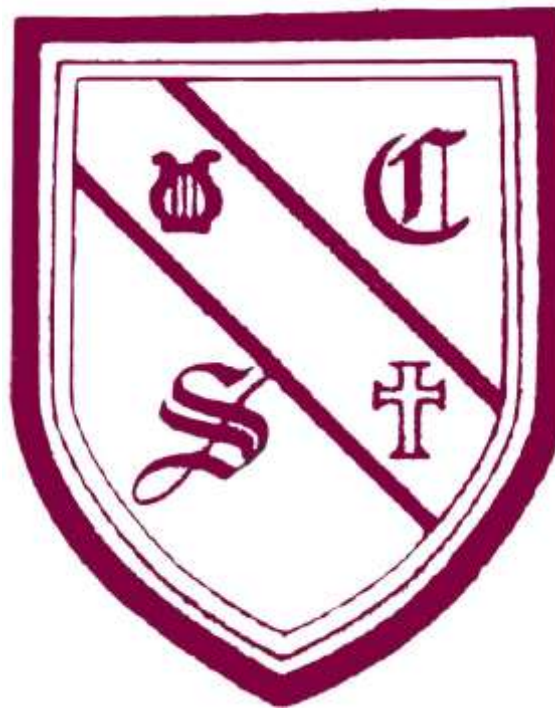


Science Policy



Written: December 2018
Date of Review: September 2020

St Cecilia's Catholic Junior School

Lives together, loves together, learns together

Science Policy

Introduction

Definition and Rationale

At St. Cecilia's we believe that teaching and learning in Science should stimulate and excite children's curiosity about the world they live in.

Science is taught following the year specific milestones (drawn from the National Curriculum programme of studies) and through our question based planning. We think that Science is exciting and we provide children with the first-hand experiences in order to develop enquiring minds, learning how to question and talk about science using a rich varied scientific vocabulary.

Aims

When teaching science at St Cecilia's we want our children to look at the world as a scientist, which means:

- To ask questions about the world they live in and to make simple predictions about what might happen if...
- To be able to use observations to sort and measure things.
- To record their findings in drawings, words, tables and charts.
- To say why certain things happened and to give reason for their results.
- To have a working knowledge of science so that they can apply it to everyday life.
- To make use of ICT, writing, reading and maths skills in their investigations.
- To learn to carry out investigations safely.

- To develop independence working scientifically.

National Curriculum Coverage KS2

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them.

The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas.

The areas of study are outlined below however 'Working and thinking scientifically' is described within the milestones and as part of the programme of study, but must *always* be taught through and clearly related to substantive science content in the milestones.

These are the areas of study for KS2

- | | |
|---------------------------------------|----------------|
| ▪ Plants | Y3 |
| ▪ Animals, including humans | Y3, Y4, Y5, Y6 |
| ▪ Rocks | Y3 |
| ▪ Light | Y3, Y6 |
| ▪ Forces and magnets | Y3 |
| ▪ Living things and their habitats | Y4, Y5, Y6 |
| ▪ States of matter | Y4 |
| ▪ Sound | Y4 |
| ▪ Electricity | Y4, Y6 |
| ▪ Properties and changes of materials | Y5 |
| ▪ Earth and space | Y5 |
| ▪ Forces | Y5 |
| ▪ Evolution and inheritance | Y6 |

Methodology

Time

Science is timetabled for at least 1.5 hours a week. Where possible teachers at our school should look to teach 2 hours a week.

Teaching science needs to be flexible to suit investigation or experiments, for example a longitudinal study of how the sun travels across the sky needs to be completed over a whole day and the timetable should be adapted accordingly.

Teaching and Learning

Teachers carefully plan for the unit of work using the year group milestones.

Teachers ensure that children are given frequent opportunities to ask questions and find answers in order for them to become independent learners.

Teachers share the objective (WALT), key skills and questions that they are working towards.

Teachers plan inclusive lessons and differentiate to ensure that all children can access the curriculum, including those with a statement of Special Educational Need (SEN) or an Education and Health Care Plan.

