



Learning

Outcomes

Framework

April 2004

Grades 7–9

Learning Outcomes Framework
Grades 7–9

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Introduction

The learning outcomes framework comprises a series of curriculum outcomes statements describing what knowledge, skills, and attitudes students are expected to demonstrate a result of their cumulative learning experiences in the primary–graduation continuum. Through an ongoing process, the Department of Education is developing a learning outcomes framework for each area of the public school program.

This document provides an overview of the learning outcomes framework organized by grade level and subject area. It is intended to serve as a brief survey of expected learning outcomes and as a tool to assist teachers in program planning. The connections among learning outcomes reflect natural affinities among subject areas and facilitate the design of a balanced, integrated program.

In designing appropriate learning experiences that enable students to achieve the expected learning outcomes, teachers and administrators are expected to refer to foundation documents and related curriculum guides listed in *Public School Programs*. In planning the appropriate use of information technologies as tools for learning and teaching, teachers and administrators should also refer to *Vision for the Integration of Information Technologies within the Nova Scotia Public School System*. It is available on-line at <lr.EDnet.ns.ca>.

Foundation documents provide the framework for general and key-stage curriculum outcomes, outline the focus and key features of the curriculum, and describe contexts for learning and teaching. Curriculum guides elaborate on specific curriculum outcomes and describe other aspects of curriculum, such as program design and components, instructional and assessment strategies, and resources.

General curriculum outcomes are statements that identify what students are expected to know and be able to do upon completion of study in a curriculum area. Key-stage curriculum outcomes are statements that identify what students are expected to know and be able to do by the end of grades 3, 6, 9, and 12 as a result of their cumulative learning experiences in a curriculum area. Specific curriculum outcomes are statements that identify what students are expected to know and be able to do at a particular grade level.

The following overview of the learning outcomes framework notes general curriculum outcomes and specific curriculum outcomes. For some subject areas, key-stage curriculum outcomes statements are also included. It should be noted that specific curriculum outcomes for music, family studies, and visual arts are not yet available and that specific curriculum outcomes noted for health/personal development and relationships, grades 7–9; social studies, grades 7–8; and technology education, grades 7–9 are **draft** statements. While implementation of new curriculum in these subjects is not yet required, teachers may wish to consider these draft statements and the key-stage curriculum outcomes in planning their instructional programs.

Junior High Program Components

Each school board is required to provide, in grades 7 to 9 inclusive, in each school under its jurisdiction, instruction in the prescribed courses in English language arts; French, Gaelic, or Mi'kmaw; mathematics; personal development and relationships; physical education; science; social studies; and **two** of arts education, family studies, or technology education. Students in grades 7–9 are expected to take at least **one** of the following electives: Art, Family Studies, Music, or Technology Education. It is expected that information technologies will be integrated within the prescribed courses; the junior high program does not include discrete computer-related studies. Each school is also required to provide programming and services for students with special needs.

Exploratory Options

Exploratory options (sometimes called mini-courses) may be provided to extend the curriculum and provide enrichment opportunities for young adolescents. Exploratory options may be designed as a component of compulsory or elective courses but may not replace program requirements noted above.

Exploratory options should contribute to the students' achievement of specific curriculum outcomes in one or more subject areas and should reflect the developmental needs of the young adolescent.

Exploratories may be offered for short periods of time during the year.

Grade 7

Core French

Key-Stage Curriculum Outcomes

By the end of grade 9, students will be expected to

Specific Curriculum Outcomes

Students will be expected to

Communication

GCO: On the basis of their experiences in the Core French Program, students will be expected to

- communicate effectively in French, both orally and in writing
- interact appropriately in a variety of situations that relate to their needs and interests

- | | |
|---|--|
| <ul style="list-style-type: none"> • function in a classroom where French is the language spoken | <ul style="list-style-type: none"> • listen to longer communications (demonstrate with frequent support) • follow more complex directions (demonstrate with frequent support) • negotiate to understand (demonstrate with frequent support) |
| <ul style="list-style-type: none"> • participate in an informal conversation, with support | <ul style="list-style-type: none"> • ask for and give information (demonstrate with occasional support) • initiate and conclude a conversation (demonstrate with occasional support) • communicate on the telephone (demonstrate with occasional support) |
| <ul style="list-style-type: none"> • identify, describe and compare objects, people, events and places | <ul style="list-style-type: none"> • recount an event (demonstrate with occasional support) • give a report (demonstrate with occasional support) • describe physical and personality traits (demonstrate with occasional support) • give directions (demonstrate with occasional support) |
| <ul style="list-style-type: none"> • express a preference, an opinion or a feeling with justification | <ul style="list-style-type: none"> • discuss tastes (demonstrate with occasional support) • state preferences (demonstrate with occasional support) • justify choices (demonstrate with occasional support) • persuade (demonstrate with frequent support) |
| <ul style="list-style-type: none"> • become involved in a variety of interactive activities | <ul style="list-style-type: none"> • make telephone calls and participate in interviews (demonstrate with occasional support) • participate in a debate, games, round table discussions, brainstorming, surveys, and role-plays (demonstrate with occasional support) |
| <ul style="list-style-type: none"> • ask a variety of questions | <ul style="list-style-type: none"> • find information (demonstrate with occasional support) • clarify and verify learning (demonstrate with frequent support) • select pertinent information (demonstrate with occasional support) |

Key-Stage Curriculum Outcomes

By the end of grade 9, students will be expected to

- select information by reading, listening to, or viewing different texts
- respond personally to a variety of texts
- produce a variety of texts by following criteria

Specific Curriculum Outcomes

Students will be expected to

- distinguish the characteristics of different types of text (demonstrate with occasional support)
- identify the main ideas of a text (demonstrate with occasional support)
- infer the evolution, the conclusion of a story (demonstrate with occasional support)
- draw, mime, and dramatize (demonstrate with occasional support)
- plan, organize and evaluate a portfolio (demonstrate with occasional support)
- compose songs and poetry (demonstrate with occasional support)
- keep a personal journal (demonstrate with occasional support)
- produce expressive, informative, persuasive, humorous, and poetic texts (demonstrate with occasional support)
- revise and correct text (demonstrate with occasional support)

Culture

GCO: On the basis of their experiences in the Core French Program, students will be expected to

- demonstrate an appreciation and understanding of Francophone cultures, while comparing them with their own culture, as well as an appreciation and understanding of Canada's multicultural reality
- describe certain Francophone regions locally, provincially, nationally, and internationally
- describe, with relevant details, certain realities of Francophone cultures
- name and locate certain Francophone communities in Canada (demonstrate with occasional support)
- identify and describe the different Acadian regions in Nova Scotia (demonstrate with occasional support)
- identify certain areas in the world where French is spoken (demonstrate with occasional support)
- describe Acadian festivals and the important role of music and dance (demonstrate with occasional support)
- describe some Acadian meals (demonstrate with occasional support)
- identify some Francophone festivals in Canada (demonstrate with occasional support)
- identify some Francophone customs in Canada (demonstrate with frequent support)
- name some events associated with Francophone regions in the world (demonstrate with frequent support)

Key-Stage Curriculum Outcomes

By the end of grade 9, students will be expected to

- compare aspects of Francophone cultures with aspects of their own culture
- explain the contribution of some contemporary Francophone personalities to Canadian society
- identify the diverse origins of people who make up the Canadian mosaic
- identify the cultural elements in authentic documents
- in the advantages of being bilingual in our society

Specific Curriculum Outcomes

Students will be expected to

- compare Acadian culture and their own culture (demonstrate with occasional support)
- inform themselves about the contributions to Canada of some famous Francophones (demonstrate with frequent support)
- describe some contributions of famous Acadians (demonstrate with occasional support)
- recognize certain cultural stereotypes (demonstrate with occasional support)
- express an opinion with respect to some stereotypes (demonstrate with frequent support)
- demonstrate a respect towards other languages (demonstrate with occasional support)
- inform themselves of activities through the media (demonstrate with frequent support)
- inform and entertain themselves by listening to the radio and viewing televisions and films (demonstrate with frequent support)
- demonstrate an interest in using French (demonstrate with occasional support)
- identify the evidence of bilingualism in our society (careers, laws, etc.) (demonstrate with occasional support)

General Language Education

GCO: On the basis of their experience in the Core French Program, students will be expected to

- choose and implement strategies to facilitate their communication in French and their learning
-
- use learning strategies, communication strategies and social strategies to communicate in French, both orally and in writing
 - demonstrate the importance of non-verbal communication (use gestures) (demonstrate with occasional support)
 - use partial sentences, repetition, paraphrase, and circumlocutions (demonstrate with occasional support)
 - request clarifications and explanations in order to understand (demonstrate with occasional support)
 - plan and organize their productions using their own learning experiences
 - prepare a checklist
 - adapt a message to the circumstances
 - plan a written production (demonstrate with frequent support)

Key-Stage Curriculum Outcomes

By the end of grade 9, students will be expected to

Specific Curriculum Outcomes

Students will be expected to

- self-correct (demonstrate with occasional support)
- keep a personal journal (demonstrate with frequent support)
- give advice to facilitate group work (demonstrate with occasional support)
- take turns (demonstrate with occasional support)
- accept suggestions given by others (demonstrate with occasional support)
- identify how knowledge and skills in French class can be useful in everyday life (demonstrate with frequent support)

Language

GCO: On the basis of their experience in the Core French Program, students will be expected to

- recognize and use in context elements of the linguistic code, orally and in writing, to facilitate their communication in French
-
- understand and use the vocabulary, expressions and structures relating to the needs in the classroom and to areas of experience
 - function in the classroom by using expressions from the unit «*comment survivre en français dans un cours de français*» and the directions and rules of the classroom (demonstrate with occasional support)
 - participate in a conversation and involve themselves in a variety of interactions by using the present, future, and simple past tenses; connecting words such as *d'abord, ensuite, finalement, puis, et, mais*; interrogative and negative (demonstrate with occasional support)
 - describe and compare by using the present, future, and simple past tenses; adjectives; adverbs; comparative and superlative; connecting words (demonstrate with frequent support)
 - select information using verb tenses, connecting words such as *d'abord, ensuite, finalement, puis, cependant, en plus, par contre* (demonstrate with occasional support)
 - produce a variety of texts using the present, future, and past tenses; interrogative and negative; connecting words such as *puis, et, mais, en plus* to produce a cohesive and coherent text (demonstrate with occasional support)

English Language Arts

General Curriculum Outcomes Specific Curriculum Outcomes

GCO 1: Students will be expected to speak and listen to explore, extend, clarify, and reflect on their thoughts, ideas, feelings, and experiences.

GCO 2: Students will be expected to communicate information and ideas effectively and clearly, and to respond personally and critically.

GCO 3: Students will be expected to interact with sensitivity and respect, considering the situation, audience, and purpose.

Students will be expected to

- 1.1 recognize that contributions from many participants are needed to generate and sustain discussions
 - 1.2 know how and when to ask questions that call for elaboration and clarification; give appropriate responses when asked for the same information
 - 1.3 express clearly and with conviction, a personal point of view, and be able to support that position
 - 1.4 listen attentively to grasp the essential elements of a message, and recognize and consider supporting details
- 2.1 participate in small-group conversation and whole-class discussion recognizing that there are a range of strategies that contribute to effective talk
 - 2.2 recognize that different purposes and audiences influence communication choices such as vocabulary, sentence structure, rate of speech, and tone during talk; consider appropriate communication choices in various speaking contexts
 - 2.3 follow instructions and respond to questions and directions
 - 2.4 evaluate speakers and the effectiveness of their talk in particular contexts; identify the verbal and non-verbal language cues used by speakers (e.g., repetition, volume, and eye contact)
- 3.1 demonstrate active speaking and listening skills such as making eye contact, rephrasing when appropriate, clarifying comments, extending, refining, and/or summarizing points already made
 - 3.2 demonstrate a respect for others by developing effective ways to express personal opinions such that they reflect sensitivity to others, including differences in culture and language
 - 3.3 recognize that spoken language reveals values and attitudes such as bias, beliefs, and prejudice; understand how language is used to influence and manipulate
 - 3.4 recognize that different situations (interviews, speeches, debates, conversation) require different speaking and listening conventions (questioning techniques, persuasive talk, formal language) appropriate to the situation

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

GCO 4: Students will be expected to select, read, and view with understanding a range of literature, information, media, and visual texts.

- 4.1 select texts that address their learning needs and range of special interests
- 4.2 read widely and experience a variety of young adult fiction and literature from different provinces and countries
- 4.3 demonstrate an awareness of how authors use pictorial, typographical, and organizational devices such as photos, titles, headings, and bold print to achieve certain purposes in their writing, and use those devices more regularly to construct meaning and enhance understanding
- 4.4 develop some independence in recognizing and using various reading and viewing strategies (predicting, questioning, etc.) and in using cueing systems (graphophonic, contextual, syntactic, etc.) to construct meaning; apply and develop these strategies and systems while reading and viewing increasingly complex print and media texts
- 4.5 talk and write about the various processes and strategies readers and viewers apply when constructing meaning from various texts; recognize and articulate personal processes and strategies used when reading or viewing various texts

GCO 5: Students will be expected to interpret, select, and combine information using a variety of strategies, resources, and technologies.

- 5.1 identify and articulate personal needs and personal learning needs with growing clarity and some independence
- 5.2 become increasingly aware of and use periodically the many print and non-print avenues and sources (Internet, documentaries, interviews) through which information can be accessed and selected
- 5.3 use research strategies like issue mapping and webbing to guide research

GCO 6: Students will be expected to respond personally to a range of texts.

- 6.1 extend personal responses, either orally or in writing, to print and non-print texts by explaining in some detail initial or basic reactions to those texts
- 6.2 make evaluations or judgments about texts and express personal points of view
- 6.3 find evidence and examples in texts to support personal views about themes, issues, and situations

GCO 7: Students will be expected to respond critically to a range of texts, applying their understanding of language, form, and genre.

- 7.1 recognize that print and media texts can be biased and become aware of some of the ways that information is organized and structured to suit a particular point of view

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

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| <p>GCO 8: Students will be expected to use writing and other ways of representing to explore, clarify, and reflect on their thoughts, feelings, experiences, and learnings; and to use their imagination.</p> | <p>7.2 recognize that print and media texts are constructed for particular readers and purposes; begin to identify the textual elements used by authors</p> <p>7.3 develop an ability to respond critically to various texts in a variety of ways such as identifying, describing, and discussing the form, structure, and content of texts and how they might contribute to meaning construction and understanding</p> <ul style="list-style-type: none"> – recognize that personal knowledge, ideas, values, perceptions, and points of view influence how writers create texts – become aware of how and when personal background influences meaning construction, understanding, and textual response – recognize that there are values inherent in a text, and begin to identify those values – explore how various cultures and realities are portrayed in media texts <p>8.1 experiment with a range of strategies (brainstorming, sketching, freewriting) to extend and explore learning, to reflect on their own and others' ideas, and to identify problems and consider solutions</p> <p>8.2 become aware of and describe the writing strategies that help them learn; express an understanding of their personal growth as language learners and language users</p> <p>8.3 understand that note-making is purposeful and has many purposes (e.g., personal use, gathering information for an assignment, recording what has happened and what others have said) and many forms, (e.g., lists, summaries, observations, and descriptions)</p> <p>8.4 demonstrate an ability to integrate interesting effects in imaginative writing and other forms of representation</p> <ul style="list-style-type: none"> – consider thoughts and feelings in addition to external descriptions and activities – integrate detail that adds richness and density – identify and correct inconsistencies and avoid extraneous detail – make effective language choices relevant to style and purpose – select more elaborate and sophisticated vocabulary and phrasing |
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General Curriculum Outcomes Specific Curriculum Outcomes

GCO 9: Students will be expected to create texts collaboratively and independently, using a variety of forms for a range of audiences and purposes.

Students will be expected to

- 9.1 produce a range of writing forms, for example, stories, cartoons, journals, business and personal letters, speeches, reports, interviews, messages, poems, and advertisements
- 9.2 recognize that a writer's choice of form is influenced by both the writing purpose (to entertain, inform, request, record, describe) and the reader for whom the text is intended (e.g., understand how and why a note to a friend differs from a letter requesting information)
- 9.3 demonstrate an understanding that ideas can be represented in more than one way and experiment with using other forms such as dialogue, posters, and advertisements
- 9.4 develop the awareness that content, writing style, tone of voice, language choice, and text organization need to fit the reader and suit the reason for writing
- 9.5 ask for reader feedback while writing and use this feedback when shaping subsequent drafts; consider self-generated drafts from a reader's/viewer's/listener's point of view

GCO 10: Students will be expected to use a range of strategies to develop effective writing and other ways of representing and to enhance their clarity, precision, and effectiveness.

- 10.1 understand and use conventions for spelling familiar words correctly; rely on knowledge of spelling conventions to attempt difficult words; check for correctness; demonstrate control over most punctuation and standard grammatical structures in writing most of the time; use a variety of sentence patterns, vocabulary, and paragraph structures to aid effective written communication
- 10.2 recognize and begin to use more often the specific prewriting, drafting, revising, editing, proofreading, and presentation strategies that most effectively help to produce various texts
- 10.3 acquire some exposure to the various technologies used for communicating to a variety of audiences for a range of purposes (videos, e-mail, word processing, audiotapes)
- 10.4 demonstrate a commitment to crafting pieces of writing and other representations
- 10.5 collect information from several sources (interviews, film, CD-ROMs, texts) and combine ideas in communication

Health/Personal Development and Relationships (Draft)

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

The Body: Growth and Development

GCO A: Students will be expected to demonstrate knowledge of the body, body functions, and growth and development.

- A1.1 demonstrate an understanding of how the body systems work together to digest and metabolize food
- A1.2 demonstrate an understanding of ways in which the body protects itself from infection and disease
- A2.1 identify physical, emotional, and social changes that occur through the stages of childhood

Strategies for Healthy Living

GCO B: Students will be expected to demonstrate knowledge, skills, and attitudes that contribute to active, healthy living.

- B1.1 identify an understanding of how eating habits and lifestyle affect the digestion and metabolism of food
- B1.2 identify factors that affect body weight
- B2.1 identify factors that support the practice of healthy eating habits throughout the lifecycle
- B2.2 acknowledge the need to respect different body sizes and shapes
- B3.1 identify positive and negative reasons for taking risks
- B3.2 explain the relationship between risk taking and self-image
- B3.3 assess their own risk-taking tendency in a variety of contexts
- B3.4 identify and practise strategies for making decisions that involve risk
- B3.5 describe the effects of tobacco, alcohol, cannabis, and LSD on the body systems
- B3.6 identify factors that influence the risk level of drug use
- B3.7 identify personal, social, and cultural influences related to drug use
- B4.1 identify and practise ways of contributing to the physical and emotional safety of the school community
- B4.2 demonstrate the ability to set and maintain personal limits in a variety of decision-making situations involving peers
- B4.3 identify and practise assertive ways of refusing a ride with a driver who is under the influence of alcohol or other intoxicants

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- B4.4 identify types of abuse and demonstrate knowledge of laws related to assault and abuse
- B4.5 identify and practise safety precautions related to competitive and non-competitive sports

- B5.1 identify and practise strategies for preventing the spread of pathogens

- B6.1 identify and practise healthy ways of expressing emotions
- B6.2 demonstrate an awareness of ways emotions, thoughts, and body affect one another
- B6.3 identify and practise strategies for dealing assertively with conflict

- B7.1 participate in a broad range of physical activities they enjoy
- B7.2 identify and overcome gender stereotypes related to physical activity

Values and Practices for Healthy Living

GCO C: Students will be expected to demonstrate knowledge of factors that contribute to healthy living values and practices.

