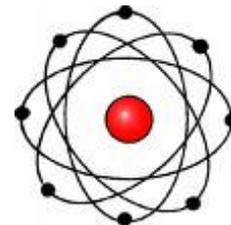


Science

SCIMATICS 8 (Science and Mathematics cohort)

Scimatics 8 is a linear course (September–June) with the objective of developing effective work habit strategies, scientific experimentation methods and problem solving skills. Math topics focus on algebra, geometry, graphing, fractions and integers. Science components focus on cells, body systems, optics, fluids and dynamics, and earth's water systems.



DISCOVERY SCIMATICS 8 HONOURS (Science and Math Honours)

Admittance to Alpha's Discovery program is based on a pre-assessment from both the student's elementary teacher and a written test administered at Alpha (usually in the spring of the student's Grade 7 year). The course is an accelerated linear course (September–June) covering Science 8, Science 9 and Math 8 curriculum. This course is designed for students who are interested in and capable of pursuing a more challenging course load at an accelerated pace. The science curriculum will include enrichment with specialized field trips and presentation of a Science Fair project.

SCIENCE 9

Science 9 curriculum focuses on Life Science: cell growth and reproduction; Physical Science: properties of matter, atomic theory, chemical naming and chemical formulas; Physics: static and current electricity; Space Exploration: solar system and exploration of the universe.

SCIENCE 9 HONOURS

Students in Science 9 Honours are integrated with the regular Science 9 class. The curriculum is the same as the Science 9 with the addition of independent research topic(s) of interest through further scientific study. Students will consult with their teacher and discuss an individual plan to enrich their own learning. After successful completion of the criteria, students may be eligible to receive Honours designation on their report cards. Success in Honours means completing requirements independently, meeting deadlines, and checking in regularly with their teacher.

SCIENCE 10

Science 10 has four major units: Ecology: biomes, energy flow, nutrient cycles and ecosystems; Physical Science: atomic theory, chemical reactions and radioactivity; Physics: velocity acceleration, direction and positioning; and Energy Transfer: earth's atmosphere, climate change, and plate tectonics. *This course has a compulsory provincial exam that is worth 20% of the mark.*

SCIENCE 10 HONOURS

The Science 10 Honours course follows the curricular areas of Science 10 but topics will be covered in more depth. This course is to prepare students for the senior level Advanced Placement courses (Biology, Chemistry and Physics) with extra lab work and enrichment in materials of the regular course. *This course has a compulsory provincial exam that is worth 20% of the mark.*

SCIENCE & TECHNOLOGY 11

This course allows the students to explore science and its application through technology. Students will study the following topics through a "hands-on" approach: human biology, genetics, forensic science, energy resources and computer technology. Lastly, students will be presented with challenges and using their own problem-solving skills, will have to rise to meet the challenges.

EARTH SCIENCE 11

This is a survey course that explores the Earth and its environment in space through lab and field experiences. Earth science topics include rocks and minerals, plate tectonics, volcanoes, earthquakes, ocean and weather sciences, and oil, gas and mineral exploration. Space science topics include planets and the solar system, stars, galaxies, and deep space objects such as quasars and black holes.

BIOLOGY 11

Biology 11 is designed to introduce students to the diverse adaptations and ecological relationships in a variety of living organisms. This course covers microbiology, mycology (fungus), plant biology, animal biology and ecology with themes of evolutionary change throughout the course. *This is highly recommended for Biology 12.*

BIOLOGY 11 HONOURS (pre-AP)

This program is designed to cover both semesters so students must apply for both courses. The two courses cover the objectives of Biology 11 and 12 as well as additional material for Advanced Placement. The AP Biology course is designed to be the equivalent of a college introductory biology course and is open to any students who are prepared to do extensive inquiry based research and labs. More than 25% of the course is practical laboratory work. *Upon completion, students will receive a total of 12 credits. The AP Biology exam is written in May.*

CHEMISTRY 11

Chemistry 11 includes the study atoms, molecules, chemical reactions, solution chemistry and organic chemistry. These concepts are reinforced through laboratory work. *This is a prerequisite for Chemistry 12. A strong background in Mathematics would also be beneficial.*

