

# Science and Global Competencies

For the purposes of this backgrounder, the New Brunswick Global Competencies are defined as "sets of overarching attitudes, skills, and knowledge that can be interdependent, interdisciplinary and apply in a variety of contexts, both locally and globally. Students will need these competencies to reach their full potential and to face complex challenges now and in the future.

The New Brunswick Global Competencies are clearly expressed within the context of the current kindergarten to Grade 12 curriculum. See below for some examples.

## Critical Thinking and Problem Solving

Science learning environments should engage cognitive processes to understand and resolve problems situated in meaningful, real-world experiences. Learners:

- pose questions in the search of explanations of phenomena;
- seek answers to questions through experimentation and research;
- carry out a plan of action—gathering evidence by observation and manipulating materials and equipment;
- seek solutions to address scientific and technological needs of society through research and experimentation;
- evaluate solutions to technological problems or tasks; and,
- apply science process skills in a variety of contexts—connected to science, technology, society, and the environment (STSE).

## Innovation, Creativity, and Entrepreneurship

Science learning needs to take place in creative environments to connect inquiry to the discovery of new ideas or concepts, to generate novel approaches, innovative products, or processes, and to solve complex problems. Learners:

- focus and extend curiosities about the natural world;
- view science and technology as creative human endeavours that are comparable and complementary to other creative endeavours, such as the arts and literature;
- demonstrate the understanding of ethical issues related to the use of science and technology in local and global contexts; and,
- prepare for potential science-related careers or further other science-related interests.

## Self-Awareness and Self-Management

Science learning experiences should support student agency in the process of learning, to engage self-reflection and thinking about thinking (meta-cognition), to promote lifelong learning, and to transfer these lessons to an ever-changing world. Learners:

- develop a sense of interpersonal responsibilities, an openness to diversity, and a respect for multiple perspectives while engaging collaborative activity related to real-life problems;
- instill desire for lifelong learning and the refinement of their learning skills;
- acquire skills necessary to live and work in society that is shaped by science and technology;
- appreciate the role and contribution of science in their lives and demonstrate awareness of its limits and impacts;
- develop a continuing interest in the study of science;
- assess and manage potential dangers in science and technology contexts; and,
- develop a positive attitude toward safety.

## Collaboration

Science learning experiences should provide students with opportunities to participate in learning teams; face-to-face and virtual, to learn from and with others. Learners:

- develop a sense of interpersonal responsibilities, an openness to diversity, and a respect for multiple perspectives while engaging collaborative activity related to real-life problems;
- realize that cooperative efforts generally produce the quickest and most effective results for sharing of knowledge of skills; and,
- develop respect for multiple perspectives.

## Communication

Science learning environments should foster opportunities to communicate effectively in oral, written, and/or digital form through a variety of contexts to deepen and facilitate learning. Learners:

- present information clearly, logically and accurately for a variety of audiences;
- demonstrate understanding of scientific facts and relationships through words, numbers, images, symbols, graphs, and charts; and,
- reflect on and express their own ideas, learning and perceptions of scientific concepts and principles.

## Sustainability and Global Citizenship

Science learning opportunities should engage students in local and global concepts and initiatives, while demonstrating responsibility and ethical citizenship in real and virtual world settings. Learners:

- foster the kind of intelligent respect for nature that should inform decisions on the uses of scientific knowledge and technological developments;
- develop responsibility in the application of science and technology in relation to society and the natural environment;
- consider issues related to sustainability from local, regional, and global levels;
- examine the relationship between the biophysical environment and the behaviors needed to develop effective solutions to global problems; and,
- appreciate the role and contribution of science in their lives, and be aware of its limits and impacts.