COURSES 2026-2027

The following has been offered in the past at Queen Elizabeth Continuing Education or is currently being offered.
Notes:

- All courses may not be offered every semester
- Courses must have a minimum enrolment to run
- Graduated adults (GA) cannot enroll in all courses
    - "GA available" will be added to the description of the courses that graduated adults can enroll in

Departments

ADST (Applied Design, Skills, and Technologies)

- Accounting 11
- Automotive Technology 11&12
- Business Computer Applications 12
- Culinary Arts 11&12
- Emergency Medical Responder 12, A&B
- Work Experience 12, A&B
- YELL (Entrepreneurship 12)

Arts Education

- Art Studio 12

English Language Arts

- Foundations English, Level 7 - GA available
  (This course is for adults or for high school students as an English 11 prep course.)
- Literary Studies 11 - GA available
- English First Peoples 12 - GA available
- English Studies 12 - GA available

Mathematics

- Foundations Math, Level 7 - GA available
  (This course is for adults or for high school students as a Math 11 prep course.)
- Foundations of Mathematics 11- GA available
- Pre-Calculus 11- GA available
- Workplace Mathematics 11- GA available
- Foundations of Mathematics 12- GA available
- Pre-Calculus 12- GA available
- Calculus 12- GA available

Physical and Health Education

- Active Living 12

Science

- Chemistry 11- GA available
- Life Sciences 11 (Biology 11) - GA available
- Physics 11- GA available
- Science for Citizens 11- GA available
- Anatomy & Physiology 12 (Biology 12) - GA available
- Chemistry 12- GA available
- Physics 12- GA available
- Specialized Science 12- GA available

Social Studies

- Explorations of Social Studies 11
- BC First Peoples 12
- Law Studies 12
- Philosophy 12 – interdisciplinary studies course with English Studies 12
- Social Justice 12 – interdisciplinary studies course with English Studies 12

ACTIVE LIVING 12

Active Living 12 aims to empower students to develop a personalized understanding of what healthy living means to them as individuals and members of society in the 21st century. The Active Living 12 curriculum focuses on well-being—the connections between physical, intellectual, mental, and social health.

Students are expected to know the following:

- the role of nutrition and how it can affect health and performance
- potential short- and long-term consequences of health decisions
- the benefits of physical activities for health and mental well-being
- physical activity safety and etiquette

- injury prevention and management
- proper physical movement patterns
- ways to monitor and adjust physical exertion levels
- rules and guidelines for different types of sports and activities
- recreational resources available in the community

The "Big Ideas" of the course include: (i) physical activity is an important part of overall health and well-being; (ii) finding enjoyable recreational activities can motivate people to participate more regularly in physical activity; (iii) safety and injury prevention practices allow lifelong participation in physical activities.

- Textbook Deposit: TBD

ANATOMY and PHYSIOLOGY 12

GA available

Anatomy and Physiology 12 is an academic science course that is weighted towards cell and human biology systems. Having taken Chemistry 11 and Biology 11 will be assets in this course. Topics include cell structures, transport, DNA, protein synthesis, enzymes, human digestive, circulatory, heart, respiratory, nervous, urinary, and reproductive systems.

Students are expected to know the following:

- biological molecules
- metabolism and enzymes
- feedback loops and regulation of the body's internal environment
- transport across a cell membrane
- DNA: the cell's genetic information; replication
- gene expression
- proteins and their relationship to the structure and function of cells
- genomics and biotechnology
- micro to macro-organization
- organ systems: structure and function; structural and functional interdependence; maintenance of homeostasis
- lifestyle differences and the effects on human health
- holistic approach to health
- disease as an imbalance in homeostasis

The "Big Ideas" of the course include: (i) homeostasis is maintained through physiological processes; (ii) gene expression, through protein synthesis, is an interaction between genes and the environment; (iii) organ systems have complex interrelationships to maintain homeostasis

- Textbook Deposit: $100

ART STUDIO 12

Students will work within a school art studio, with the course being a hands-on curriculum. In Art Studio 12, students explore concepts and methods that extend methods in drawing & painting, sculpture, printmaking, design, collage, and ceramics. The projects challenge students to create authentic images and work toward a personal style of expression. It offers senior students an enjoyable artistic opportunity within the schedule of an academic load. There is also an emphasis on a deeper understanding of the creative process, on art history, on preparing an art portfolio for post-secondary application, and preparing Art for public display.

