

St Antony's Catholic Primary School



Science Policy

*Learning together
in
God's love*

Agreed by staff: June 2017
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St. Antony's Catholic Primary School Science Policy

Our Mission Statement

At St. Antony's Catholic School we celebrate our special talents as children of God:

- We try to be like Jesus and always keep him in our hearts.
- We work together in our homes, school and parish to share our gifts and learn together.
- We understand that we are all different but we respect each other.
- We look after our world so that we may share it together in peace.

Introduction

This policy sets out the aims and strategies for the teaching and learning of Science at St Antony's Catholic Primary School. It is intended to outline the guiding principles by which this school will implement Science in the National Curriculum. Staff members should also refer to the Curriculum Guidance document

Aims and Objectives

Our aims are that all children in our school will have direct access to high quality teaching in science; delivered from a well-resourced and structured subject base which will:

- Stimulate and satisfy curiosity
- Offer direct practical experiences
- Increase knowledge and understanding of subject matter
- Develop and improve evaluation skills
- Develop and improve critical and creative thinking
- Building children's self-confidence to enable them to work independently and cooperatively

Science for all

Although the National Curriculum is not compulsory until Year 1 (when all the children have reached the age of 5), we are aware that during the Reception Year at St Antony's we are laying the foundations for the future. The emphasis is on "exploration" and pupils are encouraged to use a practical approach in order to learn.

The aim of Science at the Foundation Stage will be to provide an environment where exploration and experience are the focus, enabling children to become more confident in testing ideas. This experience will take place regularly.

Science teaching is not limited to "science lessons" and science experiences can come from:

- play (both structured and free)
- resources (provision of a variety of materials and learning situations)
- guided questioning
- children's communication
- other curriculum areas

Years 1 to 6 use the National Curriculum as a basis for planning which will be written on school medium term plans encompassing the St Antony's 10 of non-negotiable for every lesson. There are also a number of Teachers and Children's reference books available, and online resources.

The children in Key Stage 1 should aim to study Science for 2 hours per week and in Key Stage 2, 2.5 hours per week (approximately 10% of timetable.)

The Framework

Children, during their 7 years in our school, should acquire the following:

- a range of scientific skills
- a body of scientific knowledge
- a basic conceptual understanding of scientific ideas
- a positive attitude to science

There needs to be a balance between the acquisition of scientific knowledge and the development of practical skills. We place value on children carrying out their own experiments and investigations together with whole class investigations in order to acquire and apply scientific knowledge in a meaningful way.

Continuity and progression

The continuity and progression of work will be monitored by the Science subject Leader and mapped out in the Science scheme of work, which can be referred to. Assessments will take place after each topic, these will be passed on throughout the school, and they will provide easy reference to strengths and weaknesses. We will also assess children's knowledge prior to starting a new topic in order to ascertain an appropriate start level. We aim to extend children's investigative techniques by assessing the level they are on and moving them forward by challenge.

Working scientifically

At the heart of our science teaching is the investigative approach (working scientifically) whereby children use and apply their knowledge in practical situations. Value is placed on structured experimental work and the use of planning frameworks to assist the children in the preparation of their own investigative work. By years 5 and 6 children should be able to plan fair tests readily and with confidence

It is important to bear the following in mind, in order to provide a balanced progressive environment:

- Pupils do not come as "empty vessels" to science lessons, they bring their own understanding - which may be right or wrong - which must be taken account of in planning for learning.
- A range of teaching strategies needs to be available to allow for differences in ways in which pupils learn and to complement each other and reinforce learning.

Differentiation when necessary

There are many different approaches to the teaching of science. An appropriate variety of strategies are employed so as to cater for the needs of the child and the curriculum. These strategies include:

- Differentiated planning
- Differentiated delivery
- Resources to support
- Group work
- Use of well-trained teaching assistants TA/EA

We will pay due regard to the current SEND and Gifted and Talented Policies when devising our strategies for the teaching of science.

Assessment

A whole school policy has been devised for assessment.