They do this in a variety of ways:

- By asking questions to match different abilities.
- By outcome. By setting up one task that has a variety of levels associated with it. This could be written or verbal but defined by a given success criteria.
- By giving differentiated tasks to groups and through the use of extra adult support in the classroom.

Cross Curricular Themes

At St Cecilia's we believe science should help children make links with the real world. Where possible teachers plan for and take opportunities to link science with other subjects, including but not limited to English, Maths, History and Geography. Reading is essential to the subject of science. Teachers encourage children to research using texts or online materials (appropriate to the year group) to supplement their science work.

There will be opportunities whereby events in the world will give teachers an option to encourage questions from children for scientific discussion.

Health and Safety

All teachers should be aware of potential hazards when using science equipment in the classroom and discuss these risks with the children. These health and safety issues will be identified on teacher planning. Association for Science Education (ASE) advice on health and safety is attached as an appendix to this policy.

Should teachers avoid any work involving hazards?

To do this would make much practical work impossible and diminish pupils' education. A sensible approach is to find the safest alternative, which still meets the objective, and then to reduce risks with appropriate precautions. These precautions should be explained to the children to enable them to learn to safely manage risks. (Health and Safety in Science by CLEAPSS)

Role of Coordinator

Whenever questions arise due to uncertainty of subject knowledge, advice can be sought from the subject coordinator. Their role is to offer

help on knowledge and practical arrangement of investigations or experiments. The science coordinator will often teach alongside other teachers to develop subject knowledge and develop teaching practices.

Appendix

HEALTH and SAFETY in PRIMARY SCIENCE and TECHNOLOGY

An Introduction by CLEAPSS

This leaflet is intended to give brief guidance on health and safety to those teaching science and technology in primary schools (including nursery, infant and junior schools), some middle schools and relevant special schools. A characteristic of such schools is that science and technology is normally taught by non-specialists in ordinary classroom accommodation, and this is assumed in the advice that follows. If specialists in laboratories carry out teaching, then more ambitious practical work may be attempted and guidance aimed at secondary schools should be followed instead. Inevitably, a short leaflet such as this can only give a brief overview and, for detailed guidance on the health and safety issues arising in particular activities, teachers should refer to *Be Safe! Health & safety in primary school science and technology* [ASE, 3rd edition, 2001; ISBN 086357324X] [see 'Useful Organisations' below for the address].

How safe are primary science and technology?

Very safe, although there are some hazards, associated with:

- Sharp objects such as tools and glass
- Flames and hot things (hot water, glue guns, etc.)
- Equipment powered by mains electricity
- Chemicals (including 'kitchen' chemicals)
- Animal and plant specimens
- Microorganisms

However, it is not difficult to make the risk insignificant. Experience shows that, with careful preparation and sensible precautions, accidents seldom occur.

Are there health risks in primary science and technology?

Virtually none. Since chemicals are used only very occasionally and the ones, which are recommended for use, have no severe hazards, it is difficult to see how they could ever be a health risk.

Care must be taken after handling animals and plants to look out for signs of allergies developing but this is rarely a problem in primary teaching. Animals should be obtained from a reliable source and due hygiene observed when handling them.

What are the legal responsibilities of a teacher like me?

These are really two-fold.

- You must take reasonable, common sense care for your own health and safety and that of others.
- You must cooperate with your employer, obey any rules imposed and follow the health and safety arrangements in your school.

There are two sides to legal responsibilities. While the law requires you to care for your pupils and your colleagues, it also requires your employer and your colleagues to take care of you!

How much about the law am I expected to know?

It is useful to know the basics. Roughly, there are two sorts of law: civil law and criminal law.

Under civil law, a parent can sue a teacher or an employer for compensation after injury to a pupil. If a judge in a county court finds there has been negligence, damages will be awarded. Local authorities

and most independent schools insure themselves to cover damages awarded against them because of the actions of their employees. As the aim is to obtain compensation, parents are likely to do much better if they sue the employer rather than a teacher! Membership of a teachers' union provides insurance against this unlikely situation.