Students are expected to know the following:

- elements of visual art
- principles of design
- image development strategies
- materials, techniques, and technologies
- creative processes
- symbols and metaphors
- roles of and relationships between artist and audience in a variety of contexts
- influences of visual culture in social and other media
- traditional and contemporary First Peoples worldviews, stories, and history, as expressed through visual arts
- history or a variety of artistic movements, including their roles in historical and contemporary societies
- moral rights and the ethics of cultural appropriation and plagiarism
- health and safety protocols and procedures

The "Big Ideas" that frame this course are: (a) an artist's intention transforms materials into art; (b) visual arts are an essential element f culture and personal identity; (c) refining artistic expression requires perseverance, resilience, and risk taking; (d) purposeful artistic choices enhance the depth and meaning of artistic work; and (e) aesthetic experiences have the power to transform our perspective.

- Materials Fee: TBD

AUTOMOTIVE TECHNOLOGY 11

This course develops knowledge of automotive mechanics, including hybrid power configuration and modern electronic control systems. Topics include safety, common maintenance procedures, OBD diagnostics, engine and power train, front-end steering, and brakes.

Students are expected to know the following:

- simple automotive repair and maintenance
- social, legal, and ethical responsibilities associated with vehicle operation
- use of technical information and manuals for the purpose of diagnostics and repair
- fundamental automotive tools and equipment
- lifting equipment and procedures
- chassis and body

- engine diagnostic support systems
- emerging and alternative energy sources used to power automotive vehicles
- fundamentals of engine operation
- vehicle systems
- vehicle safety systems
- design for the life cycle

The "Big Ideas" for this course include: (i) vehicle operation, service, and maintenance include consideration of social and environmental impacts; (ii) personal service and maintenance interests require the evaluation and refinement of skills; and (iii) tools and technologies can be adapted for specific purposes.

- Textbook Deposit: $200

AUTOMOTIVE TECHNOLOGY 12

This course covers operation and overhaul of automotive driveline, power train, fuel, cooling, and electrical systems.

Students are expected to know the following:

- complex automotive repair and maintenance
- vehicle inspection standards
- advanced automotive tools and equipment
- engine and vehicle modifications
- vehicle diagnostic and assessment methods
- transmission and gearing functions
- electrical and control systems
- mechanical systems
- fuel systems
- serviceability, overhaul, and repair
- design for the life cycle
- career options and opportunities in automotive technology
- interpersonal skills for interacting with clients and customers

The "Big Ideas" for this course include: (i) vehicle operation, service, and maintenance include consideration of social and environmental impacts; (ii) personal service and maintenance interests require the evaluation and refinement of skills; (iii) tools and technologies can be adapted for specific purposes.

- Textbook Deposit: $200

BC FIRST PEOPLES 12

BC First Peoples 12 explores the cultural expressions to convey the richness, diversity, and resiliency of B.C. First Peoples. Topics include the impact of contact and colonialism continues to affect the political, social, and economic lives of B.C. First Peoples; B.C. First Peoples challenge and resistance to Canada's ongoing colonialism

and how the identities, world views and languages if BC First Peoples are renewed, sustained, and transformed through their connection to the land.

Students are expected to know the following:

- the traditional territories of the B.C. First Nations and relationships with the land
- role of the oral tradition for B.C. First Peoples
- the impact of historical exchanges of ideas, practices, and materials among local B.C. First Peoples and with non-indigenous peoples
- provincial and federal government policies and practices that have affected, and continue to affect, the responses of B.C. First Peoples to colonialism
- resistance of B.C. First Peoples to colonialism
- the role and significance of media in challenging and supporting the continuity of culture, language, and self-determination of B.C. First Peoples
- the commonalities and differences between governance systems of traditional and contemporary B.C. First Peoples
- contemporary challenges facing B.C. First Peoples, including legacies of colonialism

The "Big Ideas" for this course include: (i) the identities, worldviews, and languages of B.C. First Peoples are renewed, sustain, and transformed through their connections to the land; (ii) the impact of contact and colonialism continues to affect the political social, and economic lives of B.C. First Peoples; (iii) cultural expressions convey the richness, diversity, and resiliency of B.C. First Peoples; (iv) through self-governance, leadership, and self determination, B.C. First Peoples challenge and resist Canda's ongoing colonialism.

