

Grade/Subject (Strand)	Concept, Procedure, Application: curriculum expectations
GRADE 9	
Geography of Canada, Grade 9, Academic (Methods of Geographic Inquiry)	<p><i>Understanding Concepts</i></p> <ul style="list-style-type: none"> • demonstrate an understanding of the technologies used in geographic inquiry (e.g., Geographic Information Systems (GIS), hypermedia); • demonstrate an understanding of the methods used to collect, organize, manipulate, and interpret geographic data.
	<p><i>Developing and Practising Skills</i></p> <ul style="list-style-type: none"> • select and use appropriate technology (e.g., computer-generated maps, graphs, air photos, digital maps) to present geographic information; • create and use effectively photographs, charts, graphs, models, and diagrams; use different types of maps (e.g., road, topographical, thematic) to interpret geographic relationships, including changes over time in a specific location; • use cartographic conventions correctly when constructing maps (e.g., scale, legend, direction).
Geography of Canada, Grade 9, Applied (Methods of Geographic Inquiry)	<p><i>Understanding Concepts</i></p> <ul style="list-style-type: none"> • demonstrate a knowledge of technologies used in geographic inquiry (e.g., Geographic Information Systems (GIS), hypermedia); • demonstrate an understanding of the methods used to collect, organize, manipulate, and interpret geographic data.
	<p><i>Developing and Practising Skills</i></p> <ul style="list-style-type: none"> • use appropriate technology (e.g., computer maps, graphs, air photos) to present geographic information; • use different types of maps (e.g., road, topographic, thematic) effectively to interpret geographic relationships; • use cartographic conventions correctly when constructing maps (e.g., scale, legend, direction).
Healthy Active Living Education, Grade 9, Open (Physical Activity)	<p><i>Movement Skills and Principles</i></p> <ul style="list-style-type: none"> • use and combine movement skills in a variety of physical activities (e.g., apply locomotion/travelling, manipulation, and stability skills to a specific activity).
	<p><i>Sport and Recreation</i></p> <ul style="list-style-type: none"> • demonstrate understanding of specific rules and guidelines for participation in recreation and sport including team, group, dual, and individual activities (e.g., the scoring rules in rugby, etiquette such as allowing faster participants to pass on a cross-country ski trail); • identify the requirements, including basic equipment standards, preparation (e.g., warm-up and cool-down exercises, training requirements), and specific safety issues that maximize performance and participation in recreation and sport activities.

Healthy Active Living Education, Grade 9, Open (Active Living)	<p><i>Active Participation</i></p> <ul style="list-style-type: none"> demonstrate positive, responsible personal and social behaviour (e.g., striving for personal best, practising regularly, encouraging others, playing fair) in physical activity settings.
Healthy Active Living Education, Grade 9, Open (Living Skills)	<p><i>Social Skills</i></p> <ul style="list-style-type: none"> contribute to the success of the group verbally and non-verbally (e.g., by completing a fair share of the group task, by acknowledging others' contributions to the task)
Science, Grade 9, Academic (Earth and Space Science: The Study of the Universe)	<p><i>Relating Science to Technology, Society, and the Environment</i></p> <ul style="list-style-type: none"> describe, evaluate, and communicate the impact of research and other accomplishments in space technology on our understanding of scientific theories and principles and on other fields of endeavour (e.g., advances in fluid physics, crystal growth, and material science, and in technologies associated with robotics, agriculture, and telecommunications); investigate the ways in which Canada participates in space research and international space programs (e.g., the International Space Station, telecommunications, satellite technology).
Science, Grade 9, Applied (Earth and Space Science: The Study of the Universe)	<p><i>Relating Science to Technology, Society, and the Environment</i></p> <ul style="list-style-type: none"> identify and assess the impact of developments in space research and technology on other fields of endeavour (e.g., the advancement of robotics, agriculture, resource management, navigation, and telecommunications); provide examples of the contributions of Canadian research and development to space exploration and technology.
Integrated Technologies, Grade 9, Open (Impact and Consequences)	<p><i>Specific Expectations</i></p> <ul style="list-style-type: none"> identify the impact of technology at home, work, and school, and in recreational pursuits.

