



LONGSTONE SCHOOL

SCIENCE POLICY

ARTICLE 29

“Children’s education should develop each child’s personality, talents and abilities to the fullest. “

REVIEWED: June 2020



Contents

	Page
<u>1.0 Introduction:</u> <i>Philosophy of Science Teaching at Longstone School</i>	1
<u>2.0 Safety:</u>	2
<i>2.1 Risk Assessments</i>	2
<i>2.2 Equipment and Resources</i>	2
<i>2.2.1 Fume Cupboard</i>	3
<i>2.2.2 Electrical Testing</i>	3
<i>2.2.3 Animal plants and micro-organisms in school</i>	3
<i>2.2.4 Equipment Safety</i>	3
<i>2.2.5 Services</i>	4
<i>2.2.6 Concern for Others</i>	4
<i>2.2.7 Outdoor Activities</i>	4
<i>2.2.8 Emergency Procedures</i>	4
<u>3.0 Progression and Continuity</u>	5
<u>4.0. Assessment and Recording</u>	5
<i>4.1 Homework</i>	5
<i>4.2 Record Keeping</i>	6
<i>4.3 Assessment</i>	6
<u>5.0 Marking</u>	7
<u>6.0 Differentiation</u>	7
<i>6.1 Differentiation by outcome</i>	7
<i>6.2 Differentiation by task</i>	7
<i>6.3 Differentiation by help given</i>	7
<u>7.0 Classroom organisation</u>	7
<u>8.0 Lesson Cover</u>	7
<u>9.0 Equal Opportunities</u>	8
<u>10.0 Resources</u>	8
<i>10.1 Year 8 and 9</i>	8
<i>10.2 Year 10, 11 and 12</i>	8

1.0 INTRODUCTION

Philosophy of Science Teaching at Longstone School

Aims:

1. To create a positive nurturing environment where everyone can meet their full potential and where learning differences are respected.
(Article 28 Right to an Education)
(Article 23 Right to Special Education)

2. To provide a greater understanding of the world around us and how we can become ethical contributors within it.
(Article 29 Respect other People's Rights)

The anchor and foundation of our work is the relationships we forge with other staff and with pupils. This is of paramount importance so that we can function as advocates for the pupils and thus form effective partnerships with them. A partnership in which there is empathy for each other, where the value of education is accepted and a common goal of one's potential fulfilment is recognised by pupils and teachers.
(Article 3 Best Interests of the Child)

It is within this context that pupils are encouraged, to think scientifically, to be creative thinkers/problem solvers, to forge a sceptical approach and to make evidenced base decisions.
(Article 13 Right to find out things)
(Article 29 Develop Talents and Abilities)

Term planners will reflect progression through the N.I Curriculum

2.0 SAFETY

(Article 39 Protection from being hurt, neglected or badly treated)

2.1 Risk assessments

- a) Can the proposed activity be carried out more safely by modifying the usual method?
- b) Should the proposed activity be carried out as a class experiment, as a teacher demonstration or not at all?
- c) What precautions are required to make the risks minimal?
- d) What warnings should the pupils be given as regards precautions needed?

In order to assess the risks adequately the following information should be taken into account:

- Details of proposed activity
- The age and ability of the pupils likely to do it
- Details of the room to be used, ie size, ventilation etc
- Any substance(s) possibly hazardous to health likely to be used
- Class size
- Any other relevant details ie gas supply, high voltage, heavy masses etc

If in any doubt as regards to the safety of an activity it should be discussed with the co-ordinator and/or refer to CLEAPSS (Managing risk assessment in Science)

2.2 Equipment and Resources

2.2.1 Fume Cupboard

- To maintain a fume cupboard has proven too expensive as this is a resource that is not required or needed due to the learners and the activities we do.

2.2.2 Electrical Testing

- All appliances using Mains Voltage to be inspected and tested annually.
- These checks will be authorised and organised by electrical contractors employed by the Education and Library Board.

2.2.3 Animal plants and micro-organisms in school

- All advice regarding the above is found in CLEAPSS documentation.
- Hygiene is of optimum importance when handling any of the above..
- Micro-organisms will not be used
- Animal parts will only be handled by the teacher

2.2.4 Equipment Safety

- All staff selecting equipment for purchase will check that it is safe and suitable for the intended purpose.
- Equipment listed by specialist educational suppliers meet all regulations but all other equipment, especially gifts, is treated with caution and carefully assessed. CLEAPSS documents will be consulted.

2.2.5 Services

- All services will be shut down at the end of each teaching day i.e. water, gas and electrical points.
- No class is allowed to carry out practical work in the lab unless supervised by a qualified science teacher. In cases where substitute teachers are working in the lab appropriate low risk activities will be left and they will be issued with a full set of lab rules. Lab rules will also be clearly displayed.

2.2.6 *Concern for others*

- All science areas are made safe for cleaners or contractors to work in before these persons are allowed to proceed.
- Broken glass is placed in a container especially designed for it.
- Any spills are cleared immediately.
- All pupils are made aware of the need to inform the teacher of accidents, spills and breakages without fear of reprisal.
- The caretaker periodically empties these.

2.2.7 *Outdoor Activities*

- When planning any field trips, etc staff consult the school Code of Practice and complete the necessary legislation with regard to such trips.
- An educational trip form will be completed, parental permission slips issued and a risk assessment will be completed.

2.2.8 *Emergency Procedures*

- All staff follow normal school procedures in case of fire, these being clearly visible at all points of exit within the lab. Regular fire drills are carried out by the designated teacher.

