



Belong To LGBTQ+
Youth Ireland

JUNIOR CYCLE SCIENCE



Rationale

Science is a collaborative and creative human endeavour arising from our desire to understand the world around us and the wider universe. Essentially, it is curiosity in thoughtful and deliberate action. Learning science through inquiry enables students to ask more questions, and to develop and evaluate explanations of events and phenomena they encounter.

The study of science enables students to build on their learning in primary school and to further develop their knowledge of and about science. Students enhance their scientific literacy by developing their ability to explain phenomena scientifically; their understanding of scientific inquiry; and their ability to interpret and analyse scientific evidence and data to draw appropriate conclusions.

Developing scientific literacy is important to social development. As part of this process, students develop the competence and confidence needed to meet the opportunities and challenges of senior cycle sciences, employment, further education and life. The wider benefits of scientific literacy are well established, including giving students the capacity to make contributions to political, social and cultural life as thoughtful and active citizens who appreciate the cultural and ethical values of science. This supports students to make informed decisions about many of the local, national and global challenges and opportunities they will be presented with as they live and work in a world increasingly shaped by scientists and their work.

Science is not just a tidy package of knowledge, nor is it a step-by-step approach to discovery. Nonetheless, science is able to promote the development of analytical thinking skills such as problem-solving,

reasoning, and decision-making. Learning science in junior cycle can afford students opportunities to build on their learning of primary science and to activate intuitive knowledge to generate, explore and refine solutions for solving problems. This may not always yield the expected result, but this, in turn, can be the focus for deeper learning and help the student to develop an understanding of risk and a realisation that different approaches can be adopted. As students develop their investigative skills, they will be encouraged to examine scientific evidence from their own experiments and draw justifiable conclusions based on the actual evidence. In reviewing and evaluating their own and others' scientific evidence and data, they will learn to identify limitations and improvements in their investigations. This collaborative approach will increase students' motivation and provide opportunities for working in groups and to develop the key skills of junior cycle.

In addition to its practical applications, learning science is a rewarding enterprise in its own right. Students' natural curiosity and wonder about the world around them can be nurtured and developed through experiencing the joy of scientific discovery. The development of this specification has been informed by the eight principles for junior cycle education that underpin the Framework for Junior Cycle, all of which have significance for the learning of science as promoted by this specification.

Aim

Science in junior cycle aims to develop students' evidence-based understanding of the natural world and their ability to gather and evaluate evidence: to consolidate and deepen their skills of working scientifically; to make them more self-aware as learners and become

competent and confident in their ability to use and apply science in their everyday lives.

More specifically it encourages all students:

- to develop a sense of enjoyment in the learning of science, leading to a lifelong interest in science
- to develop scientific literacy and apply this in cognitive, affective and psychomotor dimensions to the analysis of science issues relevant to society, the environment and sustainability
- to develop a scientific habit of mind and inquiry orientation through class, laboratory and/ or off-site activities that foster investigation, imagination, curiosity and creativity in solving engaging, relevant problems, and to improve their reasoning and decision-making abilities
- to develop the key skills of junior cycle to find, use, manage, synthesise, and evaluate data; to communicate scientific understanding and findings using a variety of media; and to justify ideas on the basis of evidence
- to acquire a body of scientific knowledge; to develop an understanding of Earth and space and their place in the physical, biological, and chemical world and to help establish a foundation for more advanced learning.

Structure

Junior cycle Home Science is organized into five strands. Strand One, the unifying strand, has four elements. Strands Two-Five, contextual strands, share the same four elements

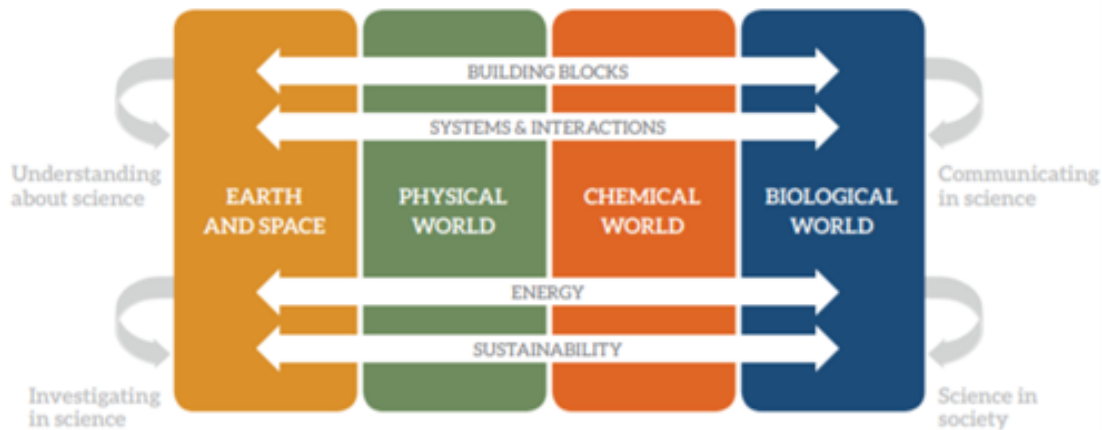


Figure 1: The elements of the contextual strands and the unifying strand in junior cycle Science

There is potential for teachers to include LGBTQ+ content and perspectives into their teaching and assessment of learning outcomes in junior cycle Science. Sample learning outcomes with scope for inclusion of LGBTQ+ content and perspectives include:

Strand One: The nature of science

ELEMENT: Communicating in Science

- 8. Evaluate media-based arguments concerning science and technology.

ELEMENT: Science in society

- 10. Appreciate the role of science in society; its personal, social and global importance; and how society influences scientific research.

Strand Five: Biological world

ELEMENT: Building blocks

- 2. Describe asexual and sexual reproduction; explore patterns in the inheritance and variation of genetically controlled characteristics

ELEMENT: Sustainability

- 9. Explain human sexual reproduction; discuss medical, ethical, and societal issues

Ideas for Teaching and Learning:

Facilitate your students to:

- Respond to questions and assignments that use language and examples that include LGBTQ+ people
- Engage with factual information about sexual orientation and gender in a non-emotional, non-judgemental way. For example, by talking about same-sex attraction as a natural fact in other species and drawing out examples of family diversity across species.
- Learn about LGBTQ+ scientists or figures in related disciplines (such as Francis Bacon or Louise Pearce) and highlight the contributions they have made to the field of science.
- Discuss how gender stereotyping can act as a barrier to participation in STEM subjects, and the negative impact this can have on LGBTQ+ people.



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Belong To is a national organisation supporting LGBTQ+ youth.

Since 2003, we have worked with LGBTQ+ young people across Ireland offering safety and support through our services. Let your students and youth groups know about Belong To and what supports are available for them including LGBTQ+ youth groups, crisis counselling with Pieta and digital support services.

For educators, we offer online training, support and initiatives such as the LGBTQ+ Quality Mark. For youth workers, we support a National Network of LGBTQ+ youth groups and run the Rainbow Award – an action-focused accreditation programme that supports a whole-organisation approach to safe and supportive services for LGBTQ+ youth.

Learn more at www.belongto.org



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