- C1.1 demonstrate an understanding of how different cultures view the role of adolescents within the family
- C1.2 demonstrate an awareness of their changing role within their own families

- C2.1 define community and demonstrate an understanding of how communities function as well as an appreciation of their own community

- C3.1 demonstrate an awareness of changing attitudes toward adolescents
- C3.2 demonstrate an awareness of adolescents as a target population for consumer marketing
- C3.3 demonstrate an awareness of gender-based trends and issues in the workplace

- C4.1 assess the impact of various decisions and practices on the health of the local and regional environments

- C5.1 demonstrate acceptance of, and appreciation for, their own and others' cultural backgrounds

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Strategies for Positive Personal Development and Healthy Relationship

GCO D: Students will be expected to demonstrate the knowledge, skills, and attitudes necessary to live happily and productively as an individual, within a family, and within the community.

- D1.1 identify and practise strategies for managing stress and solving problems associated with the changes and challenges of adolescence
- D1.2 demonstrate an understanding of the relationship between body image and self-esteem
- D1.3 demonstrate an ability to set short- and medium-term goals and to apply strategies for achieving these goals
- D1.4 identify and practise effective work and study habits

- D2.1 identify and practise ways of supporting healthy self-concept and decision making among peers
- D2.2 identify ways that community services provide protection from violence and abuse

- D3.1 demonstrate respect for the feelings and beliefs of others
- D3.2 identify the roles, rights, and responsibilities involved in various relationships
- D3.3 demonstrate the ability to communicate and work effectively in a group
- D3.4 identify and practise strategies for dealing with change in peer relationships

- D4.1 locate and analyse financial information related to various life/work options

- D5.1 define and compare the terms job, occupation, work, life/work, lifestyle, and career
- D5.2 demonstrate an understanding of the role of a realistic and positive self-concept in life/work building
- D5.3 identify various types of work, both paid and unpaid as well as volunteerism
- D5.4 project future wants and needs and identify ways that they can be satisfied through a combination of work, community, social, and family roles
- D5.5 demonstrate an understanding of family influences on life/work interests and decision making
- D5.6 select items for and maintain a life/work portfolio
- D5.7 identify relationships between their strengths/skills/interests and their career and educational plans

Information Technologies

Outcome Components

Students will demonstrate expected performance levels in five IT-based learning outcome areas within the context of essential graduation learnings and outcomes specified for the public school program as a whole.

Basic Operations and Concepts (BOC)

- concepts and skills associated with the safe, efficient operation of a range of information technologies

Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for grades primary–6 and will also be expected to

- BOC 9.1 under general supervision as they research, design, and create products that represent their learning, independently and safely
 - operate a wide variety of school media equipment, including audio equipment, overhead projectors, video cameras, videocassette recorder/players, televisions, photocopiers, and still cameras
 - use computer equipment to access and use curriculum-based computer software, from CD-ROMs, hard drives, or other data storage media
- BOC 9.2 demonstrate accurate, efficient keyboarding and manipulation of appropriate input devices; be able to assist others in the use of peripherals
- BOC 9.3 using a variety of technologies, demonstrate an understanding of technological applications and apply appropriate technologies to solve curriculum problems and enhance their learning
- BOC 9.4 independently run grade-appropriate software and manage folders and directories of their electronic work in accordance with school policies
- BOC 9.5 understand and use an increasing range of specialized vocabulary associated with the technologies they use
- BOC 9.6 practise and demonstrate a developing understanding of sound ergonomics as they use IT; identify and report dangerous workstation configurations or practices
- BOC 9.7 apply basic troubleshooting techniques in assessing equipment and software problems that affect their use of IT; document and articulate such problems to assist technical support staff in further diagnosis

Outcome Components

Students will demonstrate expected performance levels in five IT-based learning outcome areas within the context of essential graduation learnings and outcomes specified for the public school program as a whole.

Productivity Tools and Software (PTS)

- the efficient selection and use of IT to perform tasks such as the exploration of ideas
 - data collection
 - data manipulation, including the discovery of patterns and relationships
 - problem solving
 - the communication of learning

Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for grades primary–6 and will also be expected to

- PTS 9.1 independently use electronic planning software to brainstorm; develop a thought web; outline and map ideas under study; and track their progress toward agreed work deadlines
- PTS 9.2 in the process of collecting, analysing, and displaying data, independently create electronic charts, tables, and graphs; and design, create, and manipulate spreadsheets and databases
- PTS 9.3 with the assistance of their teachers, explore curriculum concepts under study using specialized software; peripheral measuring, sampling, and recording equipment; and computer-based simulations
- PTS 9.4 explore the curriculum through a wide range of print and electronic forms; access, create, and process information by means of the specialized techniques associated with the technologies they select
- PTS 9.5 under the general supervision of their teachers, independently manipulate sound and a range of image types, using digital imaging equipment and computer-based editing, to represent their learning in a variety of ways and for particular audiences
- PTS 9.6 independently develop multimedia presentations, based on sound principles of design, with increasing confidence and efficiency
- PTS 9.7 use information technology to explore increasingly complex numerical and geometric situations for the purpose of developing conjectures

Communications Technology (CT)

- the use of specific, interactive technologies that support collaboration and sharing through communication

- CT 9.1 represent their learning in a range of media, including print, video, audio, and multimedia, with growing confidence and competence
- CT 9.2 with teacher supervision, locate and access curriculum-relevant books, journals, and other print documents; media resources; and electronic files for use in all types of research
- CT 9.3 manage their electronic files and correspondence efficiently

Outcome Components

Students will demonstrate expected performance levels in five IT-based learning outcome areas within the context of essential graduation learnings and outcomes specified for the public school program as a whole.

Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for grades primary–6 and will also be expected to

- CT 9.4 demonstrate their understanding of how form, standards, conventions, and methods of transmission affect their use of information and its impact on themselves and others
- CT 9.5 with teacher supervision, work collaboratively in small groups to design and build, for peer use, intranet or Internet websites of student-produced pages about a curriculum topic

Research, Problem Solving, and Decision Making (RPSD)

- the organization, reasoning, and evaluation by which students rationalize their use of IT in pursuit of other curriculum outcomes
- RPSD 9.1 with the assistance of their teachers, select appropriate measuring and recording devices and/or software to collect data, discover patterns of change over time, solve problems, and make logical decisions based on their investigations
- RPSD 9.2 with the assistance of their teachers, select and use appropriate forms, styles, media, and sources to access, manipulate, assess, and present information meaningfully for different audiences
- RPSD 9.3 with the assistance of their teachers, assess the quality, completeness, biases, and perspectives of print, media, and electronic resources for possible use in their curricular studies
- RPSD 9.4 independently select, use, and occasionally develop specialized techniques to create communication environments, processes, and products in print, media, and electronic forms that meet defined information needs and appropriate quality standards
- RPSD 9.5 independently and critically evaluate how style, form, source, and medium influence the accessibility, validity, and meaning of information
- RPSD 9.6 with the assistance of their teachers, access the strengths and limitations of different approaches to research, then select those approaches that more efficiently meet their learning needs
- RPSD 9.7 with the assistance of their teachers, select and refine a research a topic, according to teacher-provided criteria, to fulfill a curriculum requirement
- RPSD 9.8 accurately and independently cite bibliographic information

Outcome Components

Students will demonstrate expected performance levels in five IT-based learning outcome areas within the context of essential graduation learnings and outcomes specified for the public school program as a whole.

Social, Ethical, and Human Issues (SEHI)

- understanding associated with the use of IT that encourages in students a commitment to pursue personal and social good, particularly to build and improve their learning environments and to foster stronger relationships with their peers and others who support their learning

Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for grades primary–6 and will also be expected to

- SEHI 9.1 demonstrate understanding of the nature of technology and its impacts on different societies and environments; assume personal responsibility for ethical behaviour and attitudes with regard to information technologies and resources and use them—in local and global contexts—with due regard for the legal and human rights of others
- SEHI 9.2 demonstrate understanding of, model, and assume personal responsibility for the acceptable use of copyrighted information resources
- SEHI 9.3 identify and demonstrate the techniques of mass media, popular culture, and electronic information environments, and evaluate the effects of these techniques
- SEHI 9.4 identify the values that inform mass media, popular culture, and electronic information environments in relation to their personal values
- SEHI 9.5 with the assistance of their teachers as required, identify the impacts of various media and information technologies on them, their learning environment, their cultures, and society
- SEHI 9.6 as researchers, demonstrate an understanding of and a commitment to accuracy and ethical behaviour as they create and distribute information about themselves, others, and curriculum topics under study
- SEHI 9.7 identify technology-related career opportunities of personal interest, and begin to assess their strengths and interests with respect to technology

Mathematics

General Curriculum Outcomes Specific Curriculum Outcomes

GCO A: Students will demonstrate number sense and apply number-theory concepts.

Students will be expected to

- A1 model and use power, base, and exponent to represent repeated multiplication
- A2 rename numbers among exponential, standard and expanded forms
- A3 rewrite large numbers from standard form to scientific notation and vice versa
- A4 solve and create problems involving common factors and greatest common factors (GCF)
- A5 solve and create problems involving common multiples and least common multiples (LCM)
- A6 develop and apply divisibility rules for 3, 4, 6, and 9
- A7 apply patterning in renaming numbers from fractions and mixed numbers to decimal numbers
- A8 rename single-digit and double-digit repeating decimals to fractions through the use of patterns, and use these patterns to make predictions
- A9 compare and order proper and improper fractions, mixed numbers, and decimal numbers
- A10 illustrate, explain, and express ratios, fractions, decimals, and percents in alternative forms
- A11 demonstrate number sense for percent
- A12 represent integers (including zero) concretely, pictorially, and symbolically, using a variety of models
- A13 compare and order integers

GCO B: Students will demonstrate operation sense and apply operation principles and procedures in both numeric and algebraic situations.

- B1 use estimation strategies to assess and justify the reasonableness of calculation results for integers and decimal numbers
- B2 use mental math strategies for calculations involving integers and decimal numbers
- B3 demonstrate understanding of the properties of operations with decimal numbers and integers
- B4 determine and use the most appropriate computational method in problem situations involving whole numbers and/or decimals
- B5 apply the order of operations for problems involving whole and decimal numbers
- B6 estimate sum or difference of fractions when appropriate
- B7 multiply mentally a fraction by whole numbers and vice versa
- B8 estimate and determine percent when given the part and the whole
- B9 estimate and determine the percent of a number

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- | | | |
|---|-----|--|
| | B10 | create and solve problems that involve the use of percent |
| | B11 | add and subtract integers concretely, pictorially, and symbolically to solve problems |
| | B12 | multiply integers concretely, pictorially, and symbolically to solve problems |
| | B13 | divide integers concretely, pictorially, and symbolically to solve problems |
| | B14 | solve and pose problems that utilize addition, subtraction, multiplication, and division of integers |
| | B15 | apply the order of operations to integers |
| | B16 | create and evaluate simple variable expressions by recognizing that the four operations apply in the same way as they do for numerical expressions |
| | B17 | distinguish between like and unlike terms |
| | B18 | add and subtract like terms by recognizing the parallel with numerical situations, using concrete and pictorial models |
| GCO C: Students will explore, recognize, represent, and apply patterns and relationships, both informally and informally. | C1 | describe a pattern, using written and spoken language and tables and graphs |
| | C2 | summarize simple patterns, using constants, variables, algebraic expressions, and equations, and use them in making predictions |
| | C3 | explain the difference between algebraic expressions and algebraic equations |
| | C4 | solve one- and two-step single-variable linear equations, using systematic trial |
| | C5 | illustrate the solution for one- and two-step single-variable linear equations, using concrete materials and diagrams |
| | C6 | graph linear equations, using a table of values |
| | C7 | interpolate and extrapolate number values from a given graph |
| | C8 | determine if an ordered pair is a solution to a linear equation |
| | C9 | construct and analyse graphs to show how change in one quantity affects a related quantity |
| GCO D: Students will demonstrate an understanding of and apply concepts and skills associated with measurement. | D1 | identify, use, and convert among the SI units to measure, estimate, and solve problems that relate to length, area, volume, mass, and capacity |
| | D2 | apply concepts and skills related to time in problem situations |
| | D3 | develop and use rate as a tool for solving indirect measurement problems in a variety of contexts |

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

	D4	construct and analyse graphs of rates to show how change in one quantity affects a related quantity
	D5	demonstrate an understanding of the relationships among diameter, radii, and circumference of circles, and use the relationships to solve problems
GCO E: Students will demonstrate spatial sense and apply geometric concepts, properties, and relationships.	E1	decide and justify which combinations of triangle classifications are possible, through construction using materials and/or technology
	E2	determine and use relationships between angle measures and side lengths in triangles
	E3	construct angle bisectors and perpendicular bisectors, using a variety of methods
	E4	apply angle pair relationships to find missing angle measures
	E5	identify, construct, classify, and use angle pair relationships pertaining to parallel lines and non-parallel lines and their transversals
	E6	apply angle relationships to find angle measures
	E7	explain, using a model, why the sum of the measures of the angles of a triangle is 180°
	E8	sketch and build 3-D objects, using a variety of materials and information about the objects
	E9	draw, describe, and apply translations, reflections, and rotations, and their combinations, and identify and use the properties associated with these transformations
	E10	create and describe designs using translation, rotation, and reflection
GCO F: Students will solve problems involving the collection, display, and analysis of data.	F1	communicate through example the distinction between biased and unbiased sampling, and first- and second-hand data
	F2	formulate questions for investigation from relevant contexts
	F3	select, defend, and use appropriate data collection methods and evaluate issues to be considered when collecting data
	F4	construct a histogram
	F5	construct appropriate data displays, grouping data where appropriate and taking into consideration the nature of the data
	F6	read and make inferences for grouped and ungrouped data displays
	F7	formulate statistics projects to explore current issues from within mathematics, other subject areas, or the world of students

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- | | |
|--|---|
| GCO G: Students will represent and solve problems involving uncertainty. | F8 determine measures of central tendency and how they are affected by data presentations and fluctuations |
| | F9 draw inferences and make predictions based on the variability of data sets, using range and the examination of outliers, gaps, and clusters |
| | G1 identify situations for which the probability would be near 0, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1 |
| | G2 solve probability problems, using simulations and by conducting experiments |
| | G3 identify all possible outcomes of two independent events, using tree diagrams and area models |
| | G4 create and solve problems, using the numerical definition of probability |
| | G5 compare experimental results with theoretical results |
| | G6 use fractions, decimals, and percents as numerical expressions to describe probability |

Music

General Curriculum Outcomes Key-Stage Curriculum Outcomes

Note: Specific curriculum outcomes have not yet been developed for Music 7–9. Teachers may wish to use the following General Curriculum Outcomes and Key-Stage Curriculum Outcomes from *Foundation for the Atlantic Canada Arts Education Curriculum* in planning their music program.

By the end of grade 9, students will have achieved the outcomes for entry–grade 6 and will also be expected to

Creating, Making, and Presenting

GCO 1: Students will be expected to explore, challenge, develop, and express ideas using the skills, language, techniques, and processes of the arts.

- sing or play, maintaining a part within a variety of textures and harmonies, using a range of musical structures and styles
- use the elements of music to express and communicate meaning
- interpret non-verbal gestures, making connections to notation and musical expression
- use a variety of notational systems to represent musical thoughts and ideas

GCO 2: Students will be expected to create and/or present, collaboratively and independently, expressive products in the arts for a range of audiences and purposes.

- improvise and compose patterns and short pieces, using a variety of sound sources and technologies
- present music, co-ordinating reading, listening, and playing/singing skills
- perform, alone and with others, music expressing a broad range of thoughts, images, and feelings

Understanding and Connecting Contexts of Time, Place, and Community

GCO 3: Students will be expected to demonstrate critical awareness of and value the role of the arts in creating and reflecting culture.

- identify and describe uses of music in daily life, both local and global
- identify opportunities to participate in music in school, community, and the world of work
- compare music from a range of cultural and historical contexts
- examine and describe ways in which music influences and is influenced by local and global culture

GCO 4: Students will be expected to respect the contributions of individuals and cultural groups to the arts in local and global contexts and value the arts as a record of human experience and expression.

- reflect on ways in which music expresses the history and the cultural diversity of local, national, and international communities
- examine ways in which music enhances and expresses life's experiences

General Curriculum Outcomes Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for entry–grade 6 and will also be expected to

GCO 5: Students will be expected to examine the relationship among the arts, societies, and environments.

- define relationships among music, other arts, and other subjects
- examine the roles that music plays in local and global communities

Perceiving and Responding

GCO 6: Students will be expected to apply critical thinking and problem-solving strategies to reflect on and respond to their own and others' expressive works.

- examine and explore a range of possible solutions to musical challenges
- use processes of description, analysis, interpretation, and evaluation to make and support informed responses to their own and others' music and musical performances
- critically reflect on ideas and feelings in works of music, and identify patterns, trends, and generalizations

GCO 7: Students will be expected to understand the role of technologies in creating and responding to expressive works.

- identify combinations of instruments and sound sources, including electronic sources
- identify and describe instruments common to cultures and countries included in the social studies curriculum
- explore a range of non-acoustic musical sound sources
- describe the relationship of instruments and other technologies to the mood and feeling of their own and others' music

GCO 8: Students will be expected to analyse the relationship between artistic intent and the expressive work.