- Textbook Deposit: $50 for 2 novels

CALCULUS 12

Calculus 12 is designed for students who have a particular interest in mathematics, or who have career aspirations in the fields of Engineering, Medicine, Mathematics, Sciences, Economics, and some Business Ed programs. Topics include limits, derivatives, application of derivatives, optimization, related rates, integrals, applications of integrals. Students who plan on registering in a university or college Calculus course are strongly recommended to take this course.

Students are expected to know the following:

- functions and graphs
- limits: left and right limits; limits to infinity; continuity
- differentiation: rate of change; differentiation rules; higher order, implicit; application (differentiation)
- integration: approximations; fundamental theorem of calculus; methods of integration; applications (integration)

The "Big Ideas" for this course include: (i) the concept of a limit is foundational to calculus; (ii) differential calculus develops the concept of instantaneous rate of change; (iii) integral calculus develops the concept of determining a product involving a continuously changing quantity over an interval; (iv) derivatives and integrals are inversely related.

- Recommended preparatory course: 73% in Math 12 Pre-Calculus within the past 5 years
- Textbook Deposit: $100

CHEMISTRY 11

GA available

Chemistry 11 offers students an opportunity to learn important chemical concepts and principles. Topics include safety, scientific method, physical properties, and physical changes of substances, inorganic nomenclature, the mole concept, chemical reactions, stoichiometry, atoms, and the period chart of elements, solution chemistry, and organic chemistry.

Students are expected to know the following:

- quantum mechanical model and electron configuration
- valence electrons and Lewis structures
- chemical bonding based on electronegativity
- bonds/forces
- organic compounds
- applications of organic chemistry
- the mole
- dimensional analysis
- reactions
- stoichiometric calculations using significant figures
- local and other chemical processes
- green chemistry
- solubility of molecular and ionic compounds
- analysis techniques

The "Big Ideas" for this course include: (i) atoms and molecules are building blocks for matter; (ii) organic chemistry and its applications have significant implications for human health, society, and the environment; (iii) the mole is a quantity used to make atoms and molecules measurable; (iv) matter and energy are conserved in chemical reactions; (v) solubility within a solution is determined by the nature of the solute and solvent.

- Recommended preparatory course: Math 10 (Foundations and Pre-Calculus), Science 10, English 10
- Textbook Deposit: $ 100

CHEMISTRY 12

GA available

This is a problem-centered course involving advanced concepts in Chemistry. Topics include reaction kinetics, equilibrium solubility of ionic substances, acids, bases and salts; oxidation and reduction; electrochemistry.

Students are expected to know the following:

- reaction rate
- collision theory
- energy change during a chemical reaction
- reaction mechanism
- catalysts

- dynamic nature of chemical equilibrium
- Le Chatelier's principle and equilibrium shift
- equilibrium constant (Keq)
- saturated solutions and solubility product (Ksp)
- relative strength of acids and bases in solution
- water as an equilibrium system
- weak acids and weak bases
- titration
- hydrolysis of ions in salt solutions
- applications of acid-base reactions
- the oxidation-reduction process
- electrochemical cells
- electrolytic cells
- quantitative relationships

The "Big Ideas" for this course include: (i) reactants must collide to react, and the reaction rate is dependent on the surrounding conditions; (ii)dynamic equilibrium can be shifted by changes to the surrounding conditions; (iii) saturated solutions are systems in equilibrium; (iv) acid or base strength depends on the degree of ion dissociation; (v) oxidation and reduction are complementary processes that involve the gain or loss of electrons.