CHEMISTRY 11 HONOURS (pre-AP)

This program is designed to cover both semesters so students must apply for both courses. The two courses cover the objectives of Chemistry 11 and 12 as well as additional material for Advanced Placement. The AP Chemistry course is designed to be the equivalent of a college introductory chemistry course. College Board guidelines are followed in the design of the course. Many topics in Chemistry 11 and 12 are covered in more detail than in the regular course. In addition, topics such as thermodynamics and thermo-chemistry are studied. *Upon completion, students will receive a total of 12 credits. The AP Chemistry exam will be written in May.*

PHYSICS 11

Welcome to the world of Galileo, Isaac Newton and Albert Einstein! These giants of physics teach us how to see the invisible forces and energies that govern movement of cars and spaceships alike. This course includes the study of motion, forces, momentum and energy, the properties of mirrors, lenses, waves and light, as well as nuclear power and Einstein's special theory of relativity. Math is our language. *A "B" in Math 10 is highly recommended. This is a prerequisite for Physics 12.*

PHYSICS 11 HONOURS (pre-AP)

This is a first-semester college/university level course that is mathematically rigorous, requiring problem-solving at a Physics 12 level. The course is faster-paced than Physics 11 and individual study of 1 to 2 hours daily will be necessary to successfully complete the requirements. Students will be accepted on the recommendation of their teachers and an application process. The course is also suitable for grade 12's who only need one physics course. *Excellent work habits and an "A" in Math 11 is highly recommended. This is a prerequisite for Physics 12. The AP Physics 1 exam will be written in May.*

BIOLOGY 12

Biology 12 encompasses two major topics of study: Cellular Biology: cell structure/function, biological molecules DNA, protein synthesis and enzymes; and Human Anatomy and Physiology: digestive, circulatory, respiratory, nervous, endocrine, excretory and reproductive systems. *Biology 11 is a highly recommended prerequisite.*

CHEMISTRY 12

Chemistry 12 builds on concepts covered in Chemistry 11 and emphasizes the interaction of atoms, molecules, and ions. The course covers the study of reaction kinetics, chemical equilibrium, and oxidation-reduction. The concepts are reinforced through laboratory work. Through this investigation, students will gain an increased understanding of the importance of chemistry in the modern world. *Chemistry 11 is a prerequisite for this course. A strong background in Mathematics would also be beneficial.*

CHEMISTRY 11 HONOURS and AP CHEMISTRY 12

This program is designed to cover both semesters so students must apply for both courses. The two courses cover the objectives of Chemistry 11 and 12 as well as additional material for Advanced Placement. The AP Chemistry course is designed to be the equivalent of a college introductory chemistry course. College Board guidelines are followed in the design of the course. Many topics in Chemistry 11 and 12 are covered in more detail than in the regular course. In addition, topics such as thermodynamics and thermo chemistry are studied. *Upon completion, students will receive a total of 12 credits. The AP Chemistry exam will be written in May.*

PHYSICS 12

Physics 12 is the study of classical mechanics and electromagnetism. Topics are similar to Physics 11 with the addition of projectile and circular motion and torque, electricity and electromagnetism. Are you up for a challenge? Problem-solving is mathematically much more rigorous than in Physics 11, and takes much more time every night to get the same good grades. *A "B+" in Physics 11 and Math 11 is highly recommended.*

PHYSICS 11H/ AP PHYSICS 1

This is a first-semester college/university level course that is mathematically rigorous, requiring problem-solving at a Physics 12 level. The course is faster-paced than Physics 11 and individual study of 1 to 2 hours daily will be necessary to successfully complete the requirements. Students will be accepted on the recommendation of their teachers and an application process. The course is also suitable for grade 12's who only need one physics course. *Excellent work habits and an "A" in Math 11 is highly recommended. This is a prerequisite for Physics 12. The AP Physics 1 exam will be written in May.*

AP ENVIRONMENTAL SCIENCE 12

The AP Environmental Science course is designed to be the equivalent of a one semester introductory college course in environmental science. Topics include earth systems and resources, the living world, population, land and water use, energy resources and consumption, pollution and global change. *Completion of Chemistry 11 and Biology 11 is highly recommended.*