



**Whole School Plan  
for  
Science**

# Science

## ■ Title:

*Science Plan for Lucan Educate Together N.S.*

## ■ Introductory Statement and Rationale:

### (a) Introductory Statement

The whole school science plan for Lucan Educate Together N.S emanated from the collaborative discussion and decision making engaged in by our science working group, staff meetings and our experience of teaching science in the classroom. Our science programme involves helping children develop basic scientific ideas, knowledge and understanding which will enable them to explore and investigate all aspects of their world. Our whole school plan for science embraces STEM education initiatives outlined by the Department of Education and aims to create and foster a STEM rich environment in Lucan Educate Together N.S.

Science education enhances children's knowledge and understanding of themselves and the world in which they live. Scientific activity concerns the process rather than the product for children as scientists. Lucan Educate Together N.S encompasses a scientific approach to investigation through observation, questioning, predicting, testing, changing and confirming ideas. Children will be encouraged to draw conclusions based on scientific evidence after they have made critical reflections and evaluated their experience.

The promotion of curiosity and enjoyment are at the heart of the science curriculum. As an educate together school, we incorporate the fundamental principal of child-centredness in to the provision of our science programme. The ultimate rationale for science in Lucan Educate Together N.S is to create opportunity for our children to engage positively with science and continue to develop a further appreciation of the contribution of science, technology, engineering and maths in our environment and our society. Lucan Educate Together N.S is committed to participating in Science Week and the Discovery Primary Science and Maths Awards annually, and continuing to raise students' awareness of STEM activities and careers.

### (b) Rationale

- Provide an overview of the science programme throughout the school as well as providing a framework to facilitate more specific planning.
- Provide a coherent approach to the teaching of science and STEM education throughout the school.
- Benefit all staff members and provide a source of information for parents and other education partners in the school and community.

## ■ Aims:

### The aims of the science education plan are:

- To develop the knowledge and understanding of science and technology, the exploration of human, natural and physical aspects of their environment.
- To develop a scientific approach to problem solving
- To encourage child-led exploration, development and application of scientific ideas
- To foster children's natural curiosity about the world in which they live, thus encouraging independent and creative action
- To cultivate an appreciation and respect for diversity of living and non-living things
- To encourage children to act responsibly to protect and improve their environment
- To enable children to communicate ideas via projects and reports by using a variety of media
- To enable children to understand the meaning of STEM education and make informed choices about careers in STEM and related areas

## ■ Content of Plan:

### Skills Development:

#### *Working scientifically:*

- Questioning
- Observing
- Predicting
- Investigating and experimenting
- Estimating and measuring
- Analysing Sorting and classifying
- Recording and communicating

#### *Designing and making :*

- Exploring
- Planning
- Making
- Evaluating

The science skills above will be developed as work is completed on the strands and strand units of the curriculum outlined below.

### Curriculum:

#### *Strands*

#### **Living Things**

#### *Strand units*

- Myself
- Plants and animals

#### **Energy and Forces**

- Light
- Sound
- Heat
- Magnetism and electricity
- Forces

#### **Materials**

- Properties and characteristics of materials
- Materials and change

#### **Environmental Awareness and Care**

- Caring for my locality

*The four STEM disciplines are Science, Technology, Engineering and Mathematics and may be summarised as follows:*

- *Science enables us to develop our interest in, and understanding of, the living, material and physical world and develops the skills of collaboration, research, critical enquiry and experimentation*
- *Technology covers a range of fields which involve the application of knowledge, skills and computational thinking to extend human capabilities and to help satisfy human needs and wants, operating at the interface of science and society*
- *Engineering is about the design and creation of products and processes, drawing on scientific methods to provide the skills and knowledge to solve real-world problems*
- *Mathematics equips us with the skills needed to interpret and analyse information, simplify and solve problems, assess risk, make informed decisions and further understand the world around us through modelling both abstract and concrete problems*

## ■ Methodologies:

The staff will endeavour to use a selection of the following key methodologies depending on age and experience of the children.

- Talk and Discussion
- Questioning
- Active learning strategies
- Integrated Learning Through Play
- Guided and Discovery Learning
- Collaborative Learning
- Skills through Content
- Using the Environment
- Free Exploration of Materials
- Investigative Approach
- Teacher Directed Approach
- STEM Group Projects
- Use of ICT in STEM disciplines

### **Linkage and Integration:**

While science makes an important and distinctive contribution to development of the child, scientific education complements the growth of the child's learning in various other curricular areas. For example, the study of the Industrial Revolution in history, may be explored through the workings of a steam engine. Similarly, when looking at different types of houses in geography, the students may experiment with insulation and solar heat.

## ■ Assessment:

Assessment incorporates a range of formal and informal techniques which can assist in enriching the learning experience of the child:

- Measure and report on the child's progress
- Keep records of the children's work
- Show achievements throughout all aspects of the science curriculum and STEM disciplines
- Show understanding of scientific concepts
- Show competence in the application of experimental and investigative skills

### **Types of Assessment:**

- Teacher observation
- Questioning
- Self-assessment
- Teacher designed tasks
- Concept mapping
- Pupil portfolios

### **Students with Additional Educational Needs:**

As with all areas of the curriculum, science lessons need to be adapted and modified to suit those students with special educational needs. These adaptations may include the use of laptop computers or ipads, large or bold-print worksheets and texts, simplifying or pre-teaching the vocabulary for students with English as a second language or expanding the concepts for those students with exceptional abilities. The role and importance of SNA's cannot be overstated. Individual attention is especially important when carrying out science experiments and investigations within STEM disciplines, especially in the areas of health and safety.

