

## **Whole School Science Plan**

### **Introduction**

All teachers were consulted in the formulation of this policy, their participation is noted and appreciated. We as a staff are dedicated to its operation and implementation. We believe this policy will aid and inform our teaching and provide a coherent approach to the teaching of science. (This plan is a reviewed version of the original which was created in Oct/Nov 2004, the date of this current plan is May 2007)

### **Rationale**

The rationale for our science plan is:

- To benefit teaching and learning in our school
- To provide a coherent approach to the teaching of science across the whole school
- In order to ensure that pupils are given adequate opportunities to develop skills and understanding of concepts as envisaged in the Primary School Curriculum

### **Vision**

Science in our school should encourage children to see science in the world around them and how it applies to everyday life. We want to science to inspire the children to be curious and to work scientifically in their quest for answers.

## **Aims**

We endorse the aims as set out in the curriculum (p 5) and we would like to add to them in the following ways.

- Science is for all students and teachers.
- Enjoyment and pleasure is essential.
- Maximum participation by all children is at heart of our science lessons.
- Development of skills and understanding is crucial.
- Activities equally suitable for boys and girls will be provided.

## **Methodologies**

We as a staff make full use of the different teaching methodologies and approaches as per the curriculum, with special emphasis on using our environment, active/guided/discovery learning and the spiral nature of the curriculum. This gives the teacher the flexibility to return to different topics and expand on them. We also use the children's own ideas/questions/knowledge as a starting point for our teaching.

All the teachers recognise the need for, and benefit of, paired and group work.

Practical investigations are carried out by all pupils and opportunities for free exploration and discovery of materials are provided.

Teachers also are aware of the numerous opportunities for linkage and integration with other subject areas.

It is at the teacher's discretion how best to timetable for Science, be it a block of hours per month or a weekly lesson.

### **Children with different needs**

The class teacher will make every effort to accommodate the child with different needs and will differentiate the curriculum to suit the child's needs, whether this is allowing for oral instead of written presentation or allowing for the use of I.C.T.

### **Equipment**

- All necessary equipment and resources are catalogued and located centrally and are easily accessible.
- It is the responsibility of the Science co-ordinator to replenish stocks should the need arise.
- There is Science software available also should teachers require it.

### **Homework**

- Homework can be given on occasion to reinforce a particular concept or investigation.
- It can take the form of a written summary of the lesson or pictorial representation. Alternatively, the teacher can choose homework that is appropriate to the skill level or ability of a particular student.

### **Assessment**

- Children will be encouraged to critique their own work and the work of others.
- Teacher observation shall be the main tool of assessment in this area, along with the student's own work. This can be kept in their folder or in their copy.
- The children will also be encouraged to present their work orally, using a variety of means, for example, concept maps or Powerpoint presentations.

Strands	Strand Units (Junior Infants)	Strand Units (Senior Infants)
Living Things	Myself Plants and Animals	Myself Plants and Animals
Energy & Forces	Light Sound Heat Magnetism and electricity Forces	Light Sound Heat Magnetism and electricity Forces
Materials	Materials and change Properties and characteristics of materials	Materials and change Properties and characteristics of materials
Environmental Awareness and Care	Caring for my locality	Caring for my locality
Design and Make	<b>Forces</b> Knex Lego Mobilio	<b>Forces</b> Knex Lego Mobilio Morphin

Strands	Strand Units (First Class)	Strand Units (Second Class)
Living Things	Myself	Plants and Animals
Energy & Forces	Light Sound	Magnetism and Electricity Forces Heat
Materials	Properties and Characteristics of Materials	Materials and Change
Environmental Awareness and Care	Caring for my locality	Caring for my locality
Design and Make	Sound box (shoebox with hole and elastic band)	House from various materials i.e. lollipop sticks.

Strands	Strand Units (Third Class)	Strand Units (Fourth Class)
Living Things	Human Life	Plants and Animals
Energy & Forces	Heat Forces Magnetism	Light Sound Electricity
Materials	Properties and Characteristics	Materials and Change
Environmental Awareness and Care	Environmental Awareness Caring for my locality	Environmental Awareness Science in the Environment
Design and Make	Bridge	Magnetic Car

<b>Strands</b>	<b>Strand Units (Fifth Class)</b>	<b>Strand Units (Sixth Class)</b>
<b>Living Things</b>	Plants and Animals	Myself
<b>Energy &amp; Forces</b>	Light Sound Heat	Electricity and Magnetism Forces
<b>Materials</b>	Materials and Change	Properties and Characteristics
<b>Environmental Awareness and Care</b>	Science and the environment	Caring for the environment Environmental awareness
<b>Design and Make</b>	Land Yacht/ rainbow spinner	Lighthouse/ electronic quiz

## Appendix 1

### Review of Science Plan

22/05/07

Science plan was reviewed using NCCA Review and Reflection Template for teachers on Friday 4<sup>th</sup> May 2007. This review is written by Michelle Finnerty (Science Co-Coordinator)