- discuss why a range of musical works has been created
- analyse the source of ideas and reasons for musical decisions in light of original intent
- use feedback from others to examine their own music work in light of their original intent
- analyse performances and provide critical commentary on aspects of musical presentation in light of the performers' intent

Physical Education

General Curriculum Outcomes

Students will be expected to

Knowing

- demonstrate an understanding of the concepts that support human movement
- demonstrate a knowledge of the components and processes needed to develop and maintain a personal level of functional fitness

Doing

- demonstrate motor skills in all movement categories using efficient and effective body mechanics
- participate regularly in a variety of activities that develop and maintain personal physical fitness
- demonstrate creativity in all movement categories

Valuing

- demonstrate positive personal and social behaviours and interpersonal relationships
- demonstrate positive attitudes toward and an appreciation of physical activity through participation
- demonstrate awareness of career and occupational opportunities related to physical activities

Specific Curriculum Outcomes

Students will be expected to

Active Living

- set and modify goals to develop personal fitness to maintain a healthy lifestyle
- categorize activities and exercises according to cardiovascular benefits
- describe and practise relaxation techniques for stress management
- describe the relationship between nutrition and activity
- explain the benefits of and demonstrate warm-up and cool-down activities
- participate in activities that enhance cardiovascular fitness, muscular strength, endurance, and flexibility
- identify resources in the community that contribute to active living

Outdoor Activities

- know and practise safety procedures and routines in a variety of outdoor activities
- find a desired direction of travel by taking a compass bearing
- know and understand the concept of reading a map
- participate in activities or games that demonstrate sensitivity towards the environment (e.g., school grounds clean-up)
- participate in at least one land-based (e.g., hiking, orienteering) and one water-based (e.g., swimming, canoeing) seasonal activity that practises environmental safety

Dance

- perform a variety of individual novelty dances (e.g., Y.M.C.A., Macarena, line dance, limbo)
- perform an aerobic dance sequence to music
- demonstrate the use a variety of objects (e.g., fans, drums, hats) to create dances
- perform a variety of line, circle, and square dances learned in elementary school
- create and perform movement sequences to a variety of music and rhythmic forms

General Curriculum Outcomes Specific Curriculum Outcomes**Educational Gymnastics**

- demonstrate safety procedures and practices to avoid unnecessary risks
- perform correct techniques for basic gymnastics skills (e.g., rolls, cartwheels, handstands)
- demonstrate travel, balance, and weight transfers on the floor and on small and/or large equipment

Sport Experience

- demonstrate sport-specific skills and be able to break them down into their components: preparation, action, follow-through
- participate in a wide variety of sports and games
- demonstrate an understanding of rules with regard to safety
- demonstrate an understanding of rules in game situations
- demonstrate positive personal and social behaviours that emphasize fair play

Science

General Curriculum Outcomes

STSE

GCO 1: Students will develop an understanding of the nature of science and technology, of the relationships between science and technology, and of the social and environmental contexts of science and technology.

Skills

GCO 2: Students will develop the skills required for scientific and technological inquiry, for solving problems, for communicating scientific ideas and results, for working collaboratively, and for making informed decisions.

Knowledge

GCO 3: Students will construct knowledge and understandings of concepts in life science, physical science, and Earth and space science, and apply these understandings to interpret, integrate, and extend their knowledge.

Attitudes

GCO 4: Students will be encouraged to develop attitudes that support the responsible acquisition and application of scientific and technological knowledge to the mutual benefit of self, society, and the environment.

Specific Curriculum Outcomes

Students will be expected to

Life Science: Interactions within Ecosystems

Components of an Ecosystem

- identify, delimit, and investigate questions related to a local ecosystem (208-2, 208-3)
- use instruments effectively and accurately to investigate components of an ecosystem (209-3)
- organize and record data collected in an investigation of an ecosystem (209-4)
- describe interactions between biotic and abiotic factors in an ecosystem (306-3)
- identify the roles of producers, consumers, and decomposers in a local ecosystem and describe both their diversity and their interactions (304-2)
- classify organisms as producers, consumers, and decomposers (210-1)
- distinguish between scientific terms such as consumer, decomposer, producer, etc. (109-12)
- explain how biological classification takes into account the diversity of life on Earth, using the terms **producer**, **consumer**, and **decomposer** (304-1)
- explain that observations and identification of similar characteristics enables classification in an ecosystem (109-1)

Food Webs

- demonstrate the importance of choosing words that are scientifically appropriate by using these words in context (109-13)
- prepare a chart that describes how energy is supplied to, and how it flows through, a food web (210-2, 306-1)
- identify the strengths and weaknesses of a diagram showing the flow of energy in an ecosystem (210-3)
- apply the concept of a food web as a tool for interpreting the structure and interactions of a natural system (111-6)
- describe how matter is recycled in an ecosystem through interactions among plants, animals, fungi, and microorganisms (306-2)

General Curriculum Outcomes**Specific Curriculum Outcomes**

Students will be expected to

- identify and evaluate potential applications of the recycling of matter in an ecosystem (210-12)

Decomposers

- describe conditions essential to the growth and reproduction of plants and microorganisms in an ecosystem, and relate these conditions to various aspects of the human food supply (304-3)
- provide examples of how knowledge of microorganisms has resulted in the development of food production and preservation techniques (111-1)

Ecological Succession

- identify signs of ecological succession in a local ecosystem (306-4)
- predict what an ecosystem will look like in the future on the basis of the characteristics of the area and the long-term changes (succession) observed in the site (208-5)

Action

- propose and defend a course of action to protect the local habitat of a particular organism (113-11, 211-5)
- provide examples of problems that arise in the environment that cannot be solved using scientific or technological knowledge (113-10)
- use various print and electronic sources to research individuals or groups in Canada interested in protecting the environment (112-4, 112-8, 209-5)

Earth and Space Science: Earth's Crust**Geological Plate Tectonics and Time Scale**

- compare some of the catastrophic events, such as earthquakes and volcanic eruptions, that occur on or near the Earth's surface (311-4)
- organize and analyse data on the geographical and chronological distribution of earthquakes and volcanoes to determine patterns and trends (209-4, 210-6, 311-5)

General Curriculum Outcomes**Specific Curriculum Outcomes**

Students will be expected to

- describe how plate tectonic theory has evolved in light of new geological evidence (110-4)
- provide examples of ideas and theories used in the past to explain volcanic activity, earthquakes, and mountain building (110-1)
- provide examples of Canadians and Canadian institutions that have contributed to our understanding of local, regional, and global geology (112-12)
- explain the processes of mountain formation and the folding and faulting of the Earth's surface (311-1)
- develop a chronological model or geological time scale of major events in Earth's history (209-4, 311-6)

Rocks and Minerals

- classify minerals on the basis of their physical characteristics by using a dichotomous key (210-1, 310-2a)
- work co-operatively with team members to plan how to determine a geological profile of a land mass by using simulated core sampling techniques (211-3)
- evaluate the individual and group processes in planning how to determine a geological profile of a land mass using simulated core sampling in geological models (210-12, 211-4)
- describe the composition of the Earth's crust and some of the technologies which have allowed scientists to study geological features in an on the Earth's crust (109-7, 111-2, 310-1)

The Rock Cycle

- identify questions to investigate arising from the study of the rock cycle (208-2)
- use tools and apparatus safely when modelling or simulating the formation of rock types (209-6)
- classify rocks on the basis of their characteristics and method of formation (310-2b)
- explain how society's needs led to developments in technologies designed to use rocks (112-3)

General Curriculum Outcomes**Specific Curriculum Outcomes**

Students will be expected to

Weathering

- explain various ways in which rocks can be weathered (311-2)

Soil

- design and conduct a fair test of soil properties (209-1)
- classify various types of soil according to their characteristics, and investigate ways to enrich soils (310-3)
- relate various meteorological, geological, chemical, and biological processes to the formation of soils (311-3)
- identify some positive and negative effects and intended and unintended consequences of enriching soils (113-1)
- provide examples of how science and technology associated with soil enrichment affects their lives (112-7)
- suggest solutions to problems or issues related to soil use and misuse (113-7)

Physical Science: Heat**Temperature**

- select appropriate methods and tools in order to construct and test an air thermometer (208-8, 210-13)
- compile and display data collected in the test of the design of an air thermometer (210-2)
- compare various instruments used to measure temperature (308-1)
- use and read a thermometer safely and properly (209-3)
- provide examples of temperature-measuring technologies used in the past (110-7)

Temperature and Matter

- explain how each state of matter reacts to changes in temperature (308-3)
- explain changes of state, using the particle model of matter (308-4)

General Curriculum Outcomes**Specific Curriculum Outcomes**

Students will be expected to

- explain temperature, using the concept of kinetic energy and the particle model of matter (308-2)

Heat Transfer

- compare transmission of heat by conduction, convection, and radiation (308-5)
- describe the science underlying heat transfer in solar heating systems and central heating systems in houses (111-5)
- describe how a technology associated with heat has affected lives (113-4)
- compare, in qualitative terms, the heat capacities of some common materials (308-7)
- carry out a procedure to investigate how various surfaces absorb radiant heat and control major variables (209-1)
- identify potential sources of error in data while investigating how various surfaces absorb radiant heat (210-10)
- identify, evaluate, and draw a conclusion about the relationship between colour and heat absorption in materials (210-11, 210-12)
- communicate results of experiments and/or investigations related to colour and heat absorption by using language and a variety of tables, charts, and/or graphs (211-2)
- describe how various surfaces absorb radiant heat (308-6)

Technology, Temperature, and Heat

- describe how our needs related to heat can lead to development in science and technology (112-1)
- identify examples of science- and technology-based careers that are associated with heat and temperature (112-9)
- provide examples of insulating technologies used in the past that were developed through trial and error (109-4)

General Curriculum Outcomes**Specific Curriculum Outcomes**

Students will be expected to

Physical Science: Mixtures and Solutions**Mixtures**

- relate the formation and separation of everyday mixtures and solutions to disciplines such as chemistry and engineering (109-10)
- safely using tools and apparatus, identify and separate the components of a variety of mixtures, using ... (209-6, 307-2)
- identify new questions and problems about mixtures that arise from what is learned (210-16)

Solutions

- distinguish between pure substances and mixtures, using the particle theory of matter (307-1)
- describe the characteristics of solutions, using the particle model of matter and the terms ... (109-14, 307-3)
- describe the science underlying a distillation apparatus (111-5)
- demonstrate a knowledge of WHMIS standards by recognizing and following warnings labels symbols (209-7)

Concentration of Solutions

- describe the concentration of solutions qualitatively (307-4)
- identify different ways that concentrations can be demonstrated for various substances (109-7)
- calculate concentrations of solutions in g/L (210-9)
- rephrase questions related to solubility in a testable form and clearly define practical problems (208-1)
- design and carry out procedures to study the effect of temperature on solubility (208-6, 209-1)
- identify and suggest explanations for discrepancies in data after carrying out procedures designed to study the effect of temperature on solubility (210-7)
- predict the solubility of a solute by interpolating or extrapolating from graphical data (210-4)
- describe qualitatively the factors that affect solubility (307-5)
- use a commercial or student-made hydrometer effectively and accurately for collecting data (209-3)

General Curriculum Outcomes**Specific Curriculum Outcomes**

Students will be expected to

Mixtures, Solutions, and the Environment

- provide examples of how science and technology, related to mixtures and solutions, affect our lives (112-7)
- identify some positive and negative effects and intended and unintended consequences of a particular scientific or technological development related to mixtures and solutions (113-1)
- provide examples showing the evolution of refining and separation techniques (109-4)

Social Studies (Draft)

General Curriculum Outcomes

Citizenship, Power, and Governance

GCO: Students will be expected to demonstrate an understanding of the rights and responsibilities of citizenship and the origins, functions, and sources of power, authority, and governance.

Individuals, Societies, and Economic Decisions

GCO: Students will be expected to demonstrate an understanding of culture, diversity, and world view, recognizing the similarities and differences reflected in various personal, cultural, racial, and ethnic perspectives.

People, Place, and Environment

GCO: Students will be expected to demonstrate the ability to make responsible economic decisions as individuals and as members of society.

Culture and Diversity

GCO: Students will be expected to demonstrate an understanding of the interdependent relationship among individuals, societies, and the environment—locally, nationally, and globally—and the implications for a sustainable future.

Interdependence

GCO: Students will be expected to demonstrate an understanding of the interactions among people, places, and the environment.

Specific Curriculum Outcomes

Students will be expected to

Note: The specific curriculum outcomes for social studies listed below are draft outcomes. They are provided for your information only. Until this new curriculum is piloted and implemented, the current curriculum is to be followed.

Unit One: Introduction

- explore the general concept of empowerment

Unit Two: Economic Empowerment

- investigate the various ways that economics empowers or disempowers people
- analyse how commodities for economic empowerment have changed
- identify and analyse trends that could impact future economic empowerment

Unit Three: Political Empowerment

- evaluate the conditions of everyday life for diverse peoples living in British North America in the mid 1800s, including Aboriginal peoples, African-Canadians and Acadians
- analyse how the struggle for responsible government was an issue of political empowerment and disempowerment
- identify, interpret and analyse the internal and external factors that led to Confederation
- explain the political structure of Canada as a result of Confederation

Unit Four: Cultural Empowerment

- explain how the expansion and development of Canada during the 1870s and early 1880s affected its various people and regions
- analyse the events of the Northwest Rebellion to determine its impact on internal relations in Canada
- analyse the degree of empowerment and disempowerment for Aboriginal peoples in present day Atlantic Canada during this period
- analyse the struggle for empowerment by new cultural groups immigrating to Canada between 1870 and 1914

General Curriculum Outcomes Specific Curriculum Outcomes**Time, Continuity, and Change**

GCO: Students will be expected to demonstrate an understanding of the past and how it affects the present and the future.

Students will be expected to

Unit Five: Societal Empowerment

- evaluate the conditions of everyday life for the peoples of Canada at the turn of the 20th century
- describe the impact of the Industrial Revolution on industry and workers in the Maritimes and across Canada
- explain how women became more empowered through their role in the social reform movements of the late 19th and early 20th century

Unit Six: National Empowerment

- identify and describe events in the early 20th century that led Canada toward independence
- explain Canada's participation in WWI
- demonstrate an understanding of the impact of WWI on Canada and her people

Unit Seven: Summative

- portray an understanding of the extent of empowerment of individuals, groups, and the nation up to 1920

Technology Education (Draft)

Communications Technology 7

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Technological Problem Solving

GCO 1: Students will be expected to design, develop, evaluate, and articulate technological solutions.

Technological Systems

GCO 2: Students will be expected to operate and manage technological systems.

History and Evolution of Technology

GCO 3: Students will be expected to demonstrate an understanding of the history and evolution of technology, and of its social and cultural implications.

Technology and Careers

GCO 4: Students will be expected to demonstrate an understanding of current and evolving careers and of the influence of technology on the nature of work.

Technological Responsibility

GCO 5: Students will be expected to demonstrate an understanding of the consequences of their technological choices.

Big Ideas

Tools of Communication—Past, Present, and Future

- explore the evolution of communications technology
- examine the role of Atlantic region in the evolution of communications technology
- explore convergence in a variety of information and communications technologies
- explore and identify information and communications tools, systems, and networks in daily use at home and in school

Using Communications Tools for Everyday Activities

- work effectively in a variety of communications media
- use communications technologies to build new knowledge from existing information by accessing, evaluating, and selecting appropriate information, and creating, modifying, and disseminating information

Processes of Communication

- identify examples of the basic communications processes of designing/encoding/decoding, transmitting/receiving, storing/retrieving
- differentiate between analog and digital communications principles and technologies

Communications Systems

- explore new and emerging communications systems
- examine the effect of rapid change in communications systems on themselves and society
- demonstrate an understanding of the interactions among communications technology and society
- examine the role of communications systems as a tool for lifelong learning

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Introduction to Communications Graphics

- understand the use of technical drawings
- identify specific examples of isometric and orthographic drawings
- use the language and terminology of communications processes and communications tools

Introduction to Graphic Design

- demonstrate knowledge of the elements of graphic or visual design
- demonstrate knowledge of the principles of graphic design

Technological Problem Solving

- demonstrate knowledge of technological problem solving

Basic Skills**Communication Graphics—Sketching and Simple Technical Drawings**

- use a range of two-dimensional and three-dimensional representational techniques to communicate technical solutions and ideas

Ownership and Copyright

- explore ethical decision making and intellectual honesty as factors in making technological choices

Creating, Importing, and Acquiring Images, Audio, and Video

- use image editing programs to create bitmapped images and structured drawings
- digitize still images by using scanners, digital cameras, or video capture devices
- digitize sound by using audio cards, microphones, and other devices
- (Optional) digitize video clips by using digital cameras, video capture cards, or IEEE1394 devices

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Creating Documents

- use graphic design elements and principles to plan simple documents
- use a variety of software to create documents that incorporate text and graphics

Presenting Your Ideas

- develop a presentation outline
- develop a presentation using multimedia software

Design Activities**Step 1: Problem Situation**

- identify real life communication problem situations and opportunities, and select one for further development
- develop a rationale for solving a particular problem, and effectively communicate that rationale to others

Step 2: Design Briefs

- identify and clearly state communications problems
- specify conditions and criteria that affect how the problem will be solved
- generate a design brief and place it in the design portfolio

Step 3: Investigation and Research

- investigate ways that other people solved similar problems
- investigate resources available to solve this problem
- use the design portfolio to document their investigation and research

Step 4: Identify Possible Solutions

- use one or more idea generation strategies to identify a range of alternative solutions
- use the design portfolio to document the possible solutions

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Step 5: Select the Best Solution

- develop criteria for evaluating solution options
- examine the solution options and select the most appropriate, using established criteria
- use the design portfolio to document the proposed solution and the rationale for choosing it

Step 6: Develop the Solution

- identify specific tools and resources and determine new skills they will need to acquire
- create a plan of action
- develop the solution, redesigning as necessary, using safe practices
- use the design portfolio to document the development process, including changes and the rationale for them
- organize data using an appropriate format to communicate ideas and information about technological solutions

Step 7: Evaluate the Solution

- establish criteria for evaluating the solution
- evaluate their solution based on pre-determined criteria
- use the design portfolio to document the evaluation process, including evaluation criteria and how the solution was assessed

Step 8: Present the Report

- develop a presentation plan based on information recorded in the design portfolio
- use appropriate presentation tools and strategies to develop a presentation that demonstrates how the design model was implemented, and the implications of the solution
- present the solution and the report to the class

Visual Arts

General Curriculum Outcomes

Key-Stage Curriculum Outcomes

Note: Specific curriculum outcomes have not yet been developed for Visual Arts 7–9. Teachers may wish to use the following general curriculum outcomes and key-stage curriculum outcomes from *Foundation for the Atlantic Canada Arts Education Curriculum* in planning their music program.

By the end of grade 9, students will have achieved the outcomes for entry–grade 6 and will also be expected to

Creating, Making, and Presenting

GCO 1: Students will be expected to explore, challenge, develop, and express ideas, using the skills, language, techniques, and processes of the arts.

- manipulate and organize design elements and principles to achieve planned compositions
- assess and utilize the properties of various art media and their ability to convey messages and meaning
- create artworks, integrating themes found through direct observation, personal experience, and imagination
- respond verbally and visually to the use of art elements in personal works and the work of others
- analyse and use a variety of image development techniques (e.g., distortion, metamorphosis, fragmentation)
- demonstrate increasing complexity in art skills and techniques

GCO 2: Students will be expected to create and/or present, collaboratively and independently, expressive products in the arts for a range of audiences and purposes.

