

Science Curriculum

Science

What Is Science?

Science is the study of many interconnected disciplines, including physics, chemistry, biology, Earth science, astronomy, and computer science. Science is creative, collaborative, and dynamic; is based on experience and evidence; and employs objective methods for observing, collecting, and analyzing data. Scientific knowledge is developed, refined, and extended as new evidence is uncovered. The study of science allows students to nurture curiosity, ask and answer questions, explore scientific and technological concepts, and acquire knowledge and understanding of the world.

Science provides a reliable basis for decision making and is essential in developing innovative ideas and solutions. It includes the critical-thinking skills, scientific knowledge, and civic literacy required to respond to relevant personal, societal, and environmental issues. Students develop critical reasoning and scientific literacy through exploring science concepts and applying scientific methods. Scientific knowledge is enriched through the shared contributions of people from diverse cultures and perspectives. Science and technology are deeply interwoven in our daily lives. Together, they enable society to build and share knowledge, innovate, improve quality of life, and predict future events.

Scientific Methods and the Physical, Living, and Digital World

The Science curriculum engages students in active investigation to build scientific knowledge and develop critical-thinking and problem-solving skills. Students deepen knowledge and understanding through collaborative conversation, recording and analyzing data, and interpreting scientific texts, including diagrams, models, or digital simulations. Students will have opportunities to describe natural phenomena, create science projects, and evaluate information about science-related issues.

Students deepen their understanding of the physical world through investigating matter and energy. They develop understanding of properties of materials and the structure of matter, and they investigate movement, light and sound, forces, and energy resources.

Exploring interconnections between natural phenomena allows students to deepen their understandings of Earth systems, living systems, and space. Investigating these natural systems allows students to develop a deeper understanding of the natural world, consider the impact of their actions, and recognize the responsibility we share for environmental stewardship and sustainability.

Exploring Earth systems provides students with opportunities to investigate the surrounding environment, landforms, interdependent systems of Earth, climate, and climate change. In living systems, students investigate plants and animals from a variety of perspectives. Students will gain knowledge of various classification systems for organisms, investigate functions of external structures and internal biological systems, and begin to develop an understanding of ecosystems. Students will also investigate a variety of astronomical phenomena and components of the solar system.

The study of computer science allows students to apply creativity, design, and computational thinking and to develop scientific inquiry and problem-solving skills. Students will employ design processes in the creation of instructions, algorithms, and computational artifacts. They will also engage in coding activities and consider the impacts of computers, coding, and technology.

The study of scientific methods allows students to develop discipline-specific skills, such as investigation, collection of data, analysis of evidence, and development of hypotheses and scientific explanations. Students will have opportunities to integrate these skills into all other areas of the Science curriculum.

Student engagement in science can be enhanced by providing opportunities for active learning through experimentation, field experiences, and land-based approaches to science. Learning about Francophone, First Nations, Métis, Inuit, and worldwide contributions to science helps all students gain a better understanding of the diversity of the scientific community and the collaborative and dynamic nature of science.

The Science curriculum provides solid foundations in scientific methods and knowledge of the physical, living, and digital world. As students become scientifically literate, they learn to apply their knowledge, communicate their thoughts, and evaluate ideas to make informed decisions. Scientifically literate citizens are equipped to evaluate sources of information encountered in daily life. They responsibly pursue a wide variety of scientific and technological interests, studies, or career options in areas such as engineering and design, technology, medicine, manufacturing, agriculture, robotics, social sciences, and the space industry in ways that can continue to make life better.