- The teachers found that the layout of the school science plan was helpful in their planning for the teaching of science in their classrooms.
- They also found that the store of books and resources, the science plan, guidelines and curriculum are workable resources that are easily sourced.
- With regard to **Living Things**, teachers stated that the greatest challenge to their teaching of this particular strand is **time and preparation involved in making it a meaningful experience** and we all agreed that Integration will aid us in tackling this barrier. We acknowledged that we are lucky in Newport to have access to a wide ranging choice of habitats, including hedgerow, wild area, river, woodland, seashore etc. Obviously this type of fieldwork is most suited to the spring/summer time and we will have more of chance to attempt this fieldwork in the coming weeks. I informed the staff that we have a significant amount of equipment for fieldwork. There is still the important issue of supervision and we will ask parents to aid us where needed.
- On the **Energy and Forces** strand, the teachers felt they provided opportunities to investigate the different strand units in energy and forces using everyday objects.

- There is a substantial store of everyday items available in the communal store/shelves dedicated to science beside Ms O' Malley's classroom upstairs.
- **Time** was recognised as the **greatest challenge** to the teaching of Energy and forces.
- Regarding **materials**, there is also a good store of various different types of materials and if not I can be informed and source any material needed, usually in the Resource Centre in Castlebar.
- Our success in retaining and gaining our **third Green Flag** shows our commitment to **Environmental Awareness and Care**, we do provide various learning opportunities like using various resources, interviewing/talking to various people in the local community, inviting people in to speak to different classes, for example, the gentleman who gave us a presentation on Greenland recently.
- We are satisfied that we are providing opportunities to all children to develop the **skills of working scientifically**
- We also provide opportunities to design and make different models and objects. This integrates nicely with our participation in the Knex challenges every year. We also recognise the importance of lego and knex in providing a foundation on which the children can build these skills. An example of design and make this year was 'design and make a lighthouse'.
- With regard to approaches and methodologies we agreed that we use the range of organisational settings depending on the topic.

- We found that **differentiating work for children's learning** depended again on the needs of certain classes and children and can range range from assigning different roles in groups i.e. writer, leader, drawer. We also recognised not everything has to be recorded in writing that graphs and pictures are acceptable again depending on the need.
- We all support the integration of science across the curriculum. An example of integrating the science curriculum has been using an English reading class to learn about Marie and Pierre Curie.
- We regularly use **different methodologies** like using hands-on experience, construction play, water play, looking at ICT, written activities, talking and discussing to name a few.
- We, as a staff, would love to use ICT in the classroom more but we recognise there are a number of challenges involved. For example if some pupils are doing ICT, the rest of the children in the room are usually being taught, so supervision of learning on the computer is restricted. A computer room would be ideal and we would aspire to having one in the future
- Finally, regarding assessment we would use various different methods for assessing children's knowledge in science, depending on the different topics. For example, labelled drawings, or drawings with fill in the gaps could be used for parts of the body, circulatory system, respiratory system. Projects are catered for with our participation in the Discover Primary Science programme.
- The information we gather about children's learning in science is very helpful for discovering hidden talents or interests of a child, for planning

subsequent lessons and in the context of the DPS programme the photos we take and the powerpoint presentations that are compiled are very helpful for the future of science in our school.

We involve parents in the following ways – when we ask the children to ask at home for various resources and materials, we involve the parents in science through the parent’s noticeboard and the science noticeboard. For example, we asked everyone including parents to watch out for their first sightings of swallows for Project Greenwave and entered the information on the website, we also record our scientific activities in the newsletter, on the website and in our press photos (when we win the DPS science awards).

The science curriculum is impacting on the children’s learning in the following ways – it gives the children hands-on experience of different activities, materials, resources, improves self-confidence and social interaction, enables them to see science in the everyday world through the use of everyday materials and it allows the children to enjoy themselves.

Our greatest success to date has been our Awards of Science Excellence for three years and hopefully four years in a row. Also our participation in the Knex challenges have been quite successful.

Our challenges are; time for preparation and organisation and supervision of our classes while we organise and prepare.

In the coming weeks and from the new school term in September 2007 we would like to prioritise: living things and lego mindstorms with a view to taking part in the Empowering Minds programme.

We would also like to continue our involvement in with Project Greenwave which asks children to track the start of spring by identifying and observing the horse chestnut, the ash, the whitethorn and the arrival of the swallow. Children can take photos and write down their observations and log this information on the website, which then compiles all the information online and illustrates a 'green wave' crossing Europe showing the change of season.

We have initiated the school garden plan, by visiting a local farm and observing how and where different plants like potatoes, onions, cabbage, strawberries, blackcurrants were set and why. We also received a visit and consultation from an environmentalist who advised us on the garden etc.

Finally we have prided ourselves on using local scientists in the community to aid us in our teaching. To that end, we have invited the True Physics Roadshow to our school in successive years to provide a rocket workshop and science demonstration show, as well as Mad Science from Galway, Paddy Madden from Kildare (and Marino College), local engineers for the K'nex challenges and local farmers for help with the school garden.