Godmanchester Community Academy

Science Policy

May 2015

TOGETHER WE

Inspire Enjoy Achieve

Godmanchester Community Education Trust

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1. The Importance of Science

"Usus efficacissimus verum omnium magister" - Julius Caesar

"Experience is the most efficient teacher of all things"

An understanding of Science comes largely from the first-hand observation and experience of basic physical principles, through trial and error known as the "vehicle of experimentation" that is so integral to our early development. Only then can one expand on these building blocks, as they become an essential instrument in our ability to manipulate more complex variables as adults.

An understanding of the physical, biological and chemical nature of the scientific world is further synthesised and enriched through questioning, the application of imagination, analysis and the generation and testing of ideas and theories.

As a fundamental part of everyday life, scientific ideas and developments can be seen to have an impact on past, present and future living in all cultures worldwide.

2. Aims

At Godmanchester Community Academy we aim to provide a stimulating and wide-reaching programme of Science through the Science curriculum and also through related activities. The main aims will include the following:

- To encourage enthusiasm for and enjoyment of activities relating to Science
- To build on children's natural curiosity and develop their interest by providing opportunities for first-hand exploration
- To develop a scientific approach to problem solving by encouraging questioning, a willingness to experiment, a tolerance of uncertainty, open-mindedness and critical reflection
- To develop attitudes of tolerance and co-operation
- To inculcate good health and safety attitudes
- To give opportunities to relate Science to everyday life through the use of everyday materials, technology and situations
- To encourage an awareness of continuing scientific advances and their impact on society, both close at hand and globally
- To help all children realise their potential in Science at Primary School, thereby enabling them to take full advantage of Science in Secondary School and beyond, into further education and professionally.

3. Curriculum Organisation

The Policy, used in conjunction with the Programmes of Study provides a structure for establishing breadth, balance and progression in Science education in Godmanchester Community Academy.

Science will be taught through Science topics as Science lessons and, wherever appropriate, links will be made with all other subject areas. The Science topics are based the Programmes of Study from the Primary National Curriculum.

Pupils will be encouraged to learn through practical activities, including investigations which are open-ended in nature, as well as more structured practical tasks with a pre-determined outcome. The use of the correct vocabulary will be encouraged within the lessons.

The variety of the subject matter and skills to be acquired necessitates the use of different class teaching styles. Activities may be whole class, group or individually based. Differentiated activities and teaching will be incorporated into lessons but at different times children may work independently, in pairs, in ability groups, mixed ability groups, gender groups or friendship groups.

4. Implementation of the Primary National Curriculum.

Good practice in Science means that pupils continuously use and extend their knowledge, understanding and skills in line with the Programmes of Study from the Primary National Curriculum The Schemes of Work take full account of these orders which contain the following areas of study:

Plants
Animals including humans
Everyday materials
Seasonal changes
Living things and their habitats
Rocks
Light
Forces and magnets
States of matter
Sound
Electricity
Properties and changes of materials
Earth and space
Evolution and inheritance

The programmes of study also describe a sequence of knowledge and concepts, known as 'Working scientifically', to be taught throughout the discreet units of work.

5. Time Allocation

On average 1.5 hours per week (54 hours per school year) is allocated to Science at K.S.1 and 2 hours (72 hours per year) at K.S.2. For the majority of the curriculum delivery this time allocation will be on a weekly basis, but a blocked amount of time may be preferred, especially in circumstances such as Science Weeks or Science Activity Days.

6. Links with other Curricular Areas

By its very nature of relating to the wider world Science readily incorporates all other subject areas. Obvious links are mentioned below but there will, and should be, many other opportunities.

Design and Technology

Applying scientific knowledge to making models, e.g. the knowledge of electric circuits to make an electrical gadget, or the knowledge of forces to make a moving vehicle.

Using and applying materials

Technological developments in every day life

Numeracy

Problem solving, interpreting and making graphs, data handling, measuring, looking for patterns, using and making keys.

Literacy

Understanding and use of vocabulary
Text types such as reports, explanations, persuasive writing, collecting and using information, poetry and drama.
Interpreting text, reading and comprehension

I.C.T.

