Science

Biology

Chemistry

Information Technology

Junior Science

Physics

Sustainable Resources

Why Take Science at NVSS?

- ✓ A grade 11 Science is a graduation requirement
- ✓ Many 21st century jobs require a solid grounding in the sciences
- ✓ Many university programs require grade 11 and 12 sciences as prerequisites for their programs, as do some trades programs.
- ✓ Because knowing how things work is cool!
- ✓ Because knowing why things work is even more cool!

Junior Science

The Junior Science offerings from grades 7 – 10 are mandatory courses. Each provides units that cover the range of science disciplines. Together they introduce students to the various scientific fields, and they prepare students for success in their senior science courses.

Senior Sciences

Biology

Biology 11 provides a general overview of the world of living things. It will include units on

- ➢ The effect of variation and selection on adaptation
- ➢ The life of microscopic organisms
- ➢ Plant groups and plant parts
- ➢ Animal groups and animal organs
- ➢ Ecology and populations

Students can expect class discussion, field trips, independent research, field studies, projects and experimental design.

Biology 12 involves a detailed study of human biology, examining how body systems work. This will include the study of anatomy, human development and inheritance, cell structure, physiology, and the biochemistry of the human body.

Chemistry

Chemistry 11 provides the basic knowledge and skills required for the further study of Chemistry. If your future involves a career in the sciences, health sciences, nursing, medicine, or in industrial processes and engineering, you should be taking Chemistry 11!

The topics covered will include

- ➢ The chemical nature of matter
- ➢ Atomic structure and molecular theory
- ➢ Stoichiometry
- ➢ Organic chemistry
- ➢ The periodic table
- ➢ Chemical reactions
- ➢ Solution chemistry

Laboratory experiments are a critical component of this course, providing hands-on learning and experience with chemistry methods.

Chemistry 12 develops the chemistry knowledge gained in Chemistry 11 and is designed for those who feel they might pursue a career where a deeper understanding of chemistry is valuable.

Chemistry 12 will provide in-depth study of four areas

- ➢ Kinetics and Equilibrium
- ➢ Acid-base Chemistry
- ➢ Solubility
- ➢ Oxidation and reduction

Laboratory experiments form an integral part of this course.

Physics

Physics 11 prepares students for the further study of Physics. Physics 11 is a prerequisite for most university programs in the sciences, including health sciences. Physics is also helpful in preparation for many trades training programs. Physics 11 covers topics such as

- ➢ Motion in 1 and 2 dimensions
- ➢ Vectors and vector analysis
- ➢ Newton's Laws of Motion and forces
- ➢ Work and simple machines
- ➢ Energy and energy transfer
- ➢ Hydraulic and pneumatic systems
- ➢ Electricity
- ➢ Heat and thermal energy

Laboratory experiments and practical lab projects are in integral part of this course.

Physics 12 continues many of the topics from Physics 11, developing those topics further. Physics 12 is essential for those who wish to pursue a career in engineering or physics., It is helpful for anyone

pursuing further science, many trades, or architecture as well.
Topics include

- ➢ Motion in two dimensions
- ➢ Vectors and vector analysis
- ➢ Momentum and conservation of momentum, in one and two dimensions
- ➢ Electricity and magnetism
- ➢ Energy and Energy Transformation

Lab work continues to be an integral part of Physics 12.

Sustainable Resources 11

This senior science course gives students and opportunity to learn about the Forestry, Agriculture, Mining, Fisheries, and Energy sectors of B.C.'s resource based economy. Students will be introduced to the background knowledge needed to understand each sector, and will also look at each sector in terms of the social, political, and economic impacts within our province. Students will also be introduced to potential careers within each sector.

Information Techology

Information Technology and computers have become one of the cornerstones of our 21st century world. Every graduate should have a solid understanding of common computer uses and applications. If we are to remain competitive in an information age, many of our graduates should also have a deep understanding of programming and networked systems. Information Technology courses count as Applied Skill courses in terms of graduation requirements (not as sciences).

Information Technology 10 introduces students to all of the commonly used applications used in the business world. It then introduces students to the world of computer programming with the Visual Basic programming language. By the course end, students will be programming simple animations and possibly simple games. This course is open to both grade 9 and 10 students.

Information Technology 11 is open to all students – IT 10 is not a prerequisite! In IT 11 students will develop their understanding of all of the common business programs – word processing, spreadsheets and databases. In addition, the large majority of the course will be spent developing programming skills using the Pascal programming language.

Information Technology 12 focuses entirely on programming. Students will spend term 1 programming in Pascal. By the end of term 1 all of the programming concepts common to a first year university course in programming will have been learned. In term 2, students will take their programming knowledge and use those concepts programming in C++, covering material similar to a first year university course in that language.

C++ Programming is a course that continues to develop a student's C++ programming skills beyond that taught in IT 12. Students contemplating this course will need the permission of the instructor. Typically students are contemplating a programming career.

Information technology 12: Directed Studies Is available to students who have completed IT12 with a high level of success. The content of this course is negotiable and may include learning to program using the Java programming language or learning to create standards based web sites using CSS as well as other web technologies. Students must be capable of self-directed learning to be considered for this course.