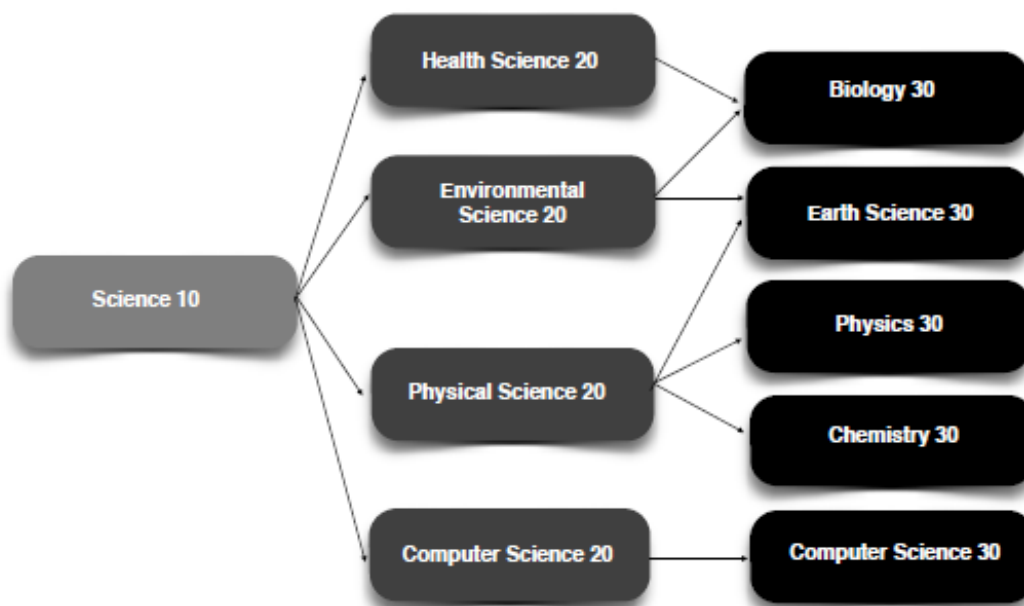


Grades 10-12 Science Courses and Pre-requisites



Saskatchewan High School Education Requirements
Science: Science 10 and one credit at the 20- (or 30-) level.

SCIENCE 10

Prerequisite – Science 09

The Grade 10 program provides students with the introductory knowledge and skills needed for Biology, Chemistry and Physics. Topics include ecology, chemical compounds, balancing formula equations, speed, acceleration and weather dynamics. There is some laboratory work which will aid in the development and understanding of the theory presented. The four units covered are: Sustainability of Ecosystems, Motion in Our World, Chemical Reactions, Weather Dynamics.

20-level Science Options

HEALTH SCIENCE 20

Pre-requisite - Science 10

This course will challenge students to look at the health science field from holistic and analytic perspectives to provide a basis for making sound personal health choices. Students will examine the range of philosophies that guide health care and consider ethical decision within those contexts. Understanding the basic anatomy and physiology of the human body will provide a context for studying the normal and abnormal functioning of various body systems, including the role of nutrition and metabolism. Lastly, students will examine diagnostic tools and procedures and how they are used to inform treatment.

ENVIRONMENTAL SCIENCE 20

Prerequisite – Science 10

Students will learn how to examine local and global environmental issues such as climate change, water, soil, and air quality, urbanization, bio resource management, waste handling and disposal, land-use planning, and the impacts of agriculture and industry on the environment from scientific and Indigenous knowledge perspectives. Students will examine the role of environmental policies and ethics on decision making. Student directed studies will lead to the development of environmental action plans.

PHYSICAL SCIENCE 20

Prerequisite – *Science 10*

This course combines chemistry and physics in an integrated manner to investigate concepts related to heating and cooling, the foundations of chemistry, including the mole and quantitative analysis of molecules and chemical reactions, and the characteristics and properties of waves. An overarching theme is the study of the enterprise of public and private science as it occurs in agriculture, industry, and universities. Student inquiry will guide independent investigations of physical science phenomena.

COMPUTER SCIENCE 20

Prerequisite – *Science 10*

Fundamental programming skills will be developed through the use of algorithms, and the programming language Visual BASIC 6.0. The units that are covered include: Introduction To Computers, History of Computers, and Visual Basic, Variables and Constants, and Introduction to Control Structures, Functions and Loop Structures, Procedures and Defined Functions.

30-Level Science Options

BIOLOGY 30

Prerequisite – *Health Science 20 or Environmental Science 20*

In Biology 30 students will gain experiences which allow them to see the connections between the external macroscopic world, and the microscopic world. The units include: Student Directed Study, Life and Evolution (principles, processes, and patterns of biological evolution), Organizations of Life (cell structure and processes, multicellular organisms, biological classification) and Genetics & Biotechnology (biological inheritance, genetic info at the cellular level, biotechnologies).

EARTH SCIENCE 30

Prerequisite – *Physical Science 20 or Environmental Science 20*

Students will examine our planet's geological origins and the geological timescale as a foundation to guide decision making with regard to the use of its mineral and energy resources, the maintenance and remediation of the environment, and response to geological hazards. Hands-on field experiences will enable students to develop visual-spatial reasoning skills and an understanding of the role of Geographic Information Systems.

PHYSICS 30

Prerequisite – *Physical Science 20*

Physics 30 is the study of introductory Newtonian mechanics, electricity, and nuclear physics. The units studied include: Student Directed Study, Modern Physics (quantum mechanics, radioactivity, nuclear technology), Forces and Motion (uniform motion, uniformly accelerated motion, circular motion, projectile motion), Conservation Laws (conservation of energy and conservation of momentum), and Fields (gravitational fields, electric and magnetic fields).

CHEMISTRY 30

Prerequisite – *Physical Science 20*

This course examines some advanced principles of physical chemistry. The units of study include: Student Directed Study, Chemical Bonding and Materials Science (valence electrons, chemical bond, intermolecular and intramolecular forces, nature and classification of organic compounds), Chemical Equilibria (chemical reactions and equilibrium), and Electrochemistry (oxidation and reduction reactions).

COMPUTER SCIENCE 30

Prerequisite – *Computer Science 20*

Computer Science 30 is an advanced course in programming. This course includes the study of a second programming language JAVA and advanced number theory. The units that are covered include: Review of Introduction to Computers, Fundamental Systems, Binary Number Systems, JAVA Language, Input/Output, Control Structures, Loop Structures, Classes and Objects, Methods, Arrays, Algorithms.