- invent and incorporate unique visual symbols to create personal meaning in their art
- analyse and make use of visual, spatial, and temporal concepts in creating art images
- select, critique, and organize a display of personally meaningful images from their own portfolio
- acknowledge and respect individual approaches to and opinions of art
- work interactively, co-operatively, and collaboratively

Understanding and Connecting Contexts of Time, Place, and Community

GCO 3: Students will be expected to demonstrate critical awareness of and value the role of the arts in creating and reflecting culture.

- examine the role and the influence of visual images in their daily lives, including mass media and popular culture
- evaluate visual communication systems as a part of daily life
- through their own art develop concepts and imagery based on personal ideas and experience
- recognize and describe the role of the visual arts in challenging, sustaining, and reflecting society's beliefs and traditions

General Curriculum Outcomes Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for entry–grade 6 and will also be expected to

GCO 4: Students will be expected to respect the contributions to the arts of individuals and cultural groups in local and global contexts, and value the arts as a record of human experiences and expression.

- identify opportunities to participate in the visual arts in school, community, and the world of work
- develop an appreciation of diversity among individuals as reflected in their art work
- recognize the existence of a variety of visual languages that reflect cultural, socio-economic, and national origins
- recognize that and investigate how art as a human activity emerges from human needs, values, beliefs, ideas, and experiences
- demonstrate an understanding of how individual and societal values affect our response to visual art
- create personally meaningful imagery that reflects influence from a variety of historical and contemporary artists
- compare the characteristics of artwork from different cultures and periods in history

GCO 5: Students will be expected to examine the relationship among the arts, societies, and environments.

- draw upon other arts disciplines as a resource in the creation of their own art works
- use, with confidence, experiences from their personal, social, cultural, and physical environments as a basis for visual expression
- demonstrate an understanding of how individual and societal values affect our response to visual art
- interpret visual parallels between the structures of natural and built environments
- recognize and respect the ethical and moral considerations involved in copying works

Perceiving and Responding

GCO 6: Students will be expected to apply critical thinking and problem-solving strategies to reflect on and respond to their own and others' expressive works.

- develop independent thinking in interpreting and making judgments about subject matter
- constructively critique the work of others
- analyse the works of artists to determine how they have used the elements and principles of design to solve specific visual design problems
- engage in critical reflective thinking as part of the decision-making and problem-solving process
- investigate and analyse how meaning is embedded in works of art

General Curriculum Outcomes Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for entry-grade 6 and will also be expected to

GCO 7: Students will be expected to understand the role of technologies in creating and responding to expressive works.

- practise safety associated with proper care of art materials and tools
- create images that solve complex problems that take into consideration form and function, and understand the value of looking for alternative solutions
- evaluate and use various media and technological processes for their sensory qualities and ability to convey messages and meaning
- realize the direct influence expanding technology has had and continues to have on the individual and society

GCO 8: Students will be expected to analyse the relationship between artistic intent and the expressive work.

- analyse artwork and determine the artist's intention
- analyse why images were created by artists
- identify and discuss the source of ideas behind their own work and the work of others
- use feedback from others to examine their own art works in light of their original intent

Grade 8

Core French

Key-Stage Curriculum Outcomes

By the end of grade 9, students will be expected to

Specific Curriculum Outcomes

Students will be expected to

Communication

GCO: On the basis of their experiences in the Core French Program, students will be expected to

- communicate effectively in French, both orally and in writing; and to interact appropriately in a variety of situations that relate to their needs and interests

- | | |
|---|--|
| <ul style="list-style-type: none"> function in a classroom where French is the language spoken | <ul style="list-style-type: none"> listen to longer communications (demonstrate with occasional support) follow more complex directions (demonstrate with occasional support) negotiate to understand (demonstrate with occasional support) |
| <ul style="list-style-type: none"> participate in an informal conversation, with support | <ul style="list-style-type: none"> ask for and give information (demonstrate independently) initiate and conclude a conversation (demonstrate independently) communicate on the telephone (demonstrate independently) |
| <ul style="list-style-type: none"> identify, describe and compare objects, people, events and places | <ul style="list-style-type: none"> recount an event (demonstrate with occasional support) give a report (demonstrate with occasional support) describe physical and personality traits (demonstrate with occasional support) give directions (demonstrate with occasional support) |
| <ul style="list-style-type: none"> express a preference, an opinion or a feeling with justification | <ul style="list-style-type: none"> discuss tastes (demonstrate with occasional support) state preferences (demonstrate with occasional support) justify choices (demonstrate with occasional support) persuade (demonstrate with occasional support) |
| <ul style="list-style-type: none"> become involved in a variety of interactive activities | <ul style="list-style-type: none"> make telephone calls and participate in interviews (demonstrate with occasional support) participate in a debate, games, round table discussions, brainstorming, surveys, and in role-plays (demonstrate with occasional support) |
| <ul style="list-style-type: none"> ask a variety of questions | <ul style="list-style-type: none"> find information (demonstrate independently) clarify and verify learning (demonstrate with occasional support) select pertinent information (demonstrate independently) |

Key-Stage Curriculum Outcomes

By the end of grade 9, students will be expected to

- select information by reading, listening to or viewing different texts
- respond personally to a variety of texts
- produce a variety of texts by following criteria

Specific Curriculum Outcomes

Students will be expected to

- distinguish the characteristics of different types of text (demonstrate independently)
- identify the main ideas of a text (demonstrate independently)
- infer the evolution, the conclusion of a story (demonstrate with occasional support)
- draw, mime, and dramatize (demonstrate independently)
- plan, organize, and evaluate a portfolio (demonstrate with occasional support)
- compose songs and poetry (demonstrate with occasional support)
- keep a personal journal (demonstrate with occasional support)
- produce expressive, informative, persuasive, humorous, and poetic texts (demonstrate with occasional support)
- revise and correct text (demonstrate with occasional support)

Culture

GCO: On the basis of their experiences in the Core French Program, students will be expected to

- demonstrate an appreciation and understanding of Francophone cultures, while comparing them with their own culture, as well as an appreciation and understanding of Canada's multicultural reality
- describe certain Francophone regions locally, provincially, nationally, and internationally
- describe, with relevant details, certain realities of Francophone cultures
- name and locate certain Francophone communities in Canada (demonstrate with occasional support)
- identify and describe the different Acadian regions in Nova Scotia (demonstrate with occasional support)
- identify certain areas in the world where French is spoken (demonstrate with occasional support)
- describe Acadian festivals and the important role of music and dance (demonstrate with occasional support)
- describe some Acadian meals (demonstrate with occasional support)
- identify some Francophone festivals in Canada (demonstrate with occasional support)
- identify some Francophone customs in Canada (demonstrate with occasional support)
- name some events associated with Francophone regions in the world (demonstrate with occasional support)

Key-Stage Curriculum Outcomes

By the end of grade 9, students will be expected to

- compare aspects of Francophone cultures with aspects of their own culture
- explain the contribution of some contemporary Francophone personalities to Canadian society
- identify the diverse origins of people who make up the Canadian mosaic
- identify the cultural elements in authentic documents
- explain the advantages of being bilingual in our society

Specific Curriculum Outcomes

Students will be expected to

- compare Acadian culture and their own culture (demonstrate with occasional support)
- inform themselves about the contributions to Canada of some famous Francophones (demonstrate with occasional support)
- describe some contributions of famous Acadians (demonstrate with occasional support)
- recognize certain cultural stereotypes (demonstrate with occasional support)
- express an opinion with respect to some stereotypes (demonstrate occasional support)
- demonstrate a respect towards other languages (demonstrate with occasional support)
- inform themselves of activities through the media (demonstrate with occasional support)
- inform and amuse themselves by listening to the radio and viewing televisions and films (demonstrate with occasional support)
- demonstrate an interest in using French (demonstrate with occasional support)
- identify the evidence of bilingualism in our society (careers, laws, etc.) (demonstrate with occasional support)

General Language Education

GCO: On the basis of their experience in the Core French Program, students will be expected to

- choose and implement strategies to facilitate their communication in French and their learning
- use learning strategies, communication strategies and social strategies to communicate in French, both orally and in writing
- demonstrate the importance of non-verbal communication (use gestures) (demonstrate independently)
- use partial sentences, repetition, paraphrase, and circumlocutions (demonstrate with occasional support)
- request clarifications and explanations in order to understand (demonstrate with occasional support)
- plan and organize their productions using their own learning experiences
 - prepare checklist
 - adapt a message to the circumstances
 - plan a written production (demonstrate with occasional support)

Key-Stage Curriculum Outcomes

By the end of grade 9, students will be expected to

Specific Curriculum Outcomes

Students will be expected to

- self-correct (demonstrate with occasional support)
- keep a personal journal (demonstrate with occasional support)
- give advice to facilitate group work (demonstrate with occasional support)
- take turns (demonstrate with occasional support)
- accept suggestions given by others (demonstrate with occasional support)
- identify how knowledge and skills in French class can be useful in everyday life (demonstrate with occasional support)

Language

GCO: On the basis of their experience in the Core French Program, students will be expected to

- recognize and use in context elements of the linguistic code, orally and in writing, to facilitate their communication in French
-
- understand and use the vocabulary, expressions and structures relating to the needs in the classroom and to areas of experience
 - function in the classroom by using expressions from the unit «*comment survivre en français dans un cours de français*» and the directions and rules of the classroom (demonstrate independently)
 - participate in a conversation and involve themselves in a variety of interactions by using the present, future, and simple past tenses; connecting words such as *d'abord, ensuite, finalement, puis, et, mais*; interrogative and negative (demonstrate with occasional support)
 - describe and compare by using the present, future, and simple past tenses; adjectives; adverbs; comparative and superlative; connecting words (demonstrate with occasional support)
 - select information using verb tenses, connecting words such as *d'abord, ensuite, finalement, puis, cependant, en plus, par contre* (demonstrate with occasional support)
 - produce a variety of texts using the present, future, and past tenses; interrogative and negative; connecting words such as: *puis, et, mais, en plus* in order to produce a cohesive and coherent text (demonstrate with occasional support)

English Language Arts

General Curriculum Outcomes Specific Curriculum Outcomes

GCO 1: Students will be expected to speak and listen to explore, extend, clarify, and reflect on their thoughts, ideas, feelings, and experiences.

GCO 2: Students will be expected to communicate information and ideas effectively and clearly, and to respond personally and critically.

GCO 3: Students will be expected to interact with sensitivity and respect, considering the situation, audience, and purpose.

Students will be expected to

- 1.1 consider and reflect upon the contribution of others' ideas during discussions
 - 1.2 ask questions that probe for accuracy, relevancy, and validity; respond thoughtfully and appropriately to such questions
 - 1.3 state a point of view in a convincing manner, offering relevant information to support that viewpoint
 - 1.4 listen carefully to identify key points in oral presentations, and evaluate the relevancy of supporting details
- 2.1 contribute to small-group conversation and whole-group discussion, choosing appropriate strategies that contribute to effective talk
 - 2.2 understand the importance of adapting communication choices such as vocabulary, sentence structure, rate of speech, and tone to meet the needs of different purposes and audiences; select suitable communication choices in various speaking contexts
 - 2.3 give instructions and respond appropriately to instructions, directions, and questions
 - 2.4 evaluate the effectiveness of their own and others' talk in a variety of contexts; employ and consider the effects of verbal and non-verbal language (e.g., summaries, examples, and body gestures)
- 3.1 demonstrate active speaking and listening skills such as making eye contact, rephrasing when appropriate, clarifying comments, extending, refining, and/or summarizing points already made
 - 3.2 demonstrate a respect for others by developing effective ways to express personal opinions such that they reflect sensitivity to others including differences in culture and language
 - 3.3 recognize that spoken language reveals values and attitudes such as bias, beliefs, and prejudice; understand how language is used to influence and manipulate
 - 3.4 recognize that different situations (interviews, speeches, debates, conversation) require different speaking and listening conventions (questioning techniques, persuasive talk, formal language) appropriate to the situation

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

GCO 4: Students will be expected to select, read, and view with understanding a range of literature, information, media, and visual texts.

- 4.1 select texts that address their learning needs and range of special interests
- 4.2 read widely and experience a variety of young adult fiction and literature from different provinces and countries
- 4.3 explain with some regularity how authors use pictorial, typographical, and other organizational devices such as tables and graphs to achieve certain purposes in their writing, and rely on those devices to construct meaning and enhance understanding
- 4.4 read with greater fluency, confidence, and comprehension by furthering personal understanding, recognition, and use of cueing systems and strategies to read and view increasingly complex texts
- 4.5 regularly identify the processes and strategies readers and viewers apply when constructing meaning; develop an understanding of the personal processes and strategies applied when reading and viewing; reflect on personal growth as readers and viewers of texts and use this awareness of personal development to push reading and viewing ability even further

GCO 5: Students will be expected to interpret, select, and combine information using a variety of strategies, resources, and technologies.

- 5.1 access appropriate print and non-print sources with increasing independence and select information to meet specific needs with increasing speed, accuracy, and confidence
- 5.2 experiment with and rely upon a range of print and non-print (e-mail, CD-ROMs) sources for accessing and selecting information
- 5.3 employ various relevant research strategies like generating questions, drafting an outline, or interviewing peers to determine what questions they would like answered by their research

GCO 6: Students will be expected to respond personally to a range of texts.

- 6.1 elaborate personal reactions to what is read and viewed by providing some extended explanations, examples, and supporting arguments
- 6.2 state personal points of view about what is read and viewed and justify views with increasing regularity
- 6.3 with increasing confidence and flexibility, find evidence in texts to support personal claims and viewpoints about issues, themes, and situations

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

GCO 7: Students will be expected to respond critically to a range of texts, applying their understanding of language, form, and genre.

- 7.1 recognize that texts need to be assessed for bias and broaden their understanding and awareness of the ways in which print and media texts can be biased; begin to question and think critically about the relevance and reliability of information when answering questions and inquiries
- 7.2 identify the various features and elements writers use when writing for specific readers for specific purposes; describe how texts are organized to accommodate particular readers' needs and to contribute to meaning and effect
- 7.3 expand on earlier abilities to respond critically to a range of texts in various ways
 - understand how personal knowledge, ideas, values, perceptions, and points of view influence how writers create texts
 - recognize how and when personal background influences meaning construction, understanding, and textual response
 - describe how cultures and reality are portrayed in media texts

GCO 8: Students will be expected to use writing and other ways of representing to explore, clarify, and reflect on their thoughts, feelings, experiences, and learnings; and to use their imagination.

- 8.1 demonstrate competence in the frequent use of writing and representing strategies to extend learning; to explore their own thoughts and consider others' ideas, to reflect on their feelings, values, and attitudes; and to identify problems and describe logical solutions
- 8.2 identify and reflect upon strategies that are effective in helping them to learn; describe their personal growth as language learners and language users
- 8.3 begin to use various forms of note-making appropriate to various purposes and situations
- 8.4 demonstrate an awareness of how and when to integrate interesting effects in imaginative writing and other ways of representing; include thoughts and feelings in addition to external descriptions and activities; integrate detail that adds richness and density; identify and correct inconsistencies and avoid extraneous detail; make effective language choices relevant to style and purpose, and, when appropriate, select more elaborate and sophisticated vocabulary and phrasing

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

GCO 9: Students will be expected to create texts collaboratively and independently, using a variety of forms for a range of audiences and purposes.

- 9.1 continue to develop writing forms previously introduced and expand this range to produce, for example, autobiographies, drama, surveys, graphs, literary responses, biographies, illustrations, and reviews
- 9.2 consider and choose writing forms that match both the writing purpose (to define, report, persuade, compare) and the reader for whom the text is intended (understand why language choice, organization, and voice used in an essay differs from that used in a media advertisement)
- 9.3 understand that ideas can be represented in more than one way and used with other forms of representing (speeches, demonstrations, plays)
- 9.4 keep the reader and purpose for writing in mind when choosing content, writing style, tone of voice, language choice, and text organization
- 9.5 know how and when to ask for reader feedback while writing and incorporate appropriate suggestions when revising subsequent drafts; assess self-generated drafts from a reader's/viewer's/ listener's perspective

GCO 10: Students will be expected to use a range of strategies to develop effective writing and other ways of representing and to enhance their clarity, precision, and effectiveness.

- 10.1 build and rely upon a broad knowledge base of how words are spelled and formed; use such knowledge to spell unfamiliar words and expand vocabulary; regularly use resource texts to verify spelling; use punctuation and grammatical structures capably and accurately; use a variety of sentence patterns, vocabulary choices, and paragraphing with flexibility and creativity to engage readers
- 10.2 choose, with increasing regularity, the prewriting, drafting, revising, editing, proofreading, and presentation strategies to aid in producing various texts
- 10.3 attempt to use various technologies for communicating to a variety of audiences for a range of purposes
- 10.4 demonstrate a commitment to crafting pieces of writing and other representations
- 10.5 gather information from a variety of sources (interviews, film, CD-ROMs, texts) and integrate ideas in communication

Health/Personal Development and Relationships (Draft)

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

The Body: Growth and Development

GCO A: Students will be expected to demonstrate knowledge of the body, body functions, and growth and development.

- A1.1 demonstrate an understanding of the structure and function of different types of cells
- A1.2 demonstrate an understanding of the interrelated functions of the skeletal, muscular, and nervous systems
- A1.3 demonstrate an understanding of the interrelated functions of the circulatory and respiratory systems
- A1.4 demonstrate a knowledge of the structure and functions of the skin

- A2.1 demonstrate an understanding of changing health needs and concerns through adulthood

Strategies for Healthy Living

GCO B: Students will be expected to demonstrate knowledge, skills, and attitudes that contribute to active, healthy living.

- B1.1 identify and demonstrate attitudes and behaviours that contribute to the health and efficiency of the skeletal, muscular, and nervous systems
- B1.2 identify and demonstrate attitudes and behaviours that contribute to the health and efficiency of the respiratory and circulatory systems
- B1.3 assess various skin- and hair-care products and practices for their effectiveness and safety

- B2.1 demonstrate an understanding of the effect of different foods on the body systems
- B2.2 demonstrate an understanding of factors that determine nutrient and energy needs

- B3.1 identify risks and related precautions of being sexually active
- B3.2 evaluate options and consequences related to teen pregnancy
- B3.3 identify personal, social, and cultural influences related to sexual identity and decision making
- B3.4 evaluate the role of the media in promoting drug use
- B3.5 demonstrate knowledge of laws related to drug use and gambling
- B3.6 demonstrate an understanding of the risks associated with the non-medical use of prescription and over-the-counter drugs

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- B3.7 identify personal, social, and cultural influences related to gambling
- B3.8 demonstrate an understanding of the effect on the family of harmful involvement with alcohol, other drugs, and gambling

- B4.1 identify and practise ways of contributing to the physical and emotional safety of the school community
- B4.2 identify and practise strategies for avoiding potentially dangerous situations
- B4.3 demonstrate self-knowledge, self-respect, and assertiveness in sexual decision making
- B4.4 demonstrate basic first aid and life-saving knowledge and skills
- B4.5 identify appropriate ways of responding to various emergencies

- B5.1 identify and practise strategies for preventing sexually transmitted diseases
- B5.2 identify and practise strategies for preventing HIV/AIDS
- B5.3 demonstrate a knowledge of symptoms, risk factors, and management strategies for various types of cancer

- B6.1 recognize that emotions can be expressed differently by people of different temperaments or personality types
- B6.2 identify strategies for coping with and expressing grief

- B7.1 participate in a broad range of physical activities they enjoy
- B7.2 demonstrate an understanding of the effect of fitness on the body systems

Values and Practices for Healthy Living

GCO C: Students will be expected to demonstrate knowledge of factors that contribute to healthy living values and practices.