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GRADE 10	
Canadian History in the Twentieth Century, Grade 10, Academic (Change and Continuity)	<p><i>Scientific and Technological Impact</i></p> <ul style="list-style-type: none"> produce an analysis of how and why recent innovations in telecommunications (e.g., computers, Internet) are changing life today.
Canadian History in the Twentieth Century, Grade 10, Applied (Change and Continuity)	<p><i>Scientific and Technological Impact</i></p> <ul style="list-style-type: none"> describe the technological innovations that have changed the way war has been fought in the twentieth century (e.g., aircraft, radar, nuclear arms, laser technology, guided missiles).
Healthy Active Living Education, Grade 10, Open (Physical Activity)	<p><i>Movement Skills and Principles</i></p> <ul style="list-style-type: none"> demonstrate the use and combination of motor skills in a variety of physical activities (e.g., moving towards the ability to perform skills on their own).
	<p><i>Sport and Recreation</i></p> <ul style="list-style-type: none"> demonstrate understanding of specific rules and guidelines for participation in recreation and sport including team, group, dual, and individual activities (e.g., the travelling violation in basketball, scoring rules in orienteering, etiquette such as replacing divots when playing golf, fair play); describe the requirements, including basic equipment standards, preparation (e.g., warm-up and cool-down exercises, training requirements), and specific safety issues that maximize performance and participation in recreation and sport activities; identify community sport and recreation opportunities related to personal interests.
Healthy Active Living Education, Grade 10, Open (Active Living)	<p><i>Active Participation</i></p> <ul style="list-style-type: none"> demonstrate positive, responsible personal and social behaviour (e.g., striving for personal best, practising regularly, encouraging others, modelling positive behaviour, playing fair) in physical activity settings; demonstrate leadership (e.g., leading an in-class activity such as a warm-up or cool-down activity).
Science, Grade 10, Academic (Physics: Motion)	<p><i>Relating Science to Technology, Society, and the Environment</i></p> <ul style="list-style-type: none"> analyse how technology is used for tracking the motion of objects and outline the kinds of scientific knowledge gained through the use of such technologies (e.g., the tracking of animal migrations, airplane flights, traffic, ocean currents).
Computer and Information Science, Grade 10, Open (Impact and Consequences)	<p><i>Specific Expectations</i></p> <ul style="list-style-type: none"> explain major developments in information technology and anticipate future changes; describe how computers change the ways in which information is collected and used and explain how this affects people's privacy and access to information; describe how computers change the ways in which people live, work, and communicate.

Grade/Subject (Strand) GRADE 11	Concept, Procedure, Application: curriculum expectations
The Americas: Geographic Patterns and Issues, Grade 11, University/College Preparation (Methods of Geographic Inquiry)	<p><i>Understanding Concepts</i></p> <ul style="list-style-type: none"> describe various geographic tools and technologies (e.g., maps, aerial photographs, satellite images, geographic information systems) and their most appropriate use.
	<p><i>Developing and Practising Skills</i></p> <ul style="list-style-type: none"> use geographic technologies and resources effectively (e.g., remote sensing data, geographic information systems, Internet resources) to gather, process, and synthesize information related to geographic issues; use maps (e.g., sketch maps, thematic maps, mental maps) effectively at various scales to illustrate geographic patterns.
Physical Geography: Patterns, Processes, and Interactions, Grade 11, University/College Preparation (Methods of Geographic Inquiry)	<p><i>Understanding Concepts</i></p> <ul style="list-style-type: none"> demonstrate an understanding of the technology available for mapping, imaging, and measuring features and phenomena on the surface of the earth; demonstrate an understanding of the importance of field verification (ground truthing) of data collected from remote sensing instruments, including satellites; identify careers related to physical geography.
	<p><i>Developing and Practising Skills</i></p> <ul style="list-style-type: none"> demonstrate an ability to make observations and collect data in the field; identify selected physical features on the earth's surface (e.g., mountains, rivers, deserts) from different sources (e.g., maps, aerial photographs, satellite images, geographic information systems); produce and interpret maps, diagrams, charts, and models; use remote sensing imagery, maps, global positioning systems, and geographic information systems to measure conditions on the ground (e.g., health of vegetation).
Geographics: The Geographer's Toolkit, Grade 11, Workplace Preparation (Geographic Foundations: Space and Systems)	<p><i>Understanding Concepts</i></p> <ul style="list-style-type: none"> define meridians and parallels and explain geographic coordinates (latitude and longitude) and rectangular coordinates (x, y); identify important map projections and describe their main properties; demonstrate an understanding of the concept of scale and the distinctions between large and small scale and between data scale and display scale; describe the use of geotechnologies, especially GIS, for such business-related purposes as marketing and advertising, vehicle routing, site selection, and redistricting; identify local government departments that make significant use of geotechnologies and spatial data (e.g., engineering, planning, health, utilities, police, environment); describe the use of geotechnologies for such government-related purposes as land use planning, land registration, facilities management, and property assessment; identify applications of geotechnologies relating to resources and the environment (e.g., species mapping, weather forecasting, forest management, precision farming); identify applications of geotechnologies in other areas (e.g.,