- Recommended preparatory course: Chemistry 11, English 10
- Textbook Deposit: $ 100

CULINARY ARTS 11

This course is intended for students interested in the preparation of all types of food for small to large groups. Students learn in a large commercial kitchen and are trained to use industrial equipment. Students prepare menus following recipes and techniques demonstrated by the Teacher Chef. The course includes Food Safe Level 1 certification. This course provides 4 credits towards Applied Skills or Fine Arts 11/12. Topics include safety and sanitation, tools and equipment, measurement, menu planning, cooking methods; stocks, sauces, soups, meat preparation, poultry preparation, fish and shellfish, salads and dressings; vegetables; starches, sandwiches, hors d'oeuvres; baking, desserts.

Students are expected to know the following:

- culinary best practices
- principles of cooking methodology
- diverse cuisine, and the ethics of cultural appropriation
- artistic elements of the culinary arts
- identification and selection of suitable culinary ingredients for a specific recipe and/or cooking method
- anatomy and predations of meat, poultry, and seafood
- dietary restrictions and food allergies, and strategies to address them
- safety in the teaching kitchen, including the nature of pathogens associated with food borne illness and prevention strategies
- operational procedures for kitchen tools and equipment
- literacy related to culinary recipes and procedures, including conversions
- B.C. agricultural practices

- ethical, social, and environmental considerations related to commercial waste management and recycling

The "Big Ideas" for this course include: (i) service and creativity inform the culinary arts; (ii) cuisine design interests require the evaluation and refinement of culinary principles and practices; (iii) tools and technologies can be adapted for specific purposes.

- Recommended preparatory course: English 10 or assessment.
- Food supply fee: $75 (payable at time of registration – Non-refundable)

CULINARY ARTS 12

This course is intended for students interested in the preparation of all types of food for small to large groups. Students learn in a large commercial kitchen and are trained to use industrial equipment. Students prepare menus following recipes and techniques demonstrated by the Teacher Chef. The course includes Food Safe Level 1 certification. This course provides 4 credits towards Applied Skills or Fine Arts 11/12. Topics include safety and sanitation, tools and equipment, measurement, menu planning, cooking methods; stocks, sauces, soups, meat preparation, poultry preparation, fish and shellfish, salads and dressings; vegetables; starches, sandwiches, hors d'oeuvres; baking, desserts.

Students are expected to know the following:

- culinary best practices
- menu design, including recipe factoring, ratios, and costing
- diverse cuisine and cooking methodologies, including ethnic, multicultural, and Frist Peoples
- artistic elements of the culinary arts
- ethics of cultural appropriation
- appropriate selection of primary and secondary cuts of meat and poultry
- characteristics and properties of culinary ingredients
- methods and principles for seasoning and presentation
- substitutions to facilitate dietary restrictions and food allergies
- safety in the professional kitchen, including the responsibilities of food service operators
- advancements in culinary tools
- social, economic, and environmental effects of food procurement decisions
- career opportunities in the culinary arts industry
- social perceptions of chefs, culinary enthusiasts, and food trends

The "Big Ideas" for this course include: (i) service and creativity inform the culinary arts; (ii) cuisine design interests require the evaluation and refinement of culinary principles and practices; (iii) tools and technologies can be adapted for specific purposes.

- Recommended preparatory course: English 10 or assessment.
- Food supply fee: $75 (payable at time of registration – Non-refundable)

ENGLISH FIRST PEOPLES 12

GA Available

The First Peoples Principles of Learning have been affirmed within First Peoples societies to guide the teaching and learning of provincial curricula. Because these principles of learning represent an attempt to identify common elements in the varied teaching and learning approaches that prevail within First Peoples societies, it must be recognized that they do not capture the full reality of the approach used in any single First Peoples society. First Peoples Principles of Learning greatly influence the English Language Arts curriculum and are woven throughout. They lend themselves well to language learning, as they promote experiential and reflexive learning, as well as self-advocacy and personal responsibility in students. They help create classroom experiences based on the concepts of community, shared learning, and trust, all of which are vital to language acquisition.