### **Equality of Participation and Access:**

Equal opportunities are given to both boys and girls to participate in discussion and use of manipulatives. Equal access will be provided to services, facilities or amenities.

## ■ Organisation:

### **Timetable:**

Science is a component of SESE and as prescribed in National Curriculum Guidelines – SESE is allocated to be taught 3 hours per week. The teaching and learning of STEM disciplines may also be integrated across the curriculum.

### **School Environment:**

Lucan Educate Together N.S proudly participates in Science Week. Science features strongly during this week and maximum use is made of our surrounding area. The environment in and around LETS national school is diverse and varied. Included are: the school grounds itself, nearby Willsbrook Park and Griffeen Park, both within walking distance of the school. The range of habitats, therefore, is also diverse and varied. The school grounds include a small, open grassy field and borders with trees, hedges, a school garden, a composting area and a wood pile. The nearby parks have large open grassy fields, woods and streams. Many aspects of living and non-living things can be observed. Trees, hedges, grass and animals such as squirrels, tadpoles and birds as well as rocks, fencing, and building sites are close at hand to be observed and studied. Energy forces can also be noted. Sunlight, power lines and the school's heating plant can be easily explored. Individual and group resources are available for the students at LETS. LETS has a number of environmentally friendly activities. Recycling and a policy of energy efficiency (turning off lights, shutting down computer, etc.) are all part of an environmentally aware school. Lucan Educate Together N.S also participates in the Discovery Primary Science and Maths Awards and celebrated the success of their first STEM Plaque of Excellence in 2017.

### **Resources and Equipment:**

Lucan Educate Together N.S encourages the use of science equipment and teacher-made resources to compliment the curriculum. ICT may also be used to introduce topics and stimulate students learning, encouraging further discovery through research. The use of textbooks (Science All Around Us, Earthlinks and Small World Science) serve as a springboard for strand and strand units as set out by The Department of Education and Skills. A wide and varied supply of science equipment to support the delivery of the curriculum is available in the storeroom and will be updated and replenished regularly by the science working group. The school have invested in STEM project boxes to encourage collaboration and group work in STEM disciplines within the classroom.

### **Safety:**

Teachers will be aware of the safety implications when involved with practical/hands-on activities. Safety goggles/gloves will be provided when needed. Students will be reminded to wash their hands after practical hands-on activities.

### **Homework:**

Science homework aims to reflect and re-iterate work in class. If possible, it will include a practical element (involving investigation, discussion and problem solving where appropriate). Homework is given in accordance with the school homework policy. Students may also participate in STEM projects individually or as a group as part of their assigned homework.

### **Individual Teachers' Planning and Reporting:**

- A copy of the whole school plan will be available in all classrooms.
- Teachers will refer to this plan in their own long term and short term planning.
- When reviewing the whole school plan for science, cuntas miosúils will be used to ensure effective continuity throughout the school.

### **Staff Development:**

- Teachers will be encouraged to share current research, reference books, resource material, websites and associations when delivering the science curriculum.
- The science working group will take responsibility for monitoring developments and resources and obtaining materials.
- Monthly curriculum meetings provide opportunities for teachers across a two year band to meet and discuss the development and implementation of the science curriculum and STEM disciplines in the school.
- Staff will be encouraged to participate in the Discovery Primary Science and Maths Awards and submit evidence of students' learning in a range of STEM areas throughout the year.

### **Parental Involvement:**

It is part of our ethos to involve parents as much as possible. Parents are invited to volunteer their time to enhance the science curriculum. Information is shared with parents through school newsletters, school website, parent/teacher meetings and end of year reports. Parents from STEM disciplines will also be invited to speak with students in the school during Science Week. Parents will be invited to participate in STEM activities throughout the school year.

**Community Links:**

Links to the local community will be accessed as much as possible. Secondary schools, colleges and agencies are vital sources of information and can be asked to participate in the science curriculum and STEM disciplines. Members of the community involved or working in a STEM area will be invited to speak with students in the school on a regular basis.

**Implementation:****(a) Roles and Responsibilities:**

- The Board of Management will support the implementation of this policy by providing ongoing professional development and funding for resources.
- The principal will oversee the day to day implementation of the science plan in the classroom.
- The science post holder will provide information, materials, resource books and opportunities for sharing ideas on current practice.
- The class teacher will plan for and facilitate the child's learning and progress.
- The learning support team in conjunction with the class teacher will reiterate and support the child's learning.
- Where applicable the SNA will support the child according to guidance from the teacher.

**(b) Timeframe:**

- This plan will be implemented in September 2018.

**Review:****Roles and Responsibilities:**

It will be necessary to review this plan on a regular basis to ensure optimum implementation of the science curriculum in the school.

- The principal and the science working group in Lucan Educate Together N.S will be responsible for reviewing this plan.
- **Timeframe:**  
This plan will be reviewed in the academic year commencing September 2020.

**Ratification and Communication:**

- This plan will be ratified by the Board of Management in 2019.

Ratified By

\_\_\_\_\_  
Tina Stallard  
Chairperson

\_\_\_\_\_  
Date

For and on behalf of the Board of Management of Lucan Educate Together N.S.