



# Science Policy

## Contents

1. Rationale .....	3
2. Aims .....	3
3. Knowledge and understanding .....	3
4. Processes and skills .....	3
5. Language and communication .....	3
6. Values and attitudes .....	3
7. Assessment and Planning.....	4
8. Methodology.....	4
9. Science Language .....	4
10. The Science Lesson .....	5
11. Lesson Structure .....	5
12. OT activities .....	5
13. ICT .....	5
14. Resources.....	5
15. Equal Opportunities (including Gender Awareness) and Special needs.....	6
16. Science Fun Day / Gardening/Wilderness Club .....	6
17. Science Garden/Wilderness Area .....	6

## 1. Rationale

The intention of this policy is to describe the ways that children at Castlebar School have access to National Curriculum Science. The school curriculum is the National Curriculum structured on the Foundation Stage model of the seven areas of learning. This is true for all subjects except Science and Music, both of which are taught as discrete subjects. Science is taught to pupils from Red department through to Purple department (which predominantly covers Year 2 to Year 6 pupils). Yellow and Green departments (largely Year 1 and Reception aged pupils) have science taught as part of the Foundation Stage Curriculum.

## 2. Aims

- to develop **skills of working scientifically**
- develop **scientific knowledge and understanding** of key scientific concepts, **processes and methods** and relate these to everyday experiences; the uses of science
- to learn about ways of ‘finding out about’; exploring, investigating, thinking and **communicating** ideas;
- to explore **values and attitudes** through science.

## 3. Knowledge and understanding

Children should:

- be curious about things they observe, and experience and explore the world about them with all their senses
- try to make sense of experiences, begin to develop and support skills to seek explanations and think critically about claims and ideas
- use this experience to develop their understanding of key scientific ideas and make links between different phenomena and experiences
- begin to think about models to represent things they cannot directly experience

## 4. Processes and skills

Children should:

- Acquire, develop and refine the practical skills needed to investigate questions safely; explore, investigate with curiosity, discover.
- Develop skills of predicting, asking questions, making inferences, concluding and evaluating work based on evidence and understanding and use these skills in investigative work.
- Learn why numerical and mathematical skills are useful and helpful to understanding.
- Practise such mathematical skills e.g. counting, ordering numbers, measuring, drawing and interpreting graphs and bar charts in real contexts

## 5. Language and communication

Children should:

- think creatively about science and enjoy trying to make sense of phenomena / experiences
- develop language skills through talking about their work and presenting their own ideas using sustained and systematic writing of different kinds
- use scientific and mathematical language including technical vocabulary and convention, and draw diagrams and charts to communicate scientific ideas
- read non-fiction and extract information from sources such as books and appropriate internet sites

## 6. Values and attitudes

Children should:

- develop a respect for the environment and living things
- work with others, listening to their ideas and treating these with respect
- develop respect for evidence and evaluate critically ideas which may or may not fit evidence available
- develop awareness and respect for their own health and safety

## 7. Assessment and Planning

### Tracking pupil progress:

At the beginning of each year, or when a pupils starts school in mid-year, all pupils have a baseline assessment in science. This is compared with an end of year assessment to see how well each child has progressed. Progression is measured currently using a range of tools; using PIVATS. descriptors, end of topic evaluations and anecdotal notes. Ongoing assessment takes place on a sessional, weekly and termly basis.

Pupils are assessed to elicit how well they understood the topic and identify skills gained. All achievement is recorded on Progress trackers. Baselines and end of year achievement is recorded on Assessment Manager. Progress for the Annual Review is recorded and passed onto the teachers. Teachers and Teaching Assistants both carry out this activity.

### Planning:

The Science Curriculum Map has been produced using the National Curriculum programs of study for key stages 1 and 2. It follows a three-year cycle in order to ensure the children receive new learning opportunities each year. The science curriculum is planned by a teacher and Scale 8 T.A who deliver termly units as outlined in the curriculum map. Pupils progress is reviewed and evaluated each session using a variety of methods; informal snapshot observations, self and peer assessment (where appropriate), school assessment sheet, photos, videos etc. Progress and attainment is incorporated into next steps for each pupil, future weekly and termly planning. At the end of each unit children are assessed to find out their knowledge, understanding of the topic and skills developed. Topics are designed to cover key concepts and skills for working scientifically.

In Yellow and Green departments pupils have their science taught as part of the integrated Understanding the World (UW) strand in the Foundation Stage curriculum. (N.B: Identified Year 2 pupils still in Green Department may also join discrete Science lessons if they are judged able to access the learning and would benefit from attendance).

Units for Red, Blue, Orange and Purple reflect key scientific ideas and methods, with subtle increases of depth to consolidate essential concepts. All are based on objectives from the National Curriculum programmes of study and developmental learning. Pupils in these departments receive a discretely taught separate Science lesson.

