study of the National Curriculum (SC 2, 3, 4) enabling them to be taught through practical investigations rather than merely learnt as facts, thus improving children's knowledge and understanding and investigational skills simultaneously.

## **11. Links with other curriculum areas**

There are close links with:

- a) Mathematics
- b) ICT
- c) Literacy
- d) Geography
- e) Design Technology
- f) Outdoor curriculum

## **12. Marking**

Teachers should have a clear purpose in each task set, linked to the scheme of work. Marking should be clearly linked to the learning intention. It may also record some dialogue between teacher and child which could be used for assessment purposes. (For further details please see school marking policy).

## **13. Under 5s**

Emphasis is placed on practical play activities which involve developing the Scientific skills by observing, questioning and comparing. The Science curriculum will be based on the knowledge and understanding of the world from the Early Years Foundation Stage curriculum (EYFS).

## **14. Parental Involvement**

Parents will be encouraged to become involved with their child's learning and discuss progress with their child's class teacher.

## **15. Recommended reading / ICT links**

- QCA Science Scheme of Work
- Ideas for Science investigations
- Science experiments books
- Collins Primary Science
- Espresso
- Virtual experiments
- BBC bitesize

## **16. Resources**

There is some Science equipment available in each year group. However, the majority of equipment is located in Key Stage 2 Science cupboards.

## **17. Success Criteria**

The success of this policy will be illustrated by the way children use and apply their investigational skills, knowledge and understanding in Science with increasing confidence, and by their ability to communicate ideas.

Policy Updated LC/VR January 2012

Review Period for Policy – 2 Years

Policy Reviewed: January 2012

Next Review Due: Spring 2014