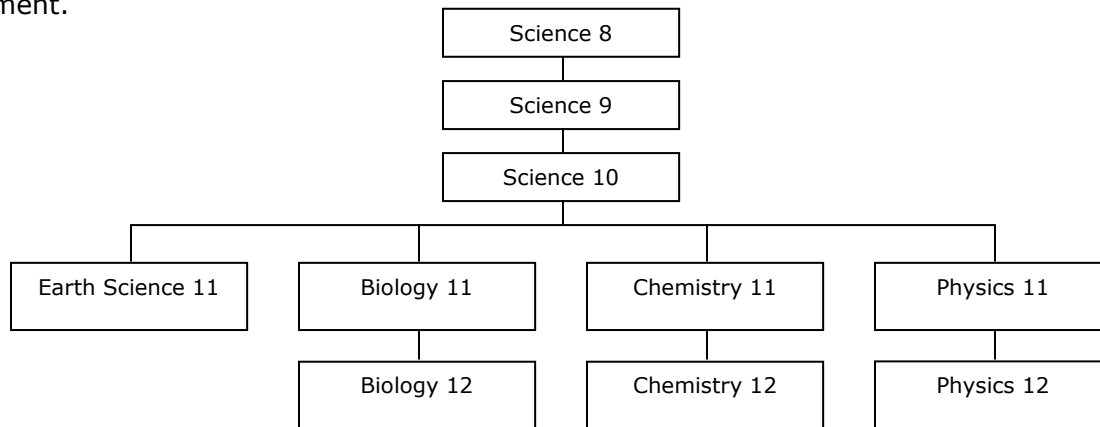


SCIENCE

Our laboratory-oriented Science courses give students the opportunity to perform suitable experiments for testing ideas, using the tools and techniques of science, interpreting observations and developing basic scientific principles. Junior science courses give each student a broad background of knowledge, which is useful in understanding the physical workings of this world. In Grades 11 and 12, the disciplines separate into biology, chemistry, physics, and earth science. These are generally intended for students who have a particular interest in the subject matter and/or require these courses for post-secondary enrolment.



Related Focus Areas: Health and Human Services, Science and Applied Science and Trades and Technology

COURSES

SCIENCE 9 (SC9)

Science 9 continues the study of Life Science, Physical Science, and Earth Science. Life Science focuses on cellular reproduction, principles of inheritance, and embryonic development. Physical Science describes modern atomic theory including atomic structure, chemical bonding, and radioactivity. In addition, students will study static and current electricity. In the Earth Science unit, students will study the major components and characteristics of the universe and the solar system.

SCIENCE 10 (SC10)

(Provincial Exam - Mandatory)

The Science 10 curriculum covers four broad areas of study that can be described with the headings: Biology, Chemistry, Physics, and Earth Science.

- The Biology section examines ecology and sustainability. Biotic and abiotic factors, energy flow, bioaccumulation are some of the concepts that will be studied.
- Chemistry examines different types of chemical bonding and atomic theory. In addition, this section covers acids, bases, salts, organic molecules, and the factors affecting chemical reactions. Atomic theory will also be used to explain radioactivity.
- Physics looks at the mathematical description of motion or kinematics. Students are also introduced to the concepts of vectors and scalars.
- In Earth Science students will investigate heat transfer in the atmosphere and how this relates to weather and climate. Plate tectonics will also be explained in terms of heat transfer.

Students in this course must write the provincial exam, worth 20% of their final grade (it is not optional).

SCIENCE - Biology 11 (BI11)

Centered on the study of the diversity of living organisms including microbes, plants, and animals, Biology 11 focuses on the common theme of adaptation and evolution. The course presents biology as an open and growing field of challenging problems awaiting solution and looks at the nature of scientific processes and methods of investigation. By the end of the course students will be aware of the great diversity of Earth's organisms and of their relationships to each other. *It is strongly recommended that students considering enrolling in Biology 11 have an overall Science 10 grade of C+ or better.*

SCIENCE

SCIENCE - Chemistry 11 (CH11)

Chemistry 11 introduces students to the quantitative aspects of chemistry. The mole concept is the central idea that students use throughout the course as they analyze experiments that test the percentage composition of compounds and the mole ratios in a chemical reaction. The course finishes with a descriptive examination of atomic orbitals, chemical bonding, and organic chemistry. *It is strongly recommended that students considering enrolling in Chemistry 11 have an overall Science 10 grade of C+ or better. A workbook is available for purchase (\$25).*

SCIENCE - Earth Science 11 (ESC11)

Earth Science 11 is a broad-based course that surveys a wide range of ideas. This course is divided into five major sections: Geological Science, Oceanography, Astronomy, Atmospheric Science, and Geologic Time. Many of these concepts have been introduced in junior science courses; however, Earth Science 11 will significantly extend these ideas.

SCIENCE - Physics 11 (PH11)

- Physics 11 covers the following topics:
- Kinematics: motion in one dimension, acceleration, velocity
- Vectors: addition and subtraction of vector quantities, problems in navigation
- Forces: gravity and friction, Newton's Laws
- Momentum: collisions between objects in one dimension only
- Special relativity and time dilation, length contraction
- Energy: work, kinetic energy, potential energy
- Waves: properties of waves in general are studied by analyzing water waves then applied to the study of light and sound

Physics 11 students will use equipment to discover the mathematical relationships between various physical measurable quantities. Students can then use those relationships to analyze physical situations and solve problems. *It is strongly recommended that students considering enrolling in Physics 11 have an overall Science 10 grade of C+ or better.*

SCIENCE - Biology 12 (BI12)

(Provincial Exam - Optional)

Biology 12, which is intended for students who have enjoyed and done well in Biology 11, focuses on human biology, fostering student interest in and understanding of science by looking at themselves (human body) and seeing the diversity of body systems. Laboratory skills are practiced in hypothetical and practical situations. The course will cover topics from cell structure and simple biochemical processes to the organ systems of the human body. Biology 12 has an optional provincial exam.

SCIENCE - Chemistry 12 (CH12)

(Provincial Exam - Optional)

Chemistry 12 examines the factors that influence reaction rates. These ideas are then carried over to the study of chemical equilibrium as it applies to the concepts of solubility, acids and bases, and electro chemistry. A large amount of lab work accompanies the chemical theory presented in the course. A workbook is available for purchase (\$25). Chemistry 12 has an optional provincial exam.

SCIENCE - Physics 12 (PH12)

(Provincial Exam - Optional)

Physics 12 is an extension of Physics 11 into the study of forces, ballistics, energy, satellite and planetary motion, electricity, and magnetism. The core section of the course includes vectors, analysis of structures, motion in two dimensions, satellites, charges, currents, and electromagnetism. Physics 12 has an optional provincial exam.