- C1.1 demonstrate an awareness of the changing needs of grandparents, parents, and children at different stages of the family life cycle
- C1.2 compare their family's values and attitudes with their own

- C2.1 identify signs of community health
- C2.2 identify trends related to the health of their community, and identify and practise ways of contributing to community health

- C3.1 evaluate the impact of media on self-image and lifestyle choices

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- C3.2 demonstrate an awareness of social influences that contribute to gender stereotyping
- C3.3 demonstrate an awareness of ways that attitudes and laws related to gambling have changed over time
- C4.1 assess the impact of various decisions and practices on the health and sustainability of the global environment
- C5.1 demonstrate acceptance of, and appreciation for, their own and others' sexual orientation
- C5.2 demonstrate empathy toward people living with HIV/AIDS

Strategies for Positive Personal Development and Healthy Relationship

GCO D: Students will be expected to demonstrate the knowledge, skills, and attitudes necessary to live happily and productively as an individual, within a family, and within the community.

- D1.1 identify and practise strategies for strengthening self-concept
- D1.2 demonstrate an awareness of influences related to sexual attitudes and identity
- D1.3 identify and practise strategies for managing time and energy
- D1.4 demonstrate and strengthen personal qualities that are valued in school and in the workplace
- D2.1 identify services that support the mental and physical health of teens
- D3.1 demonstrate respect for the feelings and beliefs of others
- D3.2 identify and practise strategies for responding positively to feedback and criticism
- D3.3 identify traits of healthy dating relationships
- D3.4 identify and practise strategies for communicating personal needs in relationships
- D3.5 identify and practise strategies for balancing personal values and needs with the need for peer acceptance
- D4.1 identify job and career opportunities in their community
- D4.2 identify and investigate high school courses and post-secondary education and training that relate to personal life/work interests and goals
- D5.1 assess personal interests, traits, learning styles, and values, and explain the role of self-assessment in life/work building

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- D5.2 describe ways that changes in societal needs affect the world of work
- D5.3 demonstrate an understanding of the role of education and training in life/work building
- D5.4 compare the role of student to that of paid worker
- D5.5 identify ways of achieving a healthy balance between work and other aspects of their lives both now and in the future
- D5.6 identify and practise ways of earning and managing money

- D6.1 respond to a need in the community through volunteer service
- D6.2 express a personal sense of global citizenship
- D6.3 select items for and maintain a life/work portfolio
- D6.4 assess their strengths/skills/interests in relation to employable skills required in the workplace

Information Technologies

Outcome Components

Students will demonstrate expected performance levels in five IT-based learning outcome areas within the context of essential graduation learnings and outcomes specified for the public school program as a whole.

Basic Operations and Concepts (BOC)

- concepts and skills associated with the safe, efficient operation of a range of information technologies

Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for grades primary–6 and will also be expected to

- BOC 9.1 under general supervision as they research, design, and create products that represent their learning, independently and safely
 - operate a wide variety of school media equipment, including audio equipment, overhead projectors, video cameras, videocassette recorder/players, televisions, photocopiers, and still cameras
 - use computer equipment to access and use curriculum-based computer software, from CD-ROMs, hard drives, or other data storage media
- BOC 9.2 demonstrate accurate, efficient keyboarding and manipulation of appropriate input devices; be able to assist others in the use of peripherals
- BOC 9.3 using a variety of technologies, demonstrate an understanding of technological applications and apply appropriate technologies to solve curriculum problems and enhance their learning
- BOC 9.4 independently run grade-appropriate software and manage folders and directories of their electronic work in accordance with school policies
- BOC 9.5 understand and use an increasing range of specialized vocabulary associated with the technologies they use
- BOC 9.6 practise and demonstrate a developing understanding of sound ergonomics as they use IT; identify and report dangerous workstation configurations or practices
- BOC 9.7 apply basic troubleshooting techniques in assessing equipment and software problems that affect their use of IT; document and articulate such problems to assist technical support staff in further diagnosis

Outcome Components

Students will demonstrate expected performance levels in five IT-based learning outcome areas within the context of essential graduation learnings and outcomes specified for the public school program as a whole.

Productivity Tools and Software (PTS)

- the efficient selection and use of IT to perform tasks such as
 - the exploration of ideas
 - data collection
 - data manipulation, including the discovery of patterns and relationships
 - problem solving
 - the communication of learning

Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for grades primary–6 and will also be expected to

- PTS 9.1 independently use electronic planning software to brainstorm; develop a thought web; outline and map ideas under study; and track their progress toward agreed work deadlines
- PTS 9.2 in the process of collecting, analysing, and displaying data, independently create electronic charts, tables, and graphs; and design, create, and manipulate spreadsheets and databases
- PTS 9.3 with the assistance of their teachers, explore curriculum concepts under study using specialized software; peripheral measuring, sampling, and recording equipment; and computer-based simulations
- PTS 9.4 explore the curriculum through a wide range of print and electronic forms; access, create, and process information by means of the specialized techniques associated with the technologies they select
- PTS 9.5 under the general supervision of their teachers, independently manipulate sound and a range of image types, using digital imaging equipment and computer-based editing, to represent their learning in a variety of ways and for particular audiences
- PTS 9.6 independently develop multimedia presentations, based on sound principles of design, with increasing confidence and efficiency
- PTS 9.7 use information technology to explore increasingly complex numerical and geometric situations for the purpose of developing conjectures

Communications Technology (CT)

- the use of specific, interactive technologies that support collaboration and sharing through communication

- CT 9.1 represent their learning in a range of media, including print, video, audio, and multimedia, with growing confidence and competence
- CT 9.2 with teacher supervision, locate and access curriculum-relevant books, journals, and other print documents; media resources; and electronic files for use in all types of research
- CT 9.3 manage their electronic files and correspondence efficiently

Outcome Components

Students will demonstrate expected performance levels in five IT-based learning outcome areas within the context of essential graduation learnings and outcomes specified for the public school program as a whole.

Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for grades primary–6 and will also be expected to

- CT 9.4 demonstrate their understanding of how form, standards, conventions, and methods of transmission affect their use of information and its impact on themselves and others
- CT 9.5 with teacher supervision, work collaboratively in small groups to design and build, for peer use, intranet or Internet websites of student-produced pages about a curriculum topic

Research, Problem Solving, and Decision Making (RPSD)

- the organization, reasoning, and evaluation by which students rationalize their use of IT in pursuit of other curriculum outcomes

- RPSD 9.1 with the assistance of their teachers, select appropriate measuring and recording devices and/or software to collect data, discover patterns of change over time, solve problems, and make logical decisions based on their investigations
- RPSD 9.2 with the assistance of their teachers, select and use appropriate forms, styles, media, and sources to access, manipulate, assess, and present information meaningfully for different audiences
- RPSD 9.3 with the assistance of their teachers, assess the quality, completeness, biases, and perspectives of print, media, and electronic resources for possible use in their curricular studies
- RPSD 9.4 independently select, use, and occasionally develop specialized techniques to create communication environments, processes, and products in print, media, and electronic forms that meet defined information needs and appropriate quality standards
- RPSD 9.5 independently and critically evaluate how style, form, source, and medium influence the accessibility, validity, and meaning of information
- RPSD 9.6 with the assistance of their teachers, access the strengths and limitations of different approaches to research, then select those approaches that more efficiently meet their learning needs
- RPSD 9.7 with the assistance of their teachers, select and refine a research a topic, according to teacher-provided criteria, to fulfill a curriculum requirement
- RPSD 9.8 accurately and independently cite bibliographic information

Outcome Components

Students will demonstrate expected performance levels in five IT-based learning outcome areas within the context of essential graduation learnings and outcomes specified for the public school program as a whole.

Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for grades primary–6 and will also be expected to

Social, Ethical, and Human Issues (SEHI)

- understanding associated with the use of IT that encourages in students a commitment to pursue personal and social good, particularly to build and improve their learning environments and to foster stronger relationships with their peers and others who support their learning
- SEHI 9.1 demonstrate understanding of the nature of technology and its impacts on different societies and environments; assume personal responsibility for ethical behaviour and attitudes with regard to information technologies and resources and use them—in local and global contexts—with due regard for the legal and human rights of others
 - SEHI 9.2 demonstrate understanding of, model, and assume personal responsibility for the acceptable use of copyrighted information resources
 - SEHI 9.3 identify and demonstrate the techniques of mass media, popular culture, and electronic information environments, and evaluate the effects of these techniques
 - SEHI 9.4 identify the values that inform mass media, popular culture, and electronic information environments in relation to their personal values
 - SEHI 9.5 with the assistance of their teachers as required, identify the impacts of various media and information technologies on them, their learning environment, their cultures, and society
 - SEHI 9.6 as researchers, demonstrate an understanding of and a commitment to accuracy and ethical behaviour as they create and distribute information about themselves, others, and curriculum topics under study
 - SEHI 9.7 identify technology-related career opportunities of personal interest, and begin to assess their strengths and interests with respect to technology

Mathematics

General Curriculum Outcomes Specific Curriculum Outcomes

GCO A: Students will demonstrate number sense and apply number-theory concepts.

Students will be expected to

- A1 model and link various representations of square root of a number
- A2 recognize perfect squares between 1 and 144 and apply patterns related to them
- A3 distinguish between an exact square root of a number and its decimal approximation
- A4 find the square root of any number, using an appropriate method
- A5 demonstrate and explain the meaning of negative exponents for base ten
- A6 represent any number written in scientific notation in standard form, and vice versa
- A7 compare and order integers and positive and negative rational numbers (in decimal and fractional forms)
- A8 represent and apply fractional percents, and percents greater than 100, in fraction or decimal form, and vice versa
- A9 solve proportion problems that involve equivalent ratios and rates

GCO B: Students will demonstrate operation sense and apply operation principles and procedures in both numeric and algebraic situations.

- B1 demonstrate an understanding of the properties of operations with integers and positive and negative rational numbers (in decimal and fractional forms)
- B2 solve problems involving proportions, using a variety of methods
- B3 create and solve problems which involve finding a, b, or c in the relationship $a\% \text{ of } b = c$, using estimation and calculation
- B4 apply percentage increase and decrease in problem situations
- B5 add and subtract fractions concretely, pictorially, and symbolically
- B6 add and subtract fractions mentally, when appropriate
- B7 multiply fractions concretely, pictorially, and symbolically
- B8 divide fractions concretely, pictorially, and symbolically
- B9 estimate and mentally compute products and quotients involving fractions
- B10 apply the order of operations to fraction computations, using both pencil and paper and the calculator
- B11 model, solve, and create problems involving fractions in meaningful contexts

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- B12 add, subtract, multiply, and divide positive and negative decimal numbers with and without the calculator
 - B13 solve and create problems involving addition, subtraction, multiplication, and division of positive and negative decimal numbers
 - B14 add and subtract algebraic terms concretely, pictorially, and symbolically to solve simple algebraic problems
 - B15 explore addition and subtraction of polynomial expressions, concretely and pictorially
 - B16 demonstrate an understanding of multiplication of a polynomial by a scalar, concretely, pictorially, and symbolically
- GCO C: Students will explore, recognize, represent, and apply patterns and relationships, both informally and informally.
- C1 represent patterns and relationships in a variety of formats and use these representations to predict unknown values
 - C2 interpret graphs that represent linear and non-linear data
 - C3 construct and analyse tables and graphs to describe how change in one quantity affects a related quantity
 - C4 link visual characteristics of slope with its numerical value by comparing vertical change with horizontal change
 - C5 solve problems involving the intersection of two lines on a graph
 - C6 solve and verify simple linear equations algebraically
 - C7 create and solve problems, using linear equations
- GCO D: Students will demonstrate an understanding of and apply concepts and skills associated with measurement.
- D1 solve indirect measurement problems, using proportions
 - D2 solve measurement problems, using appropriate SI units
 - D3 estimate areas of circles
 - D4 develop and use the formula for the area of a circle
 - D5 describe patterns and generalize the relationships between areas and perimeters of quadrilaterals, and areas and circumferences of circles
 - D6 calculate the areas of composite figures
 - D7 estimate and calculate volumes and surface areas of right prisms and cylinders
 - D8 measure and calculate volumes and surface areas of composite 3-D shapes
 - D9 demonstrate an understanding of the Pythagorean relationship, using models
 - D10 apply the Pythagorean relationship in problem situations

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

GCO E: Students will demonstrate spatial sense and apply geometric concepts, properties, and relationships.

- E1 demonstrate whether a set of orthogonal views, a mat plan, and an isometric drawing can represent more than one 3-D shape
- E2 examine and draw representations of 3-D shapes to determine what is necessary to produce unique shapes
- E3 draw, describe, and apply transformations of 3-D shapes
- E4 analyse polygons to determine their properties and interrelationships
- E5 represent, analyse, describe, and apply dilations

GCO F: Students will solve problems involving the collection, display, and analysis of data.

- F1 demonstrate an understanding of the variability of repeated samples of the same population
- F2 develop and apply the concept of randomness
- F3 construct and interpret circle graphs
- F4 construct and interpret scatter plots and determine a line of best fit by inspection
- F5 construct and interpret box-and-whisker plots
- F6 extrapolate and interpolate information from graphs
- F7 determine the effect of variations in data on the mean, median, and mode
- F8 develop and conduct statistics projects to solve problems
- F9 evaluate data interpretations that are based on graphs and tables

GCO G: Students will represent and solve problems involving uncertainty.

- G1 conduct experiments and simulations to find probabilities of single and complementary events
- G2 determine theoretical probabilities of single and complementary events
- G3 compare experimental and theoretical probabilities
- G4 demonstrate an understanding of how data is used to establish broad probability patterns

Music

General Curriculum Outcomes

Key-Stage Curriculum Outcomes

Note: Learning outcomes have not yet been developed for Music 7–9. Teachers may wish to use the following general curriculum outcomes and key-stage curriculum outcomes from the *Foundation for the Atlantic Canada Arts Education Curriculum* in planning their music program.

By the end of grade 9, students will have achieved the outcomes for entry–grade 6 and will also be expected to

Creating, Making, and Presenting

GCO 1: Students will be expected to explore, challenge, develop, and express ideas using the skills, language, techniques, and processes of the arts.

- sing or play, maintaining a part within a variety of textures and harmonies, using a range of musical structures and styles
- use the elements of music to express and communicate meaning
- interpret non-verbal gestures, making connections to notation and musical expression
- use a variety of notational systems to represent musical thoughts and ideas

GCO 2: Students will be expected to create and/or present, collaboratively and independently, expressive products in the arts for a range of audiences and purposes.

- improvise and compose patterns and short pieces, using a variety of sound sources and technologies
- present music, co-ordinating reading, listening, and playing/singing skills
- perform, alone and with others, music expressing a broad range of thoughts, images, and feelings

Understanding and Connecting Contexts of Time, Place, and Community

GCO 3: Students will be expected to demonstrate critical awareness of and value the role of the arts in creating and reflecting culture.

- identify and describe uses of music in daily life, both local and global
- identify opportunities to participate in music in school, community, and the world of work
- compare music from a range of cultural and historical contexts
- examine and describe ways in which music influences and is influenced by local and global culture

GCO 4: Students will be expected to respect the contributions of individuals and cultural groups to the arts in local and global contexts and value the arts as a record of human experience and expression.

- reflect on ways in which music expresses the history and the cultural diversity of local, national, and international communities
- examine ways in which music enhances and expresses life's experiences

General Curriculum Outcomes

GCO 5: Students will be expected to examine the relationship among the arts, societies, and environments.

Perceiving and Responding

GCO 6: Students will be expected to apply critical thinking and problem-solving strategies to reflect on and respond to their own and others' expressive works.

GCO 7: Students will be expected to understand the role of technologies in creating and responding to expressive works.

GCO 8: Students will be expected to analyse the relationship between artistic intent and the expressive work.

Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for entry–grade 6 and will also be expected to

- define relationships among music, other arts, and other subjects
 - examine the roles that music plays in local and global communities
-
- examine and explore a range of possible solutions to musical challenges
 - use processes of description, analysis, interpretation, and evaluation to make and support informed responses to their own and others' music and musical performances
 - critically reflect on ideas and feelings in works of music, and identify patterns, trends, and generalizations
-
- identify combinations of instruments and sound sources, including electronic sources
 - identify and describe instruments common to cultures and countries included in the social studies curriculum
 - explore a range of non-acoustic musical sound sources
 - describe the relationship of instruments and other technologies to the mood and feeling of their own and others' music
-
- discuss why a range of musical works has been created
 - analyse the source of ideas and reasons for musical decisions in light of original intent
 - use feedback from others to examine their own music work in light of their original intent
 - analyse performances and provide critical commentary on aspects of musical presentation in light of the performers' intent

Physical Education

General Curriculum Outcomes

Students will be expected to

Knowing

- demonstrate an understanding of the concepts that support human movement
- demonstrate a knowledge of the components and processes needed to develop and maintain a personal level of functional fitness

Doing

- demonstrate motor skills in all movement categories using efficient and effective body mechanics
- participate regularly in a variety of activities that develop and maintain personal physical fitness
- demonstrate creativity in all movement categories

Valuing

- demonstrate positive personal and social behaviours and interpersonal relationships
- demonstrate positive attitudes toward and an appreciation of physical activity through participation
- demonstrate awareness of career and occupational opportunities related to physical activities

Specific Curriculum Outcomes

Students will be expected to

Active Living

- use relaxation techniques for stress management
- design and analyse a personal nutritional plan
- analyse activities and exercises according to benefits to muscular strength, cardiovascular fitness, flexibility, and endurance
- explain the benefits of and demonstrate warm-up and cool-down activities
- participate in activities that enhance muscular strength, cardiovascular fitness, flexibility, and endurance
- plan how to utilize community resources

Outdoor Activities

- practise the sport of orienteering in a controlled environment
- know and understand the concept of reading a map
- participate in activities or games that demonstrate sensitivity towards the environment
- participate in at least one land-based (e.g., hiking, orienteering) and one water-based (e.g., swimming, canoeing) seasonal activity that practises environmental safety
- review and practise the use of a compass

Dance

- demonstrate learned traditional, line, circle, and square dances from previous grades
- practise new traditional, line, circle, and square dances
- create, with a partner, an aerobic dance sequence to music
- dramatize through dance such things as historical events, movie themes, poetry, or art
- choreograph movement sequences using elements of movement and basic dance steps and patterns

Educational Gymnastics

- demonstrate safety procedures and practices to avoid unnecessary risks
- experience individual, partner, and small-group balance and counterbalance

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Students will be expected to

- develop and perform, with a partner, a sequence containing basic gymnastic skills on the floor and on small and/or large equipment

Sport Experience

- refine sport-specific skills through practice and repetition
- demonstrate the discipline and attitude required to master a skill
- demonstrate an understanding of positioning in offensive and defensive situations
- participate in sport and games using modified rules
- maintain the safety of game play when rules are modified
- demonstrate positive personal and social behaviours that emphasize fair play

Science

General Curriculum Outcomes Specific Curriculum Outcomes

STSE

GCO 1: Students will develop an understanding of the nature of science and technology, of the relationships between science and technology, and of the social and environmental contexts of science and technology.