Under criminal law, an Inspector from the Health and Safety Executive (previously, a Factory Inspector) might prosecute an employer or teacher for breach of the Health & Safety at Work Act or one of its associated regulations. Normally, this would be heard in a magistrates' court and could result in a fine. Membership of a teachers' union provides insurance, which would pay defence costs but not any fine. Individual membership of the ASE would offer similar cover, but only for science- related activities.

Prosecutions of primary teachers have never occurred and the very few in secondary schools occur only if teachers have blatantly disregarded common-sense safety precautions or their employer's instructions. It is the responsibility of the employer to inform staff about the regulations and to provide training if necessary.

What about health and safety in my school?

When you join a school, you should be told who is responsible for what and to whom you should report if you have concerns about health and safety. You will need to know what to do if there is an accident.

You should also be shown the school's health & safety policy and, if it has one, any separate health & safety policy for science and technology. You should be told where to find appropriate safety information, such as Be Safe! (See above) and any relevant CLEAPSS publications (see below). If you are not shown these, ask to see them. Read them as soon as possible to gain a general idea of their contents and, during your

career, refer to them continually to refresh your memory and find out about points of detail. Watch out for new editions with updates.

Your employer has an obligation to inform and train you but, as primary science and technology are basically safe activities, training is likely to be short and informal. Asking you to read *Be Safe!* followed by a discussion of the main points is probably all that is needed.

If you feel safety is being neglected and tactful enquiries to the science coordinator or head teacher produce no result, teachers in local-authority schools should consult their inspector/adviser, science advisory teacher or health and safety adviser. Members may also consult their union representative, the ASE or CLEAPSS [for ASE and CLEAPSS addresses see below].

Am I responsible for other teachers?

You have the legal responsibility of taking reasonable, common sense care and not doing anything normally considered reckless. Other responsibilities for colleagues would be yours only if specially allocated to you, although it is unlikely that this would happen in your first years of teaching. However, if you have another adult helping you in your class, make sure s/he is clear who and what s/he is responsible for.

Nevertheless, you would probably feel a moral obligation to intervene if you saw a colleague involved in a potentially dangerous situation.

What about First Aid?

Your school should have a policy about first aid and one or more qualified first aiders, with up-to-date certificates. However, you need to be able to take appropriate immediate remedial measures ('basic first aid') for the following accidents while waiting for first aid to arrive.

- Splashes of glue, paint, chemicals etc. in the eye
Immediately wash the eye under running water from a tap for at least 10 minutes. The flow should be slow and the eyelids held back. Afterwards, the first aider will decide whether the casualty should go to a doctor or a hospital.
- Substances in the mouth, perhaps swallowed
Only find out what has been taken and wash out the casualty's mouth. After any further treatment by the first aider, the latter may decide the casualty should be taken to hospital.
- Burns
Cool under gently running water until first aid arrives.
- Hair on fire
Smother with a cloth.
- Clothing on fire
Push the casualty to the ground, flames on top. Spread a thick cloth or garment on top to smother the flames.
- Electric shock
Do not touch the casualty or equipment. Break contact by switching off or pulling out the plug. If necessary, push the casualty clear with a broom handle, wooden chair etc.
- Severe cuts
Apply pressure on, or as close as possible to, the cut, using fingers or a pad of cloth. Leave any embedded large objects and press round them. Lower the casualty to the floor and raise the wound as high as possible.
- Choking
If the casualty is coughing, do not interfere. If the casualty cannot cough or speak, summon help immediately. Try to remove the

obstruction with your fingers. If this fails, give four sharp blows between the shoulder blades with the heel of the hand, repeating, if necessary, with the casualty bent forward, head below chest.

These immediate remedial measures are usually the most important ones and often the only ones needed.

When should I be particularly careful?

Obviously, you should take steps to avoid the accidents listed above.