Students are expected to know the following:

- a wide variety of BC, Canadian, and global First Peoples texts
- a wide variety of text forms and genres
- common themes in First Peoples literature
- reconciliation in Canada
- First Peoples oral traditions—the legal status of First Peoples oral traditions in Canada; purposes of oral texts; the relationship between oral traditions and land/place
- protocols—protocols related to ownership and used of First Peoples oral texts; acknowledgement of territory
- situating oneself in relation to others and place
- processes related to protocols and expectations when engaging with First nations communities and Aboriginal organizations
- text features and processes—reading strategies, oral language strategies, metacognitive strategies writing processes, presentation techniques
- language features, structures, and conventions—features of oral language, elements of style, language change, syntax and sentence fluency, rhetorical devices, usage and conventions, literary elements and devices, literal and inferential meaning, persuasive techniques, citations and acknowledgements

The "Big Ideas" for this course include: (i) the exploration of text and story deepens our understanding of diverse, complex ideas about identity, others, and the world; (ii) oral and other texts are socially, culturally, geographically, and historically constructed; (iii) voice is a powerful and evocative; (iv) First Peoples texts and stories provide insight into key aspects of Canada's past, present, and future; (v) self-representation through authentic First Peoples texts is a means to foster justice; (vi) First Peoples voices and texts play a role within the process of Reconciliation.

- Recommended preparatory course: Literary Studies 11 or assessment.
- Textbook Deposit: $30 – $100 (teacher dependent)

ENGLISH STUDIES 12

GA Available

The required English Studies 12 course builds on and extends students' previous learning experiences in English Language Arts and English First Peoples 10 and 11 courses.

The course is designed for all students and provides them with opportunities to know:

- text forms and genres
- appropriation and reclamation of voice
- the evolution of language
- text features and structures—form, function, and genre of texts; features and structures of First Peoples texts; narrative structures found in First Peoples texts; protocols related to the ownership of First Peoples oral texts
- strategies and processes—multimodal writing strategies; metacognitive strategies; writing processes; reading strategies; oral language strategies
- language features, structures, and conventions—elements of style; usage and conventions; citation techniques; literary elements and devices

The "Big Ideas" for this course include: (i) the exploration of text and story deepens our understanding of diverse, complex ideas about identity, others, and the world; (ii) people understand text differently depending on their worldviews and perspectives; (iii) texts are socially, culturally, and historically constructed; (iv) language shapes ideas and influences others; (v) questioning what we hear, read, and view contributes to our ability to be educated and engaged citizens.

- Recommended preparatory course: English 10
- Textbook Deposit: $30 – $100 (teacher dependent)

FOUNDATIONS OF MATHEMATICS 11

GA Available

This pathway is designed to provide students with the mathematical understandings and critical-thinking skills identified for post-secondary studies in programs that do not require the study of theoretical calculus.

Students are expected to know the following:

- forms of mathematical reasoning
- angle relationships
- graphical analysis: linear inequalities, quadratic functions, systems of equations, optimization
- applications of statistics
- scale models
- financial literacy: compound interest, investments, and loans

The "Big Ideas" for this course include: (a) similar shapes and objects have proportional relationships that can be described, measured, and compared; (b) optimization informs the decision-0making process in situations involving extreme values; (c) logical reasoning helps us discover and describe mathematical truths; and (d) statistical analysis allows us to notice, wonder about, and answer questions about variation.

- Recommended preparatory course: C+ in Math 10
- *(Note: Math Essentials, Applications, or Workplace are <u>not</u> recommended preparatory courses)*
- Textbook Deposit: $100 – teacher dependent or
- Workbook Fee: $30 (Non-refundable) – teacher dependent

FOUNDATIONS OF MATHEMATICS 12

GA Available

This pathway is designed to provide students with the mathematical understandings and critical-thinking skills identified for post-secondary studies in programs that do not require the study of theoretical calculus.

Students are expected to know the following:

- geometric explorations: constructions, conics, fractals
- graphical representations of polynomial, logarithmic, exponential, and sinusoidal functions
- regression analysis
- combinatorics
- odds, probability, and expected value
- financial planning

Throughout the course, the "Big Ideas" that will guide the delivery of the curriculum are: (a) probabilistic thinking informs decision making in situations involving chance an uncertainty; (b) modelling data requires an understanding of a variety of functions; (c) mathematical analysis informs financial decisions; and (d) through explorations of spatial relationships, we can develop a geometrical appreciation of the world around us.