Skills

GCO 2: Students will develop the skills required for scientific and technological inquiry, for solving problems, for communicating scientific ideas and results, for working collaboratively, and for making informed decisions.

Knowledge

GCO 3: Students will construct knowledge and understandings of concepts in life science, physical science, and Earth and space science, and apply these understandings to interpret, integrate, and extend their knowledge.

Attitudes

GCO 4: Students will be encouraged to develop attitudes that support the responsible acquisition and application of scientific and technological knowledge to the mutual benefit of self, society, and the environment.

Students will be expected to

Earth and Space Science: Water Systems on Earth

Waves, Tides, and Water Currents

- carry out procedures in order to investigate how temperature difference in water cause currents (209-1)
- state a conclusion based on experimental data about the formation of water currents (209-4, 210-11)
- explain how waves and tides are generated (311-10a)
- formulate operational definitions, on the basis of investigations of waves for wave length, wave height, crest, and trough (208-7)

Shorelines

- select and integrate information, from various print and electronic sources, related to processes of erosion and deposition that result from wave action and water flow (209-5, 311-11)
- explain how waves and tides interact with shorelines (311-10b)
- provide examples of various technologies designed to contain damage due to waves and tides (112-3)
- prepare a presentation or report on the effect of tides and waves on a shoreline, and evaluate individual and group processes used in planning and completing the task (211-1, 211-4)

Oceans Basins and Continental Drainage Systems

- describe processes that lead to the development of ocean basins and continual drainage systems: glaciation, continental drift, erosion, volcanic action (311-7)
- select and integrate information from various print and electronic sources to provide examples of technologies that have enabled scientific research involving ocean basins (111-3, 209-5)
- provide examples of how technologies used to investigate the ocean floor have improved over time (110-8)
- identify some strengths and weaknesses of technologies used to investigate the ocean floor (210-3)

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- provide examples of public and private Canadian institutions that support scientific and technological research involving the oceans (112-5)

Oceans and Species Distribution

- apply the concept of systems to show how changes in one component of a body of water causes change in other components in that system (111-6)
- describe the interactions of the ocean currents, winds, and regional climates (311-9)
- analyse factors that affect productivity and species distribution in marine and fresh water environments
- predict and interpret trends in populations of a marine species from graphical data by interpolating and extrapolating data (210-4, 210-6)
- describe some positive and negative effects of marine technologies in the ocean (113-2)
- provide examples of problems related to the oceans that cannot be resolved using scientific and technological knowledge (113-10)

Glaciers and Polar Icecaps

- describe factors that affect glaciers and polar icecaps, and describe their consequent effects on the environment (311-12)
- identify new questions that arise from the study of glaciers and polar icecaps (210-16)

Physical Science: Fluids**Floating and Sinking—Density**

- describe the relationship among the mass, volume and density of solids, liquids, and gases using the particle model of matter (307-8)
- analyse quantitatively the density of various substances and suggest explanations for discrepancies in data, such as the measurement of the volume of irregular objects by water displacement (210-7, 307-11)
- explain the effects of changes in temperature on the density of solids, liquids, and gases and relate the result to the particle model of matter (307-9)
- describe situations in life where the density of substances naturally changes or is intentionally changed (307-10)

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- identify questions to investigate arising from practical problems involving floating, sinking, and density (208-2)
- work co-operatively with team members to design an experiment and identify major variables in order to investigate floating, sinking, and density (208-6, 211-3)

Forces in Fluids

- describe the movement of objects in terms of balanced and unbalanced forces (309-2)
- test and compare a student-constructed dynamometer with a commercial dynamometer (210-13)
- calibrate a student-constructed dynamometer with known masses (210-14)
- describe qualitatively the difference between mass and weight (309-1)
- provide examples of technologies that have been developed because of our understanding of density and buoyancy (111-11)
- explain quantitatively the relationship between force, area, and pressure (309-3)
- describe the science underlying hydraulic technologies (111-5)
- explain qualitatively the relationship among pressure, volume, and temperature when liquid and gaseous fluids are compressed or heated (309-4)

Viscosity of Liquids

- compare the viscosity of various liquids (307-6)
- design an experiment to test the viscosity of various common fluids and identify the major variables (208-6)
- describe factors that can modify the viscosity of a liquid (307-7)
- use a temperature-measuring technology effectively and accurately for collecting data in temperature-viscosity investigations (209-3)
- demonstrate a knowledge of WHMIS standards by demonstrating the correct methods of disposal of various oils, for example (209-7)
- identify and relate personal activities and potential applications to fluid dynamics (109-10, 112-7, 210-12)

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Physical Science: Optics**Properties of Visible Light**

- identify and describe the following properties of visible light: travels in a straight line (rectilinear propagation), speed of light in air is 300 000 km/s, reflection, refraction and dispersion, travels in a vacuum, and in some types of media (308-8)

Reflection

- describe the laws of reflection of visible light and their applications in everyday life—regular versus diffuse reflection, and angle of incidence = angle of reflection (308-9)
- formulate operational definitions for incidence, reflection, and the normal (208-7)
- estimate angles of incidence and reflection (209-2)
- work co-operatively and collaboratively with others to plan and safely construct and optical device using mirrors (209-6, 211-1)
- identify and correct practical problems in the way a constructed optical device functions (210-14)

Refraction and Dispersion

- rephrase questions related to refraction in a testable form (208-1)
- predict the effect of transparent media of varying densities on the angle of refraction of light (208-5)
- estimate angles of refraction (209-2)
- describe qualitatively how visible light is refracted (210-11, 308-10)
- estimate focal length of a convex lens by finding its focal point (209-2)
- describe how optical technologies have developed through systematic trial-and-error processes constrained by the optical properties of the materials (109-5)
- provide examples of optical technologies that enable scientific research and relate personal activities associated with such technologies (109-10, 111-3)

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Electromagnetic Radiation

- describe different types of electromagnetic radiation, including infrared, ultraviolet, X-rays, microwaves, and radio waves (308-11)
- compare the properties of visible light to the properties of other types of electromagnetic radiation, including infrared, ultraviolet, X-rays, microwaves, and radio waves (308-12)
- explain the importance of using the words frequency and wavelength correctly (109-13)
- provide examples related to optics that illustrate that scientific and technological activities take place individually and in group settings (112-8)
- describe possible negative and positive effects of technologies associated with electromagnetic radiation (113-2)

Life Science: Cells, Tissues, Organs, and Systems**Cells**

- illustrate and explain that the cell is a living system that exhibits the following characteristics of life (304-4)
- explain that growth and reproduction depend on cell division (304-6)
- distinguish between plant and animal cells (304-5)
- use a light microscope or microviewer correctly to produce a clear image of cells (209-3)
- work co-operatively with team members to develop and construct models of cells (211-3)
- explain that it is important to use proper terms when comparing plant and animal cells (109-13)

Interdependence among Cells, Tissues, Organs, and Systems

- relate the needs and functions of various cells and organs to the needs and functions of the human organism as a whole (304-8)
- explain structural and functional relationships between and among cells, tissues, organs, and systems in the human body (304-7)
- compare the early idea that living organisms were made of air, fire, and water with the modern cell theory (110-2)
- evaluate individual and group processes used in researching the roles of the main organ systems (211-4)

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Healthy/Unhealthy Systems

- describe the basic factors that affect the functions and efficiency of the human respiratory, circulatory, digestive, excretory, and nervous systems (304-9)
- illustrate examples of conflicting evidence related to how we should maintain and/or treat body systems (110-5)
- describe the science underlying various technologies used to assist or replace unhealthy organs or systems (111-5)

Interdependence of Body Systems

- rephrase questions into testable form about the factors that affect physical fitness and health (208-1)
- design and carry out an experiment to compare and contrast heart rate and breathing rate in an individual during various levels of activity, and identify and control the major variables (208-6, 209-1)
- suggest explanations for variations in the heart rate and the breathing rate of an individual during various levels of activity when the experiment is repeated (210-7)
- describe three examples of the interdependence of various systems of the human body (304-10)
- provide examples of careers that are associated with the health of body systems (112-10)
- make informed decisions about applications of science and technology that are associated with human body systems, taking into account personal and social advantages and disadvantages (113-8)

Social Studies (Draft)

General Curriculum Outcomes Specific Curriculum Outcomes

Citizenship, Power, and Governance

GCO: Students will be expected to demonstrate an understanding of the rights and responsibilities of citizenship and the origins, functions, and sources of power, authority, and governance.

Individuals, Societies, and Economic Decisions

GCO: Students will be expected to demonstrate an understanding of culture, diversity, and world view, recognizing the similarities and differences reflected in various personal, cultural, racial, and ethnic perspectives.

People, Place, and Environment

GCO: Students will be expected to demonstrate the ability to make responsible economic decisions as individuals and as members of society.

Culture and Diversity

GCO: Students will be expected to demonstrate an understanding of the interdependent relationship among individuals, societies, and the environment—locally, nationally, and globally—and the implications for a sustainable future.

Interdependence

GCO: Students will be expected to demonstrate an understanding of the interactions among people, places, and the environment.

Students will be expected to

Note: The specific curriculum outcomes for social studies listed below are draft outcomes. They are provided for your information only. Until this new curriculum is field-tested, piloted, and implemented, the current curriculum is to be followed.

Unit One: Introduction

- research how artistic and literary expression reflects the following aspects of Canadian identity: landscape, climate, people-citizenship, history, challenges, and opportunities

Unit Two: Geographic Influences

- demonstrate an understanding of the basic features of Canada's landscape and climate
- analyse the effects of selected geographic factors on Canadian identity
- demonstrate an understanding of the nature and impact of migration in post-1920 Canada
- compare their understanding of Canada's response to its geographic challenges and opportunities to that of a selected country with geographic features similar to Canada's

Unit Three: Influences and Interactions

- analyse the impact of changing technology and socio-economic conditions on differing prosperities and lifestyles in the 1920s and 1930s
- demonstrate an understanding of Canada's participation in WWII
- demonstrate an understanding of the impact of WWII on Canada and her people
- demonstrate an understanding of Canada's role in the world since WWII
- analyse the impact of changing technology and socio-economic conditions on Canada's prosperity and lifestyles in the 1950s and 1960s
- compare and contrast the social and cultural trends of the 1950s, 1960s, and 1970s
- demonstrate an understanding of how globalization has affected Canada and Canadians since 1980

General Curriculum Outcomes Specific Curriculum Outcomes**Time, Continuity, and Change**

GCO: Students will be expected to demonstrate an understanding of the past and how it affects the present and the future.

Students will be expected to

Unit Four: Citizenship

- demonstrate an understanding of the rights and responsibilities of citizenship (local, national, and global)
- demonstrate an understanding of how citizenship has evolved over time
- demonstrate an understanding of the Canadian federal system and the structure and operation of Canadian government

Unit Five: Challenges and Opportunities

- identify and analyse the economic challenges and opportunities for Canada's future
- identify and analyse the political challenges and opportunities for Canada's future
- identify and analyse the social and cultural challenges and opportunities for Canada's future

Unit Six: Summative

- portray and celebrate their understanding of Canadian identity

Technology Education (Draft)

General Curriculum Outcomes Specific Curriculum Outcomes

GCO 1: Students will be expected to design, develop, evaluate, and articulate technological solutions.

GCO 2: Students will be expected to evaluate and manage technological systems.

GCO 3: Students will be expected to demonstrate an understanding of the history and evolution of technology, and of its social and cultural implications.

GCO 4: Students will be expected to demonstrate an understanding of current and evolving careers and of the influence of technology on the nature of work.

GCO 5: Students will be expected to demonstrate an understanding of their personal responsibility in determining the future.

Students will be expected to

Production Technology 8

Big Ideas

Properties of Materials

- identify material as natural, composite, synthetic
- develop a vocabulary of the language and terminology of production
- describe raw materials, industrial materials, and recycled materials
- assess the properties/characteristics of raw and processed materials

Materials Processes

- demonstrate understanding of the principles and practices of materials processing techniques (separating, combining, forming, and finishing)
- examine the impact of local technological products
- examine production technologies and determine how they affect quality of life, sustainable development, and other related issues
- examine a production product's life cycle through a primary and secondary production process

Tools and Machines

- determine the key events in the development of production and manufacturing technologies
- explore different tools, materials, and processes when designing artifacts and systems

Aesthetics

- develop an appropriate sequence of steps to produce the solution, taking into account aesthetics, function, quality construction, and the user
- evaluate elegance in design solutions

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Ergonomics

- investigate a variety of situations in familiar environments, identify and clearly state needs, problem situations, and opportunities which may be resolved through the design and production of goods and services
- examine production technologies and determine how they affect quality of life, sustainable development, and other related issues

Manufacturing/Production Systems

- research and demonstrate understanding of technological systems used for production of goods

Evaluating Product Design

- use appropriate production-related language to describe problem situations, solution ideas, procedures and processes to implement the solution (including technical drawings) and to assess and report on the effectiveness of the solution
- use communications technologies as an integral component of production processes

Careers, Health, and Safe Practices

- demonstrate understanding of standard safety practices and procedures
- choose and correctly use appropriate tools
- produce quality products by minimizing waste of resources—materials, time, money, energy
- use appropriate language to describe and write about production related issues such as procedures, tools, machines, resource processing, waste management strategies, and environmental issues
- examine production technologies and determine how they affect quality of life, sustainable development, and related issues
- examine the impact of technological change on production related workplaces and careers

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Basic Skills**Working Drawings**

- develop an appropriate sequence of steps to produce the solution, taking into account aesthetics, function, and quality construction
- use of language and terminology of production drawings
- use communications technologies as an integral component of production processes
- incorporate communications technologies in production related problem solving activities

Basic Tool and Process Skills

- demonstrate understanding of the principles and practices of materials processing techniques (separating, combining, forming, and finishing)
- explore different tools, materials, and processes when designing artifacts and systems
- examine different ways to process materials
- choose and correctly use appropriate tools
- investigate production processes
- use appropriate language to describe and write about production-related issues such as procedures, tools, machines, resource processing, waste management strategies, and environmental issues
- demonstrate understanding of the principles and practices of materials processing techniques (separating, combining, forming, and finishing)
- explore different tools, materials, and processes when designing artifacts and systems
- examine different ways to process materials
- choose and correctly use appropriate tools
- investigate production processes
- use appropriate language to describe and write about production-related issues such as procedures, tools, machines, resource processing, waste management strategies, and environmental issues

General Curriculum Outcomes **Specific Curriculum Outcomes**

Students will be expected to

Skill-Building Activity

- demonstrate understanding of standard safety practices and procedures
- construct products, working from a detailed plan, by employing a variety of materials and technical processes
- produce quality products by minimizing waste of resources—materials, time, money, energy
- use appropriate safety equipment and maintain an orderly work environment
- use appropriate production-related language to describe problem situations, solution ideas, procedures and processes to implement the solution (including technical drawings), and to assess and report on the effectiveness of the solution

Design Activities

Step 1: Problem Situation

- investigate a variety of situations in familiar environments, identify and clearly state needs, problem situations, and opportunities which may be resolved through the design and production of goods and services
- use appropriate production-related language to describe problem situations

Step 2: Design Briefs

- use appropriate language to describe and write about production related issues such as procedures, tools, machines, resource processing, waste management strategies, and environmental issues
- incorporate communications technologies in production-related problem-solving activities

Step 3: Investigation and Research

- research and demonstrate understanding of technological systems used for production of goods and services
- present a critical evaluation of products, both their own and others, including suggestions for improvement
- investigate production processes
- use of language and terminology of production

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- use appropriate language to describe and write about production-related issues such as procedures, tools, machines, resource processing, waste management strategies, and environmental issues
- use appropriate production related language to describe problem situations, solution ideas, procedures and processes to implement the solution (including technical drawings), and to assess and report on the effectiveness of the solution
- use communications technologies as an integral component of production processes

Step 4: Identify Possible Solutions

- develop multiple options for a solution, and identify the most appropriate solution considering conservation of resources, suitability of the solution, outcomes of the solution, and the technical activity required to produce it
- use appropriate language to describe and write about production related issues such as procedures, tools, machines, resource processing, waste management strategies, and environmental issues

Step 5: Select the Best Solution

- develop multiple options for a solution, and identify the most appropriate solution considering conservation of resources, suitability of the solution, outcomes of the solution and the technical activity required to produce it
- use appropriate language to describe and write about production-related issues such as procedures, tools, machines, resource processing, waste management strategies, and environmental issues

General Curriculum Outcomes **Specific Curriculum Outcomes**

Students will be expected to

Step 6: Develop the Solution

- examine materials and determine their properties
- demonstrate understanding of the principles and practices of materials processing techniques (separating, combining, forming, and finishing)
- determine the key events in the development of production and manufacturing technologies
- demonstrate understanding of standard safety practices and procedures
- develop an appropriate sequence of steps to produce the solution, taking into account aesthetics, function, quality construction, and the user
- explore different tools, materials, and processes when designing artifacts and systems
- examine different ways to process materials
- construct products, working from a detailed plan, by employing a variety of materials and technical processes
- choose and correctly use appropriate tools
- produce quality products by minimizing waste of resources—materials, time, money, energy
- use appropriate safety equipment, and maintain an orderly work environment
- use appropriate production-related language to describe problem situations, solution ideas, procedures and processes to implement the solution (including technical drawings), and to assess and report on the effectiveness of the solution
- use technology problem solving as a means of making connections between knowledge and skills learned in other curriculum areas
- incorporate communications technologies in production related problem-solving activities

Step 7: Evaluate the Solution

- present a critical evaluation of products, both their own and others, including suggestions for improvement
- explore ethical decision making and intellectual honesty as factors in making technological choices
- use appropriate production related language to describe problem situations, solution ideas, procedures and processes to implement the solution (including technical drawings), and to assess and report on the effectiveness of the solution

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Step 8: Present the Report

- present a critical evaluation of products, both their own and others, including suggestions for improvement
- use appropriate language to describe and write about production related issues such as procedures, tools, machines, resource processing, waste management strategies, and environmental issues
- use communications technologies to collaborate with students, teachers, and others at a distance in order to develop and implement solutions to production problems