Communicating using text, images and data presentation
Use of C.D. Roms
Internet for information, data and research
Use of digital microscope, data logger and camera

Geography

Environmental issues
Study of rocks and soils
Earth and Space
Scientific developments in other cultures

History
Scientific research, discoveries and inventions
Famous scientists worldwide
The development of technology in every day life, past and present

P.E.

Movement and forces
Health related fitness
Dance and drama can be used for interpreting scientific concepts.

Art

Observational drawing and painting.
Modelling, using different materials
Looking for and interpreting patterns

Music

Investigations into sound patterns – pitch and loudness

PSHE

Health education – diet, exercise, drugs, smoking and alcohol
Sex education
Teamwork and co-operation

Citizenship

Understanding and being able to make informed decisions about scientific advances.
Caring for the environment

Spiritual, Moral, Social and Cultural

This area can be promoted through Scientific Enquiry. Children need to be given the opportunity to explore ethical issues in Science and through using the environment they should learn how to treat living things with care and sensitivity.

STEM projects

STEM in an arcanym for Science, Technology, Engineering and Mathmatics. As a school, we are trialling the inclusion of STEM projects in order to help pupils recognise how the science, design & technology, computer science, engineering and mathematics that they study at school or college can lead to rich and varied career pathways later in life. This complexity is a challenge – but also offers an enormous opportunity for STEM teachers to engage young people with these strategically important subjects. The hope is to inspire pupils to ultimately raise pupils' enjoyment of, enthusiasm for, and achievement in STEM subjects.

7. Resources

The Science Co-ordinator has overall responsibility for the Science resources; individual members of staff having responsibility for their care, collection and return. Any breakages or losses should be reported to the Science Co-ordinator.

The majority of the Science resources are located in the cupboard at the bottom of the Year 5/6 corridor.
Some Science equipment relating to a year group's specific needs, will be located within that year group. EYFS has Science activity materials, which are made readily available to the children on an on-going basis.

Perishable resources, such as food and household materials, should not be stored for long periods and renewed as required There is a Science freezer in the Science cupboard, where frozen materials should be kept on a short term basis.

Data loggers and electronic scales are kept in the Science cupboards and are available for use by all Staff at all times.

Computer microscopes are located in the I.C.T. Room and available for use with all the computers.

Hazardous materials, such as matches and lighters are kept in a locked cupboard in the Science Cupboard. The Science Co-ordinator and the office have a key. Only Staff should access them. Batteries are kept in the Science Co-ordinator's classroom, due to the need for them to be kept at room temperature.

Videos and C.D.s for computers are kept in the Science cupboard.

Teaching resources and publications are available throughout the school – those relating to specific year groups are kept with the year groups, generic ones are with the Science Co-ordinator or in the Science Cupboard.

The Science Co-ordinator will ensure that resources are replaced and kept up to date as required but Staff should make requests on the notice board in the Science Cupboard when resources need replacing or if specific items are needed.

The school has a well established environmental resource consisting of wild flower meadow, flower beds, mature and developing woodland, vegetable plot and the adjacent pond.

Further environmental study visits are made to Port Holme meadow, the Ouse Valley Way and Hinchingbrooke Park.

Scientific study visits further afield are made to environmental centres, farms, museums, recycling centres, the coast and other contrasting areas.

We welcome visiting speakers and scientists from a wide field, such as parents, the local community, higher education, local firms and industry and educational shows.

8. Health and Safety

The main guidelines for health and safety at Godmanchester Community Academy are contained in the "Be Safe" publication from ASE Publications; a copy is located in each year groups with an extra copy kept with the Science Co-ordinator.

The health and safety hazards of any Science activity lesson should be assessed by the teacher and communicated to the children, who will be taught how to be aware of and how to reduce and control them.

Close supervision is needed when using lighted night lights or candles. They should be placed on a tray of plasticine or sand and children warned not to lean over them. Goggles are provided with the Science resources. A fire blanket, sand or water should be accessible (these are also stored in the Science cupboard.)