- Recommended preparatory course: C+ in Math 11 (Principles or Foundations) within the past 5 years
- Textbook Deposit: $100 – teacher dependent or
- Workbook Charge: $30 (Non-refundable) – teacher dependent

LAW STUDIES 12

This course introduces students to the laws that govern Canada, specifically how and why laws are made by political and legal institutions. The course which explores laws that protect the public and individuals as well as how disputes between private individuals are resolved.

Students are expected to know the following:

- the Constitution of Canada and the Canadian Charter of Rights and Freedoms
- structured and powers of the federal and provincial courts and administrative tribunals
- key areas of law such as criminal law, civil law and family, children, and youth law
- Canadian legislation concerning First Peoples
- Indigenous legal orders and traditional laws in Canada and other global jurisdictions
- Canada's correctional system, and principles of rehabilitation, punishment, and restoration
- structures and roles of global dispute ret solution agencies and courts

The "Big Ideas" behind the curriculum are: (a) understanding legal rights and responsibilities allows citizens to participate more fully in society; (b) laws can maintain the status quo and can also be a force for change; (c) a society's laws and legal framework affect many aspects of people's daily lives; and (d) laws are interpreted, and these interpretations may evolve over time as society's values and worldviews change.

- Textbook Deposit: $100 – teacher dependent

LIFE SCIENCES 11

GA Available

In this course, students will study the scientific method, characteristics of living things, cell biology, evolution and genetics, microbiology, taxonomy, among other subjects.

Students are expected to know (learn) the following:

- levels of organization
- cell structure and function
- sexual and asexual reproduction
- energy transformations in cells
- viruses
- First Peoples understandings of interrelationships between organisms
- microevolution: adaptation to changing environments, changes in DNA, natural selection
- macroevolution: speciation, processes of macroevolution, evidence for macroevolution

- artificial selection and genetic modifications
- single-celled and multi—celled organisms
- trends in complexity among various life forms
- evidence for phylogenetic relationships
- taxonomic principles for classifying organisms
- First Peoples knowledge on classification
- similarities and differences between domains and kingdoms

The "Big Ideas" behind this curriculum are: (a) life is a result of interactions at the molecular and cellular levels; (b) evolution occurs at the population level; and (c) organisms are grouped based on common characteristics.

- Textbook Deposit: $100 – teacher dependent

LITERARY STUDIES 11

GA Available

Literary Studies 11 (aka English Studies 11) allows students to delve deeply into literature. Students can explore specific themes, periods, authors, or areas of the world through literary works (fiction and non-fiction) in a variety of media. Giving students the choice of a range of literary topics allows them to follow their passion and at the same time:

(1) increase their literacy skills through close reading of appropriately challenging texts,
(2) enhance their development of the English Language Arts curricular competencies, both expressive and receptive,
(3) expand their development as educated global citizens,
(4) develop balance and broaden their understanding of themselves and the world, and
(5) further develop higher-level thinking and learning skills.

Also, this course is designed to support students as they refine, clarify, and adjust their written communication through practice and revision. Students will read and study compositions by other writers and be exposed to a variety of styles as models for the development of their writing.

Students are expected to know the following:

- text forms and genres

- text features and structures:
    - form, function, and genre of texts
    - elements of visual/graphic texts
    - narrative structures found in First Peoples texts
    - protocols related to the ownership of First Peoples oral texts

- strategies and processes:
    - reading strategies
    - oral language strategies
    - metacognitive strategies
    - writing processes
    - design processes

- language features, structures, and conventions
    - elements of style
    - usage and conventions
    - citation techniques
    - literary elements and devices
    - literal meaning and inferential meaning

The "Big Ideas" that will guide the instruction are: (a) the exploration of text and story deepens our understanding of diverse, complex ideas about identity, others, and the world; (b) people understand text differently depending on their world views and perspectives; (c) texts are socially, culturally, geographically and historically constructed; (d) language shape ideas and influences others; and (e) questioning what we hear, read, and view contributes to our ability to be educated and engaged citizens.

