

Biology, Grade 12, University Preparation (SBI4U)

This course provides students with the opportunity for in-depth study of the concepts and processes that occur in biological systems. Students will study theory and conduct investigations in the areas of biochemistry, metabolic processes, molecular genetics, homeostasis, and population dynamics. Emphasis will be placed on the achievement of detailed knowledge and the refinement of skills needed for further study in various branches of the life sciences and related fields. Prerequisite: Biology, Grade 11, University Preparation *All schools but Alexander Henry. Also offered as part of the French Immersion Program at SJD.*

Chemistry, Grade 12, College Preparation (SCH4C)

This course enables students to develop an understanding of chemistry through the study of matter and qualitative analysis, organic chemistry, electrochemistry, chemical calculations, and chemistry as it relates to the quality of the environment. Students will use a variety of laboratory techniques, develop skills in data collection and scientific analysis, and communicate scientific information using appropriate terminology. Emphasis will be placed on the role of chemistry in daily life and the effects of technological applications and processes on society and the environment. Prerequisite: Science, Grade 10, Academic or Applied *Bawating, CASS, Chapleau, Elliot Lake, Korah, Michipicoten, SJD, WC Eaket and White Pines only*

Chemistry, Grade 12, University Preparation (SCH4U)

This course enables students to deepen their understanding of chemistry through the study of organic chemistry, the structure and properties of matter, energy changes and rates of reaction, equilibrium in chemical systems, and electrochemistry. Students will further develop their problem-solving and investigation skills as they investigate chemical processes, and will refine their ability to communicate scientific information. Emphasis will be placed on the importance of chemistry in everyday life and on evaluating the impact of chemical technology on the environment. Prerequisite: Chemistry, Grade 11, University Preparation *All schools but Alexander Henry and Hornepayne. Also offered as part of the French Immersion Program at SJD. Offered at alternate years in Hornepayne.*

Physics, Grade 12, University Preparation (SPH4U)

This course enables students to deepen their understanding of physics concepts and theories. Students will continue their exploration of energy transformations and the forces that affect motion, and will investigate electrical, gravitational, and magnetic fields and electromagnetic radiation. Students will also explore the wave nature of light, quantum mechanics, and special relativity. They will further develop their scientific investigation skills, learning, for example, how to analyse, qualitatively and quantitatively, data relating to a variety of physics concepts and principles. Students will also consider the impact of technological applications of physics on society and the environment. Prerequisite: Physics, Grade 11, University Preparation *Bawating, CASS, Chapleau, Elliot Lake, Hornepayne, Korah, Michipicoten, SJD, WC Eaket and White Pines only. Offered as part of the French Immersion Program at SJD.*

Physics, Grade 12, College Preparation (SPH4C)

This course develops students' understanding of the basic concepts of physics. Students will explore these concepts with respect to motion; mechanical, electrical, electromagnetic, energy transformation, hydraulic, and pneumatic systems; and the operation of commonly used tools and machines. They will develop their scientific investigation skills as they test laws of physics and solve both assigned problems and those emerging from their investigations. Students will also consider the impact of technological applications of physics on society and the environment. Prerequisite: Science, Grade 10, Academic or Applied *CASS, Chapleau, Elliot Lake, Korah, Michipicoten, SJD, WC Eaket, and White Pines only*