Step 9: Collect Portfolios and Solutions

To be developed

Energy, Power, and Transportation 8**Big Ideas****Mass and Force**

- demonstrate an understanding of the term “mass” and state the unit of measurement for mass
- distinguish between mass and weight
- distinguish between force and pressure
- demonstrate an understanding of the term “force” and state the unit of measurement for force
- examine the historical context for the unit measurement of force

Work, Energy, and Power

- define the term “energy” and state the unit of measurement for energy
- define the term “work” and state the unit of measurement for work
- examine the term “power” and state the unit of measurement for power
- distinguish between energy and power

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Types of Energy

- identify and describe the six major forms of energy
- identify and describe the two types of energy present in the six forms of energy
- identify and differentiate energy as renewable, non-renewable, and inexhaustible

Sources of Energy

- identify examples of energy sources for each type of energy (fossil fuel, nuclear, solar, hydro, thermal, wind, chemical, biomass)
- identify how energy is generated from specific sources
- discuss legal and ethical issues related to the generation of energy

Conversion and Transmission of Energy

- identify examples of energy sources for each type of energy
- identify how energy is generated from specific sources (solar, fossil fuel, nuclear, wind, thermo, hydro, biomass, chemical)
- identify how energy generated from a specific source is converted to end use
- discuss legal and ethical issues related to the conversion of energy

Uses of Energy

- research and report local applications and systems that consume energy
- explain how energy is used in specific applications
- describe the consequences of energy consumption on people, society, and the environment
- explore and report their findings on connections between energy and communications, control, and production systems
- examine new technologies that are evolving for the conversion and transmission of energy
- develop personal rules of conduct for dealing with sources of energy, transmission, and uses of energy

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Transportation

- examine past, present, and future methods of transportation
- identify examples of the modes of transportation for each transportation system
- explore and report findings on the sub-systems within a transportation system
- discuss and compare legal and ethical issues related to the modes of transportation
- analyse local, provincial, national or global transportation
- describe transportation technology in terms of leisure and recreation, moving people, moving goods
- differentiate mass and individual transportation
- explain and describe fixed route, variable route and stationary land transportation modes

The Career Connection

- examine and consider careers and professions in energy and power and related industries
- demonstrate understanding of the role of developments and new technologies in energy and power on the future of work, society, and the environment, and the need to remain aware of these issues

Basic Skills**Energy Storage and Transmission**

- distinguish between energy storage and energy utilization
- identify and describe energy utilization
- demonstrate ways that energy can be transmitted from one location to another or from one system to another by a number of mechanisms

Energy Conversion

- demonstrate the conversion of energy from one form to another using a variety of simple systems
- identify and describe energy utilization

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Measuring Energy and Power Energy Transmission

- measure the forces acting in a system
- calculate the work done on a system
- calculate the energy input, output, and efficiency of a system
- calculate the power used by a system

Schematics and Pictorials

- identify basic symbol sets that are employed in schematic drawings
- read and interpret a simple schematic
- relate a schematic drawing to a pictorial drawing
- create simple schematic drawings
- create orthographic projections and isometric drawings to represent system components

Fabrication and Safety

- employ safe practices when fabricating systems and components
- describe proper tool care and maintenance
- employ shaping, forming, combining, and finishing techniques to fabricate the components of mechanical, fluidic, and electronic systems

Transportation

- propose a fixed, variable, or stationary transportation prototype solution to carry an object over a determined distance
- identify subsystems in a design prototype
- identify tools, machines, and techniques needed to construct a prototype design
- safely and responsibly use tools

Design Activities**Step 1: Problem Situation**

- identify real life energy, power or transportation problem situations and opportunities, and select one for further development
- develop a rationale for solving a particular problem, and effectively communicate that rationale to others

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Step 2: Design Briefs

- identify and clearly state energy, power, and transportation problems
- specify conditions and criteria which affect how the problem will be solved
- generate a design brief and place it in the design portfolio

Step 3: Investigation and Research

- investigate ways that other people solved similar problems
- investigate resources available to solve this problem
- use the design portfolio to document the investigation and research

Step 4: Identify Possible Solutions

- use one or more idea generation strategies to identify a range of alternative solutions
- use the design portfolio to document the possible solutions

Step 5: Select the Best Solution

- develop criteria for assessing solution options
- using established criteria, examine the solution options and select the most appropriate
- use the design portfolio to document the proposed solution and the rationale for choosing it

Step 6: Develop the Solution

- identify specific tools and resources and determine new skills they will need to acquire
- create a plan of action
- use safe practices to develop the solution, redesigning as necessary
- use the design portfolio to document the development process, including changes and the rationale for them

Step 7: Evaluate the Solution

- establish criteria for evaluating the solution
- evaluate their solution, based on predetermined criteria
- use the design portfolio to document the evaluation process, including evaluation criteria and how the solution was assessed

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Step 8: Present the Report

- develop a presentation plan based on information recorded in the design portfolio
- develop a presentation that demonstrates how the design model was implemented, and the implications of the solution using appropriate presentation tools and strategies
- present the solution and the report to the class

Visual Arts

General Curriculum Outcomes

Key-Stage Curriculum Outcomes

Note: Learning outcomes have not yet been developed for Visual Arts 7–9. Teachers may wish to use the following general curriculum outcomes and key-stage curriculum outcomes from the *Foundation for Atlantic Canada Arts Education Curriculum* in planning their visual arts program.

By the end of grade 9, students will have achieved the outcomes for entry–grade 6 and will also be expected to

Creating, Making, and Presenting

GCO 1: Students will be expected to explore, challenge, develop, and express ideas using the skills, language, techniques, and processes of the arts.

- manipulate and organize design elements and principles to achieve planned compositions
- assess and utilize the properties of various art media and their ability to convey messages and meaning
- create artworks, integrating themes found through direct observation, personal experience, and imagination
- respond verbally and visually to the use of art elements in personal works and the work of others
- analyse and use a variety of image development techniques (e.g., distortion, metamorphosis, fragmentation)
- demonstrate increasing complexity in art skills and techniques

GCO 2: Students will be expected to create and/or present, collaboratively and independently, expressive products in the arts for a range of audiences and purposes.

- invent and incorporate unique visual symbols to create personal meaning in their art
- analyse and make use of visual, spatial, and temporal concepts in creating art images
- select, critique, and organize a display of personally meaningful images from their own portfolio
- acknowledge and respect individual approaches to and opinions of art
- work interactively, co-operatively, and collaboratively

Understanding and Connecting Contexts of Time, Place, and Community

GCO 3: Students will be expected to demonstrate critical awareness of and value the role of the arts in creating and reflecting culture.

- examine the role and the influence of visual images in their daily lives, including mass media and popular culture
- evaluate visual communication systems as a part of daily life
- through their own art develop concepts and imagery based on personal ideas and experience

General Curriculum Outcomes Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for entry–grade 6 and will also be expected to

GCO 4: Students will be expected to respect the contributions of individuals and cultural groups to the arts in local and global contexts and value the arts as a record of human experience and expression.

GCO 5: Students will be expected to examine the relationship among the arts, societies, and environments.

Perceiving and Responding

GCO 6: Students will be expected to apply critical thinking and problem solving strategies to reflect on and respond to their own and others' expressive work.

- recognize and describe the role of the visual arts in challenging, sustaining, and reflecting society's beliefs and traditions
- identify opportunities to participate in the visual arts in school, community, and the world of work
- develop an appreciation of diversity among individuals as reflected in their art work
- recognize the existence of a variety of visual languages that reflect cultural, socio-economic, and national origins
- recognize that and investigate how art as a human activity emerges from human needs, values, beliefs, ideas, and experiences
- demonstrate an understanding of how individual and societal values affect our response to visual art
- create personally meaningful imagery that reflects influence from a variety of historical and contemporary artists
- compare the characteristics of artwork from different cultures and periods in history
- draw upon other arts disciplines as a resource in the creation of their own art works
- use, with confidence, experiences from their personal, social, cultural, and physical environments as a basis for visual expression
- demonstrate an understanding of how individual and societal values affect our response to visual art
- interpret visual parallels between the structures of natural and built environments
- recognize and respect the ethical and moral considerations involved in copying works
- develop independent thinking in interpreting and making judgments about subject matter
- constructively critique the work of others
- analyse the works of artists to determine how they have used the elements and principles of design to solve specific visual design problems
- engage in critical reflective thinking as part of the decision-making and problem-solving process
- investigate and analyse how meaning is embedded in works of art

General Curriculum Outcomes Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for entry–grade 6 and will also be expected to

GCO 7: Students will be expected to understand the role of technologies in creating and responding to expressive works.

- practise safety associated with proper care of art materials and tools
- create images that solve complex problems that take into consideration form and function, and understand the value of looking for alternative solutions
- evaluate and use various media and technological processes for their sensory qualities and ability to convey messages and meaning
- realize the direct influence expanding technology has had and continues to have on the individual and society

GCO 8: Students will be expected to analyse the relationship between artistic intent and the expressive work.

- analyse artwork and determine the artist's intention
- analyse why images were created by artists
- identify and discuss the source of ideas behind their own work and the work of others
- use feedback from others to examine their own art works in light of their original intent

Grade 9

Core French

Key-Stage Curriculum Outcomes

By the end of grade 9, students will be expected to

Specific Curriculum Outcomes

Students will be expected to

Communication

GCO: On the basis of their experiences in the Core French Program, students will be expected to

- communicate effectively in French, both orally and in writing; and to interact appropriately in a variety of situations that relate to their needs and interests

- | | |
|---|--|
| <ul style="list-style-type: none"> function in a classroom where French is the language spoken | <ul style="list-style-type: none"> listen to longer communications (demonstrate independently) follow more complex directions (demonstrate independently) negotiate to understand (demonstrate independently) |
| <ul style="list-style-type: none"> participate in an informal conversation, with support | <ul style="list-style-type: none"> ask for and give information (demonstrate independently) initiate and conclude a conversation (demonstrate independently) communicate on the telephone (demonstrate independently) |
| <ul style="list-style-type: none"> identify, describe, and compare objects, people, events and places | <ul style="list-style-type: none"> recount an event (demonstrate independently) give a report (demonstrate independently) describe physical and personality traits (demonstrate independently) give directions (demonstrate independently) |
| <ul style="list-style-type: none"> express a preference, an opinion or a feeling with justification | <ul style="list-style-type: none"> discuss tastes (demonstrate independently) state preferences (demonstrate independently) justify choices (demonstrate independently) persuade (demonstrate with occasional support) |
| <ul style="list-style-type: none"> become involved in a variety of interactive activities | <ul style="list-style-type: none"> make telephone calls and participate in interviews (demonstrate independently) participate in a debate, games, round table discussions, brainstorming, surveys, and role-plays (demonstrate independently) |
| <ul style="list-style-type: none"> ask a variety of questions | <ul style="list-style-type: none"> find information (demonstrate independently) clarify and verify learning (demonstrate independently) select pertinent information (demonstrate independently) |
| <ul style="list-style-type: none"> select information by reading, listening to, or viewing different texts | <ul style="list-style-type: none"> distinguish the characteristics of different types of text (demonstrate independently) identify the main ideas of a text (demonstrate |

Key-Stage Curriculum Outcomes

By the end of grade 9, students will be expected to

- respond personally to a variety of texts
- produce a variety of texts by following criteria

Specific Curriculum Outcomes

Students will be expected to

- independently)
- infer the evolution, the conclusion of a story (demonstrate independently)
- draw, mime, dramatize (demonstrate independently)
- plan, organize, and evaluate a portfolio (demonstrate with occasional support)
- compose songs and poetry (demonstrate with occasional support)
- keep a personal journal (demonstrate independently)
- produce expressive, informative, persuasive, humorous, poetic texts (demonstrate with occasional support)
- revise and correct text (demonstrate with occasional support)

Culture

GCO: On the basis of their experiences in the Core French Program, students will be expected to

- demonstrate an appreciation and understanding of Francophone cultures, while comparing them with their own culture, as well as an appreciation and understanding of Canada's multicultural reality
- describe certain Francophone regions locally, provincially, nationally and internationally
- describe, with relevant details, certain realities of Francophone cultures
- compare aspects of Francophone cultures with aspects of their own culture
- name and locate certain Francophone communities in Canada (demonstrate independently)
- identify and describe the different Acadian regions in Nova Scotia (demonstrate independently)
- identify certain areas in the world where French is spoken (demonstrate independently)
- describe Acadian festivals and the important role of music and dance (demonstrate independently)
- describe some Acadian meals (demonstrate independently)
- identify some Francophone festivals in Canada (demonstrate independently)
- identify some Francophone customs in Canada (demonstrate independently)
- name some events associated with Francophone regions in the world (demonstrate independently)
- compare Acadian culture and their own culture (demonstrate independently)

Key-Stage Curriculum Outcomes

Specific Curriculum Outcomes

By the end of grade 9, students will be expected to

Students will be expected to

- | | |
|--|---|
| <ul style="list-style-type: none"> • explain the contribution of some contemporary Francophone personalities to Canadian society
 • identify the diverse origins of people who make up the Canadian mosaic
 • identify the cultural elements in authentic documents
 • explain the advantages of being bilingual in our society | <ul style="list-style-type: none"> • inform themselves about the contributions to Canada of some famous Francophones (demonstrate independently) • describe some contributions of famous Acadians (demonstrate independently)
 • recognize certain cultural stereotypes (demonstrate independently) • express an opinion with respect to some stereotypes (demonstrate occasional support) • demonstrate a respect towards other languages (demonstrate independently)
 • inform themselves of activities through the media (demonstrate with occasional support) • inform and amuse themselves by listening to the radio and viewing televisions and films (demonstrate with occasional support)
 • demonstrate an interest in using French (demonstrate independently) • identify the evidence of bilingualism in our society (careers, laws, etc.) (demonstrate independently) |
|--|---|

General Language Education

GCO: On the basis of their experience in the Core French Program, students will be expected to

- choose and implement strategies to facilitate their communication in French and their learning
-

- | | |
|---|--|
| <ul style="list-style-type: none"> • use learning strategies, communication strategies, and social strategies to communicate in French, both orally and in writing | <ul style="list-style-type: none"> • demonstrate the importance of non-verbal communication (use gestures) (demonstrate independently) • use partial sentences, repetition, paraphrase, and circumlocutions (demonstrate independently) • request clarification and explanation in order to understand (demonstrate independently) • plan and organize their productions using their own learning experiences <ul style="list-style-type: none"> – prepare checklist – adapt a message to the circumstances – plan a written production (demonstrate with occasional support) • self-correct (demonstrate independently) • keep a personal journal (demonstrate independently) • give advice to facilitate group work (demonstrate independently) • take turns (demonstrate independently) |
|---|--|

Key-Stage Curriculum Outcomes

By the end of grade 9, students will be expected to

Specific Curriculum Outcomes

Students will be expected to

- accept suggestions given by others (demonstrate independently)
- identify how knowledge and skills in French class can be useful in everyday life (demonstrate with occasional support)

Language

GCO: On the basis of their experience in the Core French Program, students will be expected to

- recognize and use in context elements of the linguistic code, orally and in writing, to facilitate their communication in French
-
- understand and use the vocabulary, expressions, and structures relating to the needs in the classroom and to areas of experience
 - function in the classroom by using expressions from the unit «*comment survivre en français dans un cours de français*» and the directions and rules of the classroom (demonstrate independently)
 - participate in a conversation and involve themselves in a variety of interactions by using the present, future, and simple past tenses; connecting words such as *d'abord, ensuite, finalement, puis, et, mais*; interrogative and negative (demonstrate with occasional support)
 - describe and compare by using the present, future, and simple past tenses; adjectives; adverbs; comparative and superlative; connecting words (demonstrate with occasional support)
 - select information using verb tenses, connecting words such as *d'abord, ensuite, finalement, puis, cependant, en plus, par contre* (demonstrate with occasional support)
 - produce a variety of texts using the present, future, and past tenses; interrogative and negative; connecting words such as: *puis, et, mais, en plus* in order to produce a cohesive and coherent text (demonstrate with occasional support)

English Language Arts

General Curriculum Outcomes Specific Curriculum Outcomes

GCO 1: Students will be expected to speak and listen to explore, extend, clarify, and reflect on their thoughts, ideas, feelings, and experiences.

GCO 2: Students will be expected to communicate information and ideas effectively and clearly, and to respond personally and critically.

GCO 3: Students will be expected to interact with sensitivity and respect, considering the situation, audience, and purpose.

GCO 4: Students will be expected to select, read, and view with understanding a range of literature, information, media, and visual texts.

Students will be expected to

- 1.1 examine others' ideas in discussion to extend their own understanding
 - 1.2 ask relevant questions calling for elaboration, clarification, or qualification and respond thoughtfully to such questions
 - 1.3 articulate, advocate, and support points of view, presenting view points in a convincing manner
 - 1.4 listen critically to assess the adequacy of the evidence speakers give to evaluate the integrity of information presented
- 2.1 participate constructively in conversation, small-group and whole-group discussion, and debate, using a range of strategies that contribute to effective talk
 - 2.2 adapt vocabulary, sentence structure, and rate of speech to the speaking occasion
 - 2.3 give and follow instructions and respond to questions and directions of increasing complexity
 - 2.4 evaluate their own and others' uses of spoken language in a range of contexts, recognizing the effects of significant verbal and non-verbal language features
- 3.1 demonstrate active listening and respect for the needs, rights, and feelings of others
 - 3.2 demonstrate an awareness of the power of spoken language to influence and manipulate, and to reveal ideas, values, and attitudes
 - 3.3 demonstrate an awareness that spoken language has different conventions in different situations and cultures and use language appropriate to the situation
- 4.1 select texts that address their learning needs and range of special interests
 - 4.2 read widely and experience a variety of young adult fiction and literature from different provinces and countries
 - 4.3 demonstrate an understanding that information texts are constructed for particular purposes
 - 4.4 use cueing systems and a variety of strategies to construct meaning in reading and viewing increasingly complex print and media texts
 - 4.5 articulate their own processes and strategies for reading and viewing texts of increasing complexity

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

GCO 5: Students will be expected to interpret, select, and combine information using a variety of strategies, resources, and technologies.

- 5.1 independently access and select specific information to meet personal and learning needs
- select, from a wide range, sources appropriate to their purposes
 - use the electronic network
 - develop approaches and strategies to conduct their research

GCO 6: Students will be expected to respond personally to a range of texts.

- 6.1 respond to some of the material they read or view by questioning, connecting, evaluating, and extending
- move beyond initial understanding to more thoughtful interpretations
- 6.2 express and support points of view about texts and about issues, themes, and situations within texts, citing appropriate evidence

GCO 7: Students will be expected to respond critically to a range of texts, applying their understanding of language, form, and genre.