3.0 PROGRESSION AND CONTINUITY

The planning of science teaching throughout Longstone takes into account the individual needs of the pupils. Particular attention is paid to progression and continuity for all pupils taught, basing entitlement on understanding, not coverage, and on the different aspects of how science works, not simply content. This involves thinking about how teaching and learning across the various key stages will build upon key concepts, Thinking Skills and Personal Capabilities, cross-curricular skills e.g. ICT, STEM and processes.

(Article 28 Right to an Education)

(Article 23 Right to Special Education)

Science at Foundation Stage, Key Stage 1 and 2 is delivered through “The World Around Us” and is a topic based scheme. This is coordinated by Mrs Cummings and where appropriate advice is given by Mr Brockbank (Key Stage 3 and 4 coordinator) on request.

Rather than being restricted to the science laboratory or classroom the pupils are given numerous opportunities to experience science outside the school environment. The range of experiences includes: -

- STEM Road Show
- Rocketry
- BT young innovators
- Flight Experience.
- Eye 4 Education

To provide further enrichment guest speakers and road shows are invited into school. Sentinus deliver an annual STEM Road show to KS3 and 4. During these visits pupils are given excellent opportunities to discuss, and in some cases debate, topical scientific issues.

Pupils are encouraged to think of science as opening up career opportunities. Pupils are made aware of the fact that employers have a high regard for skills, knowledge and understanding gained through Science.

4.0 ASSESSMENT AND RECORDING

(Article 29 Develop Talents and Abilities)

4.1 HOMEWORK

In line with whole school policy homework will be given as a valuable part of the school curriculum and is given to increase the pupil's ability for independent learning.

Pupils will be given homework once a week. This will consolidate classroom learning. It will consist of written or learning work and will be set at an appropriate level. Pupils who experience difficulty with homework will be encouraged to ask for help.

An explanation of homework will be put at the front of pupils' homework books to explain to parents why they are given and why they sometimes only take a short time to complete.

4.2 RECORD KEEPING

A recording system will be used to provide evidence for meaningful summative statements in relation to requirements of the curriculum. Years 11 and 12 pupils will have all coursework recorded as set down by CEA.

4.3 ASSESSMENT

The achievement of pupils will be monitored by continuous assessment through:-

1. Written work
2. Practical ability
3. Teacher interaction with groups of pupils
4. Pupils self-assessment (by more able pupils)
5. Systematic observation by teacher

The method used for recording will be used to communicate information to a range of audiences including pupils, teachers, classroom assistants and parents.

Annual reviews are carried out for the whole school. Pupils level of attainment is assessed at Key Stage 4 through external examinations.

5.0 MARKING

(Article 29 Develop Talents and Abilities)

When marking pupils' work, teachers should be sensitive to the pupils' level of confidence and self-esteem and should always seek to enhance pupils' self-esteem and confidence.

The following aspects of pupils' work should be marked:

1. Pupils' books and worksheets (often worksheets are monitored in class and pupils told verbally all is correct)
2. End of Topic tests
3. All KS4 Coursework

When marking pupils' work the teacher's initial response should always be positive but this should be followed up by guidance and direction concerning how to improve on what has been produced by the pupil. Due to the special needs of our pupils, brief written comments will be supplemented by verbal praise and constructive suggestions.

The extent of correction should be in direct proportion to the confidence and competence of the pupil.

Middle/Senior

a. Worksheets

Marking of class worksheets is mostly done during lessons when the teacher can explain orally where pupils have completed work incorrectly. Written comments are kept to a minimum because of the many pupils' difficulty with reading.

b. Homework

Homework have short comments written.

Incorrect homework are discussed with pupils and a short written comment made.

6.0 DIFFERENTIATION

(Article 23 Right to Special Education)

To ensure the delivery of the requirements of the Science curriculum and so that pupils will progress at their natural pace, appropriate strategies for differentiation will be used.

6.1 Differentiation by outcome

This allows for one activity to be given to the whole class. It can be completed at different levels. The whole class is engaged in the same activity.

6.2 Differentiation by task

This allows for more closely defined activities to be given to pupils who will be normally divided into smaller groups working at different levels. The range of experiences is sufficiently broad and balanced to ensure that each pupil is matched to the contents/methods that are best suited to his/her level of understanding.

6.3 Differentiation by help given

This allows for one activity to be given to the whole class or different tasks to be given but completed with different levels of support, from the teacher or the classroom assistant.

7.0 CLASSROOM ORGANISATION

(Article 39 Protection from being hurt, neglected or badly treated)

Organisation is flexible enough to cater for individual, group and class teaching.

The science laboratory is designed in such a way that there are distinct areas for a wide range of teaching skills formal and practical.

8.0 LESSON COVER

(Article 28 Right to an Education)

Inevitably either through ill health or INSET it will be necessary to provide cover work for the groups being taught. Appropriate work is set for pupils to complete on such occasions.

9.0 EQUAL OPPORTUNITIES

(Article 2 Protection from Discrimination)

Every lesson and resource will be made available to **ALL** pupils, regardless of race, ability, gender or creed.

10.0 RESOURCES

(Article 17 Access to the Media)

The following resources are available

10.1 Years 8 and 9

- Variety of CD roms / computers / printers / cameras
- Day Dream interactive posters
- In house worksheets
- Video / DVD resources
- Library projects and school library books
- Educational visits

10.2 Year 10, 11 and 12

- Active Sciences Books 1 & 2
- Starting Science Books 1 & 2
- Bedford Science
- Longman – Science at Work – 12 titles for ELQ syllabus
- Video / DVD resources
- Interactive whiteboard
- Computers / printers / digital camera
- Variety of CD roms
- Day Dream interactive posters
- In house worksheets
- Educational visits and field trips
- Variety of science activities from external sources
 - Paul McCrory and Think Differently
 - Sentinus
 - Bombardier
 - Energy Efficiency Service
 - Zoo, Streamvale Farm, etc.