	<p><i>Developing and Practising Skills</i></p> <ul style="list-style-type: none"> • express location correctly by a variety of methods (e.g., latitude and longitude, street address, postal code); • express scale correctly in numerical and graphical form.
	<p><i>Learning Through Application</i></p> <ul style="list-style-type: none"> • produce well-designed maps, charts, and graphs, using data illustrating local geographic themes; • interpret the geography of the local region, using maps or aerial photographs; • analyse selected aspects of physical and human geography, preferably of the local area, using GIS.
Geographics: The Geographer's Toolkit, Grade 11, Workplace Preparation (Understanding and Managing Change)	<p><i>Understanding Concepts</i></p> <ul style="list-style-type: none"> • describe the extension of geotechnological applications into new domains (e.g., vehicle navigation, criminology, marketing); • identify present and future career opportunities in GIS, remote sensing, cartography, and surveying.
Geographics: The Geographer's Toolkit, Grade 11, Workplace Preparation (Methods of Geographic Inquiry)	<p><i>Developing and Practising Skills</i></p> <ul style="list-style-type: none"> • execute basic survey operations, including the measurement of locations and elevations, using a GPS receiver; • use mapping software to generate a variety of well-designed maps, including thematic maps based on statistical data; • classify maps according to type (e.g., topographic, thematic, navigational); • perform basic operations correctly on topographic maps (e.g., specify location by six-figure reference; measure distances, using scales; read elevations from contours; identify symbols, using the legend); • orient a map or aerial photograph in the field and relate the features shown to the surrounding landscape.
	<p><i>Learning Through Application</i></p> <ul style="list-style-type: none"> • execute a systematic field survey in their local area and plot the results as a map.
Healthy Active Living Education, Grade 11, Open (Physical Activity)	<p><i>Sports and Recreation</i></p> <ul style="list-style-type: none"> • apply the specific rules and guidelines for participation in recreational and sports activities, including team, group, dual, and individual activities (e.g., yellow card infractions in soccer, appropriate breathing patterns in weight training, strategies for effective performance in tennis); • explain factors (e.g., motivation, equipment, preparation such as warm-ups, safety issues) that affect performance and participation in recreational and sports activities.
Healthy Active Living Education, Grade 11, Open (Active Living)	<p><i>Active Participation</i></p> <ul style="list-style-type: none"> • participate regularly in physical activity, using community and school facilities and choosing from a wide variety of activities, including individual, small- and large-group, outdoor, and aquatics activities; • demonstrate positive, responsible personal and social behaviour in physical activity settings (e.g., encouraging and helping others, striving for personal bests, showing respect for others, demonstrating good sportsmanship); • demonstrate leadership (e.g., planning and leading in-class activities).