- Recommended preparatory course: English 10 or English Language Arts 10
- Textbook Deposit: $30 – $100 (teacher dependent)

PHILOSOPHY 12

The course is designed to empower students by providing them with strong critical thinking skills, an understanding of major philosophic concepts, such as logic and philosophy of science, metaphysics, epistemology, ethics, and social/political philosophy.

Students are expected to know:

- methods of reasoning and argument in philosophy
- metaphysical theories about the nature of reality
- epistemological theories about knowledge and truth
- social and political philosophy
- theories of morality, ethics, and aesthetics

The "Big Ideas" that inform this curriculum are: (a) philosophy is a discipline that examines the fundamental nature of knowledge, reality, and existence; (b) philosophy provides tools for investigating meaning and fostering understanding of different ways of thinking; (c) examining questions in philosophy allows people to question their assumptions and better understand their own beliefs; and (d) while philosophical questions often examine issues with no definitive answers, logic, and reasoned arguments can show which answers have more or less value.

- Textbook Deposit: $30 – $100 (teacher dependent)

PHYSICS 11

GA Available

Physics 11 is an introductory course concentrating on mathematical skills that focuses on the principles and theories of physics, encourages investigation of physical relationships, and illustrates the relationship between theory and application. The following topics are investigated: Wave Motion and Geometric Optics; Kinematics; Dynamics; Energy; Special Relativity; Nuclear Fission and Fusion.

Students will be expected to know the following:

- vector and scalar quantities
- horizontal uniform and accelerated motion
- projectile motion
- contact forces and the factors that affect magnitude and direction
- mass, force of gravity. And apparent weight
- Newton's laws of motion and free-body diagrams
- balanced and unbalanced forces in systems
- conservation of energy; principle of work and energy
- power and efficiency
- simple machines and mechanical advantage
- applications of simple machines by First Peoples
- electric circuits (DC), Ohm's law and Kirchhoff's laws
- thermal equilibrium and specific heat capacity
- generation of propagation of waves
- properties and behaviours of waves
- characteristics of sound
- resonance and frequency of sound
- graphical methods in physics

The "Big Ideas" that will guide the course are: (a) an object's motion can be predicted, analyzed, and described; (b) forces influence the motion of an object; (c) energy is found in different forms, is conserved, and has the ability to do work; and (d) mechanical waves transfer energy but not matter.

- Recommended preparatory course: C+ in Math 10 (Principles, Pre-Calculus, or Foundations) within the past 5 years and Science 10. Math 11 is an asset.
- Textbook Deposit: $100

PHYSICS 12

GA Available

Physics 12 is an advanced course for those who plan to continue studying science at a post secondary institution. Physics 12 concentrates heavily on mathematical skills. This course will help students develop analytical, experimental and problem-solving skills.

Students will be expected to know the following:

- frames of reference
- relative motion within a stationary reference frame
- postulates of special relativity
- relativistic effects within a moving reference frame
- static equilibrium
- uniform circular motion: centripetal force and acceleration; changes to apparent weight
- First Peoples knowledge and applications of forces in traditional technologies
- gravitational field and Newton's law of universal gravitation

- gravitational potential energy
- gravitational dynamics and energy relationships
- electric field and Coulomb's law
- electric potential energy, electric potential, and electric potential difference
- electrostatic dynamics and energy relationships
- magnetic field and magnetic force
- electromagnetic induction
- applications of electromagnetic induction
- impulse and momentum
- conservation of momentum and energy n collisions
- graphical methods on physics

The instruction will be guided by the "Big Ideas" of the course, which are: (a) measurement of motion depends on our frame of reference; (b) forces can cause linear and circular motion; (c) forces and energy interactions occur within fields; and (d) momentum is conserved within a closed and isolated system.

- Recommended preparatory course: a C+ in Physics 11 and Mathematics 11
- Textbook Deposit: $100

PRE-CALCULUS 11

GA Available

This pathway is designed to provide students with the mathematical understandings and critical-thinking skills identified for entry into post-secondary programs that require the study of theoretical calculus, such as Sciences or Engineering.