## 8. Methodology

To accommodate the varying developmental and sensory needs of our pupils a variety of teaching and learning styles will be employed to deliver the science curriculum. This will include many multi-sensory strategies. Science lends itself to a practical approach to teaching and learning, allowing pupils to learn through all their senses. Signing, symbols and varying levels of visual, verbal and sensory support will be used to ensure all children can access every science lesson effectively. Where appropriate, specific strategies for individuals or small groups developed in liaison with the class staff will be utilised to enable pupils to successfully access the learning; individual symbol schedules, reward systems, Workstations, TEECH, VB etc.

## 9. Science Language

A 'total communication environment' is used to give all pupils the opportunity to access the learning in Science. Communication skills will be developed by adults modelling appropriate scientific language giving the children confidence to communicate in their preferred method, comment on, share information and describe the work they are doing. Pupils will be encouraged to use scientific terms and will be given opportunities to hear adults model topic related scientific language and be encouraged use it. Staff and pupils will use a range of signs, symbols and varying visual support (i.e. objects of reference) to stimulate this.

## 10.The Science Lesson

From Red – Purple department each child has one science lesson each week. A variety of teaching methods are used to ensure that the learning styles of the individual and groups are met. Scientific ideas and methods are presented at a level that children can access. Most lessons have a carousel system of activities; this allows pupils to experience independent turn taking with activities related to the programme of study.

## 11.Lesson Structure

Each lesson starts with a short circle time to recap previous learning, discuss the Learning Intention's and model the activities of this lesson. TAs are expected to record pupil responses to inform the teacher of the pupils' learning and progress and this is used to aid future planning.

The main part of the lesson follows a structured approach using strategies outlined in the Structured Teaching Policy. It could consist of a range of the following in relevance to the learning objective.

### Main activity:

- Whole class (if activity appropriate, small groups or 1:1)
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- |   |   |  |
|---|---|--|
| <ul style="list-style-type: none"> <li>• Symbols and signing</li> <li>• Objects of reference</li> <li>• IWB</li> <li>• Role play</li> <li>• Games</li> <li>• Use of fiction &amp; non-fiction</li> <li>• Recording of findings</li> <li>• ICT activity</li> </ul> | } | supporting the objective of the lesson |
|---|---|--|

If appropriate, at the end of the lesson a short plenary takes place, with the whole class or key pupils. This gives you an opportunity to;

- Opportunity to praise the children for good work and behaviour.
- Quick quiz to illicit their understanding of knowledge gained.
- TAs to record pupil responses.

## 12.OT activities

OT based activities are designed to develop the muscles and physical strengths the children will need to acquire fine motor skills and writing skills. Some activities are used to reinforce this key aspect as well as support the Science Lesson Learning Intention

## 13.ICT

We use a range of ICT resources within the Science curriculum; camera, sound buttons, programmable toys and robots, recording devices, Learnpad tablet, interactive whiteboard, computer programmes and internet. They have become essential tools to support teaching and learning strategies. A Resource Bank of suitable topic related internet sites is constantly updated, it includes slide shows, animations, graphics, games, pictures and video clips to reinforce the key concepts and learning intentions of the Science Curriculum.

## 14.Resources

Science is well resourced in Castlebar School and is taught in a designated classroom and outside learning areas. We have a stock of many practical and symbolised paper resources kept in the resource cupboards in the Science Room, which are added to all the time. As well as our internal classroom, we have an outside Science garden and a wilderness area onsite to also deliver our lessons / activities.

## 15. Equal Opportunities (including Gender Awareness) and Special needs

It is our aim that every child has access to the entire science curriculum at levels suitable to their needs. This is achieved by;

- differentiating tasks and activities
- liaising with class teachers and staff
- using multi- sensory approaches
- differentiated age appropriate teaching materials
- use of support staff to help pupils access the lesson
- organising the science learning areas / activities to best facilitate inclusion
- being aware of the disproportionate number of boys to girls and ensuring that girls have equal access to all the science curriculum

## 16. Science Fun Day / Gardening/Wilderness Club

We offer these extra-curricular activities to enrich the Science Curriculum and promote pupils' enjoyment and understanding of methods and processes.

Gardening/Wilderness Club takes place in the outside areas throughout the year (weather permitting). Children are encouraged to grow, maintain and harvest a range of plants and crops. The Science Fun Day takes place on an annual basis and comprises of a range of favourite scientific activities and experiments. We also book external speakers to come in and work with the pupils i.e. Science Museum, Blue Fox Forest School, Discovery Centre, Zoo lab.

## 17. Science Garden/Wilderness Area

The Science garden/Wilderness areas are living resources used to reinforce learning in all areas of the Science Curriculum. Children are encouraged to safely explore and experience first-hand in a real life environment and take an active role in looking after the plants, wildlife and pond life existing in the areas.

All pupils receive one or two half terms' access to the Wilderness area (within the school ground) and participates in a range of activities using and discovering the natural environment. These activities have been planned by a member of staff who is a Forest School Practitioner Level 3 and delivered by a teacher and Scale 8 TA.

Both areas are used to promote pupils' learning in a relevant and purposeful way as well as enriching the Science Curriculum. All pupils gain valuable experiences of natural environments, developing a range of curriculum based and personal skills and learn important lessons about health & safety in the outside world.