Everyday household chemicals may be used for experiments provided the children are closely supervised, gloves and goggles worn as needed and children wash their hands afterwards.

When using the environment for activities such as working with living things and soils, special attention needs to be paid to ensuring that the children always wash their hands immediately afterwards. Plastic gloves, work gloves and gardening gloves are kept in the Science cupboard and should be used as appropriate.

Milton is kept in the Science locker for disinfecting work surfaces and equipment.

Individual teachers should be sensitive to any pupils with allergies, such as pollen, peanut or other food allergies and modify activities appropriately.

When undertaking any activities near water such as ponds, rivers or streams, staff should ensure that they have sufficient supervision and be aware of water safety. They should be aware of the dangers of Wiel's disease which can be picked up from water or the surrounding banks. The children should wear gloves if practical and any children with cuts or scratches should have them covered or not be allowed to put them in or near the water. After such an activity staff should ensure and monitor that all the children have washed their hands adequately. (Please see separate information sheet within the "Be Safe" booklet.)

When making any trips out of school it is important that all staff adhere to "The Guidelines for Trips" especially regarding staff/pupil ratio as well as being aware of the specific implications of the scientific activities. Risk assessments should be completed.

9. Equal Opportunities and Inclusion

We aim to give all pupils an equal opportunity of receiving a quality Science education regardless of physical or mental ability, ethnic origin, culture, gender or social circumstances. A range of activities will be accessed by all and individual needs will be taken into account when preparing resources. Bi-lingual learners will have access to the language of Science so that they can progress linguistically as well as cognitively within the subject. Sensitivity will be given to specific sensory disabilities and to culture and religious beliefs, especially when considering food and diet.

When teaching Science teachers should be aware of gender stereotyping and will endeavour to present male and female examples of technical innovators, investigators and other scientists from a variety of cultural backgrounds so that a balanced outlook is arrived at. There needs to be a global perspective through considering how Science has helped to solve problems in a wide range of differing environments. Pupils will be made aware that all cultures have a tradition of developing scientific skills and continue to do so.

10. Assessment and Recording

Assessment in Science will be made continuously through a variety of assessment techniques built into the Scheme of Work.

Pupil's individual progress will be reported to parents in the end of school year report.

11. Community Links

The school encourages strong links with the community by encouraging visitors to the school and visits by the children into the community.

Many links have been forged through the environment. The tree planting project was undertaken in partnership with the Hinchingbrooke Rotary Club and involved further connections in Ghana through the charity, Tree Aid. .

The Countryside Services of the District Council has worked with our children, parents, and other adult helpers to upkeep the local pond and provide willow fencing round our wild flower meadow.

Local clubs, such as The Brownies, The Rainbow Brownies, The Guides and the Cub Scouts have all contributed to the environment by providing bird nest boxes, flower beds and borders.

Links with other schools are being encouraged through the local Science Network Meetings and liaison with the feeder Secondary School is being developed.

Wherever possible local Scientists are encouraged to work with and talk to the children. These may be from local industries, parents or the local environment groups such as the recycling officer and R.S.P.C.A.

12. Role of the Co-ordinator

The Science Co-ordinator will prepare guidelines, support all staff, organise and order resources, keep up-to-date with current practice and monitor Science education throughout the school.

13. Policy Review

This Policy has been produced collaboratively and is a reflection of the shared values of the Staff. It will be implemented during the Summer Term of 2015. It will be reviewed every two years; or earlier if there are significant changes. In the first instance this will be in the Summer Term 2017, although changes are expected to be needed with the further implementation of the New Primary Curriculum, begun in September 2014. The Schemes of Work are continuously reviewed and modified as appropriate.

C Shiner
Science Co-ordinator
April 2015

Policy Details	**Date**	**Name**
Policy approved by Senior Management:	May 2015	Rod Warsap
Policy approved by Senior Governor	May 2015	Roger Coxhead

Date of next review: **May 2017**

Policy Section: **Section 1A – *Curriculum Policies* (Pupils)**

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