Student are expected to know the following:

- real number system
- powers with rational exponents
- radical operations and equations
- polynomial factoring
- rational expressions and equations
- quadratic functions and equations
- linear and quadratic inequalities
- trigonometry: non-right angles and angles in standard position
- financial literacy: compound interest, investments, loans

The curricular 'Big Ideas" that will guide this course are: (a) algebra allows us to generalize relationships through abstract thinking; (b) the meanings of, and connections between, operations extend to powers, radicals, and polynomials; (c) quadradic relationships are prevalent in the world around us; and (d) trigonometry involves using proportional reasoning to sole indirect measurement problems.

- Recommended preparatory course: C+ in Math 10 within the past 5 years
- (*Note: Math Essentials, Applications, or Workplace are not recommended preparatory courses)*
- Textbook Deposit: $100 or
- Workbook Charge: $ 30 (Non-refundable)

PRE-CALCULUS 12

GA Available

This course is required by some specific programs by post-secondary institutions.

Students will be expected to know the following:

- transformations of functions and relations
- exponential functions and equations
- geometric sequences and series
- logarithms: operations, functions, and equations
- polynomial functions and equations
- rational functions
- trigonometry: functions, equations, and identities

The "Big Ideas" guiding the curriculum are: (a) using inverses is the foundation of solving equations and can be extended to relation ships between functions; (b) understanding the characteristics of families of functions allows us to model and understand relationships and to build connections between classes of functions; and (c) transformations of shapes extend to functions and relations in all of their representations.

- Recommended preparatory course: C+ in Math 11 (Principles or Pre-Calculus) within the past 5 years
- Textbook Deposit: $100 or
- Workbook Charge: $30 (Non-refundable)

SOCIAL JUSTICE 12

Social Justice 12 is organized around key issues such as gender, race, marginalized groups, poverty, and animal rights. These will be framed by an understanding of the definitions, frameworks, and interpretations of social justice as seen through the lens of social injustices in Canada and the world affecting individuals, groups, and society. Students will also examine the role of how governmental and non-governmental organizations play in issues of social justice and injustice. In addition, there is an opportunity to learn about the processes, methods, and approaches individuals, groups, and institutions use to promote social justice.

Students are expected to know the following:

- definitions, frameworks, and interpretations of social justice
- self-identity and an individual's relationship to others
- social justice issues
- social injustices in Canada and the world affecting individuals, groups, and society
- governmental and non-governmental organizations in issues of social justice and injustice
- processes, methods, and approaches individuals. Groups, and institutions use to promote social justice

The "Big Ideas" driving the curriculum are: (a) social justice issues are interconnected; (b) individual worldviews shape and inform our understanding of social justice issues; (c) the causes of social injustice are complex and have lasting impacts on society; and (d) social justice initiatives can transform individuals and systems.

- Textbook Deposit: $100

WORKPLACE MATHEMATICS 11
GA Available

This practical course is designed for students who are planning to enter a technical college, trade school, or find a job. It does not satisfy entry requirements for university-level academic programs but does complete the secondary school graduation program requirement for mathematics. Content varies, but generally includes Personal Finance (budgeting, borrowing, investing banking), Area and Volume, Trigonometry (right triangles), 3-D Modeling, Formulas, Graphing, Proportion, and Linear Relations.

Students will be expected to know the following:

- financial literacy: personal investments, loans, and budgeting
- rate of change
- how probability and statistics are used ion different contexts
- interpreting graphs in society

- 3D objects: angles, views, and scale diagrams

The "Big Ideas" behind the curriculum are: (a) proportional reasoning is used to make sense of multiplicative relationships; (b) mathematics informs financial decision making; (c) 3D objects are often represented and described in 2D space; (d) flexibility with number builds meaning, understanding, and confidence; and (e) representing and analyzing data allows us to notice and wonder about relationships.

- Recommended preparatory course: C in Math 10, Foundations Math Level 7, or equivalent
- Textbook Deposit: TBD