Grade/Subject (Strand)	Concept, Procedure, Application: curriculum expectations
GRADE 12	
The Environment and Resource Management, Grade 12, University/College Preparation (Methods of Geographic Inquiry)	<p><i>Developing and Practising Skills</i></p> <ul style="list-style-type: none"> • produce original maps, sketches, and/or photographs to illustrate the results of geographic inquiries on environmental and resource management issues; • apply geotechnology (e.g., remote sensing, geographic information systems, global positioning systems) effectively to the collection and analysis of data related to environmental and resource management concerns.
Geomatics: Geotechnologies in Action, Grade 12, University/College Preparation (Geographic Foundations: Space and Systems)	<p><i>Understanding Concepts</i></p> <ul style="list-style-type: none"> • explain the concept of elevation measured from mean sea level; • differentiate between true, magnetic, and grid directions; • demonstrate an understanding of the concept of scale, including the distinctions between large and small scale and between data scale and display scale; • describe applications of geotechnologies relating to physical systems (e.g., resource management, climate modelling, forest mapping); • describe applications of geotechnologies relating to human systems (e.g., marketing, route planning, precision farming, land use planning).
	<p><i>Developing and Practising Skills</i></p> <ul style="list-style-type: none"> • express location correctly by geographic coordinates, grid coordinates, and other methods (e.g., street address, postal code); • express directions correctly as bearings (quadrant method) and azimuths (whole circle method) and convert from one to another; • express scale correctly in numerical, verbal, and graphical form and convert from one to another.
	<p><i>Learning Through Application</i></p> <ul style="list-style-type: none"> • describe the properties and uses of important map projections, especially those commonly used in Canada (e.g., the Transverse Mercator and the Lambert Conformal).
Geomatics: Geotechnologies in Action, Grade 12, University/College Preparation (Human-Environment Interactions)	<p><i>Understanding Concepts</i></p> <ul style="list-style-type: none"> • explain the role of geotechnologies in facilitating the efficient and responsible use of resources (e.g., forests, minerals, fisheries); • explain the role of geotechnologies in addressing environmental problems resulting from human action (e.g., pollution, deforestation, species extinction); • explain the role of geotechnologies in addressing human problems caused by environmental forces (e.g., hurricanes, floods, avalanches).
	<p><i>Developing and Practising Skills</i></p> <ul style="list-style-type: none"> • explain the capability of GIS to integrate physical and human factors in addressing problems that involve aspects of both.

	<p><i>Learning Through Application</i></p> <ul style="list-style-type: none"> evaluate the use of geotechnologies in sparsely populated areas (e.g., use of global positioning systems [GPS] in search-and-rescue operations, satellite monitoring of military activity, radar imaging of forests).
Geomatics: Geotechnologies in Action, Grade 12, University/College Preparation (Global Connections)	<p><i>Learning Through Application</i></p> <ul style="list-style-type: none"> assess the positive and negative impacts of the use of geotechnologies in international affairs (e.g., GIS in disaster relief, GPS in military operations, satellites in monitoring of nuclear sites); examine the ethical aspects of the use of GIS, GPS, and related technologies, especially the implications for individual privacy, marginalized groups, and minority cultures.
Geomatics: Geotechnologies in Action, Grade 12, University/College Preparation (Understanding and Managing Change)	<p><i>Understanding Concepts</i></p> <ul style="list-style-type: none"> identify key Canadian contributions to geomatics (e.g., Radarsat, Canada Geographic Information System); describe the extension of geomatics applications into non-traditional domains (e.g., criminology, marketing, medicine); identify present and future career opportunities in GIS, remote sensing, cartography, and surveying.
Geomatics: Geotechnologies in Action, Grade 12, University/College Preparation (Methods of Geographic Inquiry)	<p><i>Understanding Concepts</i></p> <ul style="list-style-type: none"> explain the basic principle underlying GPS and the significance of differential GPS; identify the main subsystems of a GIS (i.e., data input, data management, data analysis, data output).
	<p><i>Developing and Practising Skills</i></p> <ul style="list-style-type: none"> assess the quality of data in terms of factors such as accuracy, completeness, currency, and cost; execute basic survey operations by pacing or with the aid of simple instruments; determine the locations and elevations of points, using a GPS receiver; orient a map or aerial photograph in the field and relate the features shown to the surrounding landscape; classify maps according to type (e.g., topographic, thematic, navigational); produce a variety of good quality maps, charts, and graphs, using computer software or other methods; perform basic operations correctly on topographic maps (e.g., specify location by six-figure reference); measure distances, using scales; read elevations from contours; identify symbols, using the legend); use GIS software appropriately to perform analytical operations (e.g., overlay analysis, route determination, database querying, simple image analysis).
	<p><i>Learning Through Application</i></p> <ul style="list-style-type: none"> execute a systematic field survey in their local area and plot the results as a map.