- Flames, hot water and hot objects such as glue guns require particular care.
- Tools with points or sharp blades and glass, if needed, must be used with precautions.
- Be on the look out for damaged plugs, cables and sockets, although your school should have an inspection and testing policy, covering equipment powered by mains electricity.
- Work with animals, plants and microorganisms needs special precautions. Find out what these are.
- Do not forget hazards that do not have an immediate effect.

What about risk assessments?

Various regulations (e.g., the COSHH Regulations, the Management of Health and Safety at Work Regulations) require your employer to make a risk assessment before hazardous chemicals, equipment, tools or microorganisms are used, or hazardous activities are undertaken. Most education employers, following guidance from the Health and Safety Executive, have adopted Be Safe! (and sometimes other publications, including their own local codes of practice) as model (general) risk assessments. Teachers are then required to cooperate with their employer by following the guidance in such publications. Where there is

a possible hazard, you must check what advice is offered. You need to think carefully whether there are special circumstances about your class or lesson which might require some modification of that advice, for example, the presence of particularly unruly pupils, pupils with special needs, an over-crowded room, etc. Activities that are safe on a Monday morning may be less so on a Friday afternoon, or after a wet play time. You should note down any particularly important safety points in your lesson plan (this is known as “recording the significant findings of risk assessment”).

Should I avoid any work involving hazards?

To try to do this would make much practical work impossible and diminish your pupils' education. A sensible policy is to find the safest alternative, which still meets your educational objective, and then to reduce risks with appropriate precautions. Explain these precautions to your pupils, as this is good training for the hazards they will meet in the outside world and is required by various National Curricula for Science.

Useful organisations

Association for Science Education

College Lane, Hatfield, Hertfordshire AL10 9AA. Tel: 01707 283000;

Fax: 01707 266532; E-mail: membership@ase.org.uk; Web site:

www.ase.org.uk

This is a professional association, offering support for the teaching of science and technology. Primary schools or individual primary teachers can become members.

CLEAPSS

The Gardiner Building, Brunel Science Park, Uxbridge UB8 3PQ.

Tel: 01895 251496; Fax: 01895 814372; E-mail:

science@cleapss.org.uk; Web site: www.cleapss.org.uk This is an employers' organisation, providing information and advice covering science equipment, materials, living organisms, health & safety and practical techniques. Almost all local authorities subscribe on behalf of all their schools and many independent schools become associate members. There is a free Helpline. CLEAPSS provides a termly newsletter, Primary Science and Technology (for maintained schools this is distributed via the local authority) and a number of other publications for schools, most of them free for primary schools.

Useful publications

In addition to Be Safe!, the following CLEAPSS publications have a particular emphasis on health and safety and are freely available to members on request:

L5p Safe use of Household and Other Chemicals L18 Glues and Adhesives

L86p Electrical Safety

L111 Tools & Techniques in Primary D&T (The safe use of tools)

L112 Batteries and Low-voltage Units

L124 Aquaria in Primary Schools: Electrical Safety

L190 Studying Microorganisms in Primary Schools

L197 Giant African Land Snails

L224 Model Health and Safety Policy in Science for Primary Schools

L241 Teaching Health and Safety in Primary Schools

PS55 Bringing Pets and Other Animals in to Schools

Several other CLEAPSS publications also have some health and safety information, mainly those concerned with keeping particular species of animal.

Make it safe! (National Association of Advisers and Inspectors in Design and Technology) gives advice that is most likely to be useful in middle schools. Available from the Design & Technology Association, 16 Wellesbourne House, Walton Road, Wellesbourne CV35 9JB. Tel: 01789 470007; Fax: 01789 841955; E-mail: DATA@data.org.uk; Web site: www.data.org.uk.

PS22 TPB 04/07 © CLEAPSS®, The Gardiner Building, Brunel Science Park, Uxbridge UB8 3PQ Page 4 of 4 Tel: 01895 251496; Fax: 01895 814372; E-mail: science@cleapss.org.uk; Web site: www.cleapss.org.uk