Assessment must play an integral part in the whole teaching and learning process. Teachers in Years 1 to 6 have been given assessment materials catering for all levels within their year group. Children in the Foundation Stage are assessed using the Foundation Stage Profile.

Regular assessments of investigative technique will also be carried out, highlighting areas of strengths and weaknesses. Teachers will assess children's investigative and research skills using our Science assessment system from Year 1 onwards.

Work will always be marked to a specific learning intention, which the children will write down when appropriate. Marking should be developmental and children should be given time in lessons to respond to the marking when

appropriate. This may also serve as a useful approach to self-assessment encouraging the children to be more independent in their learning.

We also include in our assessment planning opportunities for self-evaluation by the children in 'stepped' success criteria for practical and written work and some peer assessment should be included each term. As well as this opportunities for self- assessment are included at the end of each science unit. This is in line with the AFL criteria.

Recording children's work

Science should not end up as a vast note taking exercise nor should it require large quantities of written work to be produced.

Young scientists should learn to record/present their work so that it is clear, interesting, easy to understand and well structured. This may include using techniques usually associated with other curricular areas such as graphs, tables, word processing, display, dramatisation, making posters, data processing etc.

In Key Stage 2, when children are writing up their own accounts of investigations, they should use their own words, include diagrams and where appropriate, use more formal headings to structure their recording in a way appropriate to higher scientific investigation.

Children are expected to carry out a full experiment write-up once every half term. At other times they will focus on one area of a write up and produce a detailed conclusion.

Safety

Due to its practical nature the teaching of science can give rise to potentially dangerous situations. Teachers should not compromise with safety standards and children should be aware of the rules that exist for their safety and the reasons for them.

Resources

All resources are labelled and stored in a central location.

Experimental and Investigative science progression

Step 1 (KS1): Guided by the teacher

Pupils can:

- explore, have ideas, ask questions and try out ways to see what happens
- make connections between cause and effect with the help of the teacher
- explore using appropriate senses - simple observation
- show a developing ability to communicate
- describe simple features of objects
- describe simple features of events
- communicate their findings through drawings and charts.
- show developing questioning skills:

why? how? What? will happen if?

- explore materials, objects and their own ideas:
- have an idea - try it out - observe what happens - reinforce idea or change it
- sort into groups

Step 2 (KS1): Starting to investigate with some independence

- develop practical skills
- follow instructions
- use simple equipment
- start small group investigations where the teacher and the children share ideas
- plan and carry out simple activity in which the teacher introduces the idea of a fair test
- make simple comparisons between findings of investigations.

Step 3 (KS2): Learning to investigate own ideas

Pupils can:

- with help, turn questions suggested by the children into a form that can be investigated
- decide what evidence should be collected
- recognise when a test or comparison is unfair
- recognise need for fair test
- think about what is expected to happen as this can be helpful when planning what to do
- use tables and charts provided by the teacher
- observe and measure using simple equipment e.g. length and mass
- compare, describe and record investigations, using simple tables where appropriate
- start to deal with more open-ended problems
- develop collaborative skills

Step 4 (KS2): Working without much help from the teacher

- carry out simple fair test (with some help e.g. prompt cards)
- consider what apparatus and equipment to use
- make predictions
- record results in a variety of ways, including tables, bar charts and line graphs
- draw conclusions from their results with less support from their teacher
- start to interpret results
- start to evaluate, to question what they have done and to suggest improvements.

Step 5 (KS2): The confident investigator

Pupils can:

- vary one factor whilst keeping the others the same
- select suitable equipment and make adequate observations and measurements
- check observations and measurements by repeating them
- present observations and measurements clearly using tables and bar charts
- plot points to form graphs to interpret patterns or trend
- take account of patterns in data in drawing conclusions
- indicate whether the evidence collected supports any prediction made
- begin to relate their conclusions to scientific knowledge and understanding

This policy of St Antony's School upholds the school's ethos and Mission Statement. It must be read in conjunction with and implemented in accordance to the school's policies for Health & Safety Equal Opportunities, Inclusion and Safeguarding. Copies of these policies are available from the school office, upon request.