- 7.1 critically evaluate information presented in print and media texts
- assess relevance and reliability of available information to answer their questions
- 7.2 demonstrate that print and media texts are constructed for particular purposes and particular audiences
- describe how specific text and genre characteristics contribute to meaning and effect
- 7.3 respond critically to texts of increasing complexity
- analyse and evaluate a text in terms of its form, structure, and content
 - recognize how their own ideas and perceptions are framed by what they read and view
 - demonstrate an awareness that personal values and points of view influence both the creation of text and the reader's/viewer's interpretation and response
 - explore and reflect on culture and reality as portrayed in media texts
 - identify the values inherent in a text

GCO 8: Students will be expected to use writing and other ways of representing to explore, clarify, and reflect on their thoughts, feelings, experiences, and learnings; and to use their imagination.

- 8.1 use a range of strategies in writing and other ways of representing to
- extend ideas and experiences
 - explore and reflect on their feelings, values, and attitudes
 - consider others' perspectives
 - reflect on problems and responses to problems
 - describe and evaluate their learning processes and strategies
 - reflect on their growth as language learners and language users

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

GCO 9: Students will be expected to create texts collaboratively and independently, using a variety of forms for a range of audiences and purposes.

- 8.2 use note-making to reconstruct knowledge and select effective strategies appropriate to the task
- 8.3 make informed choices of language to create a range of interesting effects in imaginative writing and other ways of representing

9.1 demonstrate facility in using a variety of forms of writing to create texts for specific purposes and audiences, and represent their ideas in other forms (including visual arts, music, drama) to achieve their purposes

9.2 demonstrate an awareness of the effect of context on writing and other forms of representing

- make appropriate choices of form, style, and content for specific audiences and purposes

9.3 analyse and assess responses to their writing and media productions

GCO 10: Students will be expected to use a range of strategies to develop effective writing and other ways of representing and to enhance their clarity, precision, and effectiveness.

10.1 demonstrate an awareness of what prewriting, drafting, revising, editing, proofreading, and presentation strategies work for them with various writing and other representations

10.2 consistently use the conventions of written language in final products

10.3 experiment with the use of technology in communicating for a range of purposes with a variety of audiences

10.4 demonstrate a commitment to crafting pieces of writing and other representations

10.5 integrate information from several sources to construct and communicate meaning

Health/Personal Development and Relationships (Draft)

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

The Body: Growth and Development

GCO A: Students will be expected to demonstrate knowledge of the body, body functions, and growth and development.

- A1.1 demonstrate an understanding of the interrelated functions of the endocrine and reproductive systems
- A1.2 demonstrate an understanding of the stages of pregnancy and prenatal development
- A2.1 demonstrate an understanding of the ageing process as a natural part of life

Strategies for Healthy Living

GCO B: Students will be expected to demonstrate knowledge, skills, and attitudes that contribute to active, healthy living.

- B1.1 identify factors that affect the health and efficiency of the endocrine and reproductive systems
- B1.2 identify factors that affect the health of the pregnant woman and the developing fetus
- B2.1 demonstrate an understanding of the personal and environmental health consequences of various food-producing practices
- B3.1 identify high-risk behaviours related to drug and inhalant use
- B3.2 evaluate the safety and effectiveness of various methods of contraception
- B3.3 identify risks of smoking, drinking, and other drug use during pregnancy
- B3.4 identify signs and influences related to problem gambling
- B3.5 identify strategies for quitting smoking and helping a friend to quit
- B3.6 identify risks associated with the non-medical use of steroids and other performance-enhancing drugs
- B3.7 identify social costs related to harmful involvement with drugs and gambling
- B3.8 identify signs and stages of dependence on a substance or behaviour
- B4.1 identify and practise ways of contributing to the physical and emotional safety of the school community
- B4.2 identify precautions and rights related to occupational health and safety
- B4.3 identify and practise strategies for preventing sexual

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- harassment or rape in dating relationships
- B4.4 identify positive and negative influences related to the prevention of teen suicide
- B4.5 identify and practise safety precautions related to outdoor recreation
- B5.1 maintain a personal health history
- B5.2 demonstrate a knowledge of symptoms, risk factors, and management strategies for a variety of chronic illnesses and conditions
- B5.3 evaluate the trustworthiness of alternative products and therapies used for the prevention and treatment of disease
- B6.1 express strong feelings such as anger, fear, and rejection in healthy ways
- B6.2 demonstrate a knowledge of the symptoms, prevention, and treatment of depression
- B7.1 participate in a broad range of physical activities they enjoy

Values and Practices for Healthy Living

GCO C: Students will be expected to demonstrate knowledge of factors that contribute to healthy living values and practices.

- C1.1 describe their attitudes and values regarding the role of family life in a changing society
- C2.1 demonstrate an understanding of the impact of various occupations on the health of the community
- C2.2 identify and acknowledge individuals and groups who are making a special contribution to the health of the community
- C3.1 demonstrate an awareness of ways that behaviours and values related to work and career have changed over time
- C3.2 demonstrate an awareness of ways that attitudes and laws related to drug use have changed over time
- C3.3 demonstrate an awareness of ways that behaviours and values related to health and health care vary over time and across cultures
- C3.4 demonstrate an awareness of changing attitudes toward adulthood and ageing
- C4.1 demonstrate an understanding of ways that food production methods affect environmental sustainability

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- C5.1 demonstrate awareness of, and respect for, their own and others' special needs

Strategies for Positive Personal Development and Healthy Relationship

GCO D: Students will be expected to demonstrate the knowledge, skills, and attitudes necessary to live happily and productively as an individual, within a family, and within the community.

- D1.1 define and practise strategies for maintaining a general sense of health and well-being
- D1.2 identify and practise strategies for living with change and uncertainty
- D1.3 manage personal resources in order to achieve personal goals
- D1.4 demonstrate attitudes and strategies needed to face and deal with problems
- D2.1 identify and practise strategies for helping a friend who is having problems with drugs, gambling, or other behaviours
- D2.2 identify ways that community services support the prevention and treatment of addictions
- D3.1 demonstrate respect for the feelings and beliefs of others
- D3.2 identify and practise strategies for dealing with the challenges of peer relationships
- D3.3 identify and practise strategies for dealing with change, stress, and crisis within the family
- D4.1 locate and interpret information about a range of occupations
- D4.2 identify occupations or sectors that are on the rise and those that are on the decline
- D4.3 identify employment laws that may affect them in the near future
- D5.1 identify social, economic, and technological trends that affect life/work building
- D5.2 identify and demonstrate knowledge, skills, and attitudes needed to be successful in the workplace
- D5.3 demonstrate an understanding of the ongoing role of decision making in life/work building
- D5.4 demonstrate an understanding of the role of mentoring in life/work building
- D5.5 develop short- and medium-term life/work goals
- D5.6 prepare a personal résumé

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- D6.1 demonstrate an ability to teach or mentor others
- D6.2 demonstrate an understanding of the roles of job shadowing and volunteerism in life/work building
- D6.3 select items for and maintain a life/work portfolio
- D6.4 develop a plan to acquire the skills and credentials which will lead to their career goal(s)

Information Technologies

Outcome Components

Students will demonstrate expected performance levels in five IT-based learning outcome areas within the context of essential graduation learnings and outcomes specified for the public school program as a whole.

Basic Operations and Concepts (BOC)

- concepts and skills associated with the safe, efficient operation of a range of information technologies

Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for grades primary–6 and will also be expected to

- BOC 9.1 under general supervision as they research, design, and create products that represent their learning, independently and safely
 - operate a wide variety of school media equipment, including audio equipment, overhead projectors, video cameras, videocassette recorder/players, televisions, photocopiers, and still cameras
 - use computer equipment to access and use curriculum-based computer software, from CD-ROMs, hard drives, or other data storage media
- BOC 9.2 demonstrate accurate, efficient keyboarding and manipulation of appropriate input devices; be able to assist others in the use of peripherals
- BOC 9.3 using a variety of technologies, demonstrate an understanding of technological applications and apply appropriate technologies to solve curriculum problems and enhance their learning
- BOC 9.4 independently run grade-appropriate software and manage folders and directories of their electronic work in accordance with school policies
- BOC 9.5 understand and use an increasing range of specialized vocabulary associated with the technologies they use
- BOC 9.6 practise and demonstrate a developing understanding of sound ergonomics as they use IT; identify and report dangerous workstation configurations or practices
- BOC 9.7 apply basic troubleshooting techniques in assessing equipment and software problems that affect their use of IT; document and articulate such problems to assist technical support staff in further diagnosis

Outcome Components

Students will demonstrate expected performance levels in five IT-based learning outcome areas within the context of essential graduation learnings and outcomes specified for the public school program as a whole.

Productivity Tools and Software

- the efficient selection and use of IT to perform tasks such as
 - the exploration of ideas
 - data collection
 - data manipulation, including the discovery of patterns and relationships
 - problem solving
 - the communication of learning

Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for grades primary–6 and will also be expected to

- PTS 9.1 independently use electronic planning software to brainstorm; develop a thought web; outline and map ideas under study; and track their progress toward agreed work deadlines
- PTS 9.2 in the process of collecting, analysing, and displaying data, independently create electronic charts, tables, and graphs; and design, create, and manipulate spreadsheets and databases
- PTS 9.3 with the assistance of their teachers, explore curriculum concepts under study using specialized software; peripheral measuring, sampling, and recording equipment; and computer-based simulations
- PTS 9.4 explore the curriculum through a wide range of print and electronic forms; access, create, and process information by means of the specialized techniques associated with the technologies they select
- PTS 9.5 under the general supervision of their teachers, independently manipulate sound and a range of image types, using digital imaging equipment and computer-based editing, to represent their learning in a variety of ways and for particular audiences
- PTS 9.6 independently develop multimedia presentations, based on sound principles of design, with increasing confidence and efficiency
- PTS 9.7 use information technology to explore increasingly complex numerical and geometric situations for the purpose of developing conjectures

Communications Technology

- the use of specific, interactive technologies that support collaboration and sharing through communication

- CT 9.1 represent their learning in a range of media, including print, video, audio, and multimedia, with growing confidence and competence
- CT 9.2 with teacher supervision, locate and access curriculum-relevant books, journals, and other print documents; media resources; and electronic files for use in all types of research
- CT 9.3 manage their electronic files and correspondence efficiently

Outcome Components

Students will demonstrate expected performance levels in five IT-based learning outcome areas within the context of essential graduation learnings and outcomes specified for the public school program as a whole.

Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for grades primary–6 and will also be expected to

- CT 9.4 demonstrate their understanding of how form, standards, conventions, and methods of transmission affect their use of information and its impact on themselves and others
- CT 9.5 with teacher supervision, work collaboratively in small groups to design and build, for peer use, intranet or Internet websites of student-produced pages about a curriculum topic

Research, Problem Solving, and Decision Making

- the organization, reasoning, and evaluation by which students rationalize their use of IT in pursuit of other curriculum outcomes
- RPSD 9.1 with the assistance of their teachers, select appropriate measuring and recording devices and/or software to collect data, discover patterns of change over time, solve problems, and make logical decisions based on their investigations
- RPSD 9.2 with the assistance of their teachers, select and use appropriate forms, styles, media, and sources to access, manipulate, assess, and present information meaningfully for different audiences
- RPSD 9.3 with the assistance of their teachers, assess the quality, completeness, biases, and perspectives of print, media, and electronic resources for possible use in their curricular studies
- RPSD 9.4 independently select, use, and occasionally develop specialized techniques to create communication environments, processes, and products in print, media, and electronic forms that meet defined information needs and appropriate quality standards
- RPSD 9.5 independently and critically evaluate how style, form, source, and medium influence the accessibility, validity, and meaning of information
- RPSD 9.6 with the assistance of their teachers, access the strengths and limitations of different approaches to research, then select those approaches that more efficiently meet their learning needs
- RPSD 9.7 with the assistance of their teachers, select and refine a research a topic, according to teacher-provided criteria, to fulfill a curriculum requirement
- RPSD 9.8 accurately and independently cite bibliographic information

Outcome Components

Students will demonstrate expected performance levels in five IT-based learning outcome areas within the context of essential graduation learnings and outcomes specified for the public school program as a whole.

Social, Ethical, and Human Issues

- understanding associated with the use of IT that encourages in students a commitment to pursue personal and social good, particularly to build and improve their learning environments and to foster stronger relationships with their peers and others who support their learning

Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for grades primary–6 and will also be expected to

- SEHI 9.1 demonstrate understanding of the nature of technology and its impacts on different societies and environments; assume personal responsibility for ethical behaviour and attitudes with regard to information technologies and resources and use them—in local and global contexts—with due regard for the legal and human rights of others
- SEHI 9.2 demonstrate understanding of, model, and assume personal responsibility for the acceptable use of copyrighted information resources
- SEHI 9.3 identify and demonstrate the techniques of mass media, popular culture, and electronic information environments, and evaluate the effects of these techniques
- SEHI 9.4 identify the values that inform mass media, popular culture, and electronic information environments in relation to their personal values
- SEHI 9.5 with the assistance of their teachers as required, identify the impacts of various media and information technologies on them, their learning environment, their cultures, and society
- SEHI 9.6 as researchers, demonstrate an understanding of and a commitment to accuracy and ethical behaviour as they create and distribute information about themselves, others, and curriculum topics under study
- SEHI 9.7 identify technology-related career opportunities of personal interest, and begin to assess their strengths and interests with respect to technology

Mathematics

General Curriculum Outcomes Specific Curriculum Outcomes

GCO A: Students will demonstrate number sense and apply number-theory concepts.

GCO B: Students will demonstrate operation sense and apply operation principles and procedures in both numeric and algebraic situations.

Students will be expected to

- A1 investigate problems involving square root and principal square root
- A2 graph and write in symbols and in words the solution set for equations and inequations involving integers and other real numbers
- A3 demonstrate an understanding of the meaning and uses of irrational numbers
- A4 interrelate subsets of the set of real numbers
- A5 compare and order real numbers
- A6 represent problem situations using matrices

- B1 model, solve, and create problems involving real numbers
- B2 add, subtract, multiply, and divide rational numbers in fractional and decimal forms using the most appropriate methods
- B3 apply the order of operations in rational number computations
- B4 demonstrate an understanding of and apply the exponent laws for integral exponents
- B5 model, solve, and create problems involving numbers expressed in scientific notation
- B6 judge the reasonableness of results in problem situations involving square roots, rational numbers, and numbers written in scientific notation
- B7 model, solve, and create problems involving the matrix operations of addition, subtraction, and scalar multiplication
- B8 add and subtract polynomial expressions symbolically to solve problems
- B9 find products of two monomials, a monomial and a polynomial, and two binomials concretely, pictorially, and symbolically
- B10 find quotients of polynomials with monomial divisors
- B11 evaluate polynomial expressions
- B12 factor algebraic expressions with common monomial factors concretely, pictorially, and symbolically
- B13 demonstrate an understanding of the applicability of commutative, associative, distributive, identity, and inverse properties to operations involving algebraic expressions
- B14 select and use appropriate strategies in problem situations

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

GCO C: Students will explore, recognize, represent, and apply patterns and relationships, both informally and informally.

- C1 represent patterns and relationships in a variety of formats and use these representations to predict and justify unknown values
- C2 interpret graphs that represent linear and non-linear data
- C3 construct and analyse tables and graphs to describe how changes in one quantity affect a related quantity
- C4 determine the equations of lines by obtaining their slopes and y -intercepts from graphs and sketch graphs of equations using y -intercepts and slopes
- C5 explain the connections among different representations of patterns and relationships
- C6 solve single-variable equations algebraically and verify the solutions
- C7 solve first-degree single-variable inequalities algebraically, verify the solutions, and display them on number lines
- C8 solve and create problems involving linear equations and inequalities

GCO D: Students will demonstrate an understanding of and apply concepts and skills associated with measurement.

- D1 apply rates, other ratios, and proportions in indirect measurement problems with particular focus on slopes
- D2 solve measurement problems involving conversion among SI units
- D3 relate the volumes of pyramids and cones to the volumes of corresponding prisms and cylinders
- D4 estimate, measure, and calculate volumes and surface areas of pyramids, cones, and spheres and apply these measures
- D5 demonstrate understanding of and apply ratios within similar triangles

GCO E: Students will demonstrate spatial sense and apply geometric concepts, properties, and relationships.

- E1 investigate and demonstrate an understanding of the minimum sufficient conditions to produce unique triangles
- E2 investigate and demonstrate an understanding of the properties of and the minimum sufficient conditions to guarantee congruent triangles
- E3 make informal deductions using congruent triangle and angle properties
- E4 demonstrate an understanding of and apply the properties of similar triangles
- E5 relate congruence and similarity of triangles
- E6 use mapping notation to represent translations, reflections, rotations, and dilatations of geometric figures and interpret such notations

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

	E7	analyse and represent transformations and combinations of transformations using mapping notation
	E8	investigate, determine, and apply the effects of transformations of geometric figures on congruence, similarity, and orientation
GCO F: Students will solve problems involving the collection, display, and analysis of data.	F1	determine the strength of the relationships in scatter plots
	F2	sketch lines of best fit and determine their equations
	F3	sketch curves of best fit for relationships that appear to be non-linear
	F4	select, defend, and use the most appropriate methods for displaying data
	F5	draw inferences and make predictions based on data analysis and data displays
	F6	demonstrate an understanding of the role of data management in society
	F7	evaluate arguments and interpretations that are based on data analysis
GCO G: Students will represent and solve problems involving uncertainty.	G1	make predictions of, and conduct experiments and simulations to determine, probabilities involving dependent and independent events
	G2	determine theoretical probabilities of compound events
	G3	compare experimental and theoretical probabilities
	G4	recognize and explain why decisions based on probabilities may be combinations of theoretical calculations, experimental results, and subjective judgments

Music

General Curriculum Outcomes

Key-Stage Curriculum Outcomes

NOTE: Specific curriculum outcomes have not yet been developed for Music 7–9. Teachers may wish to use the following general curriculum outcomes and key-stage curriculum outcomes from the *Foundation for the Atlantic Canada Arts Education Curriculum* in planning their music program.

By the end of grade 9, students will have achieved the outcomes for entry–grade 6 and will also be expected to

Creating, Making, and Presenting

GCO 1: Students will be expected to explore, challenge, develop, and express ideas using the skills, language, techniques, and processes of the arts.

- sing or play, maintaining a part within a variety of textures and harmonies, using a range of musical structures and styles
- use the elements of music to express and communicate meaning
- interpret non-verbal gestures, making connections to notation and musical expression
- use a variety of notational systems to represent musical thoughts and ideas

GCO 2: Students will be expected to create and/or present, collaboratively and independently, expressive products in the arts for a range of audiences and purposes.

- improvise and compose patterns and short pieces, using a variety of sound sources and technologies
- present music, co-ordinating reading, listening, and playing/singing skills
- perform, alone and with others, music expressing a broad range of thoughts, images, and feelings

Understanding and Connecting Contexts of Time, Place, and Community

GCO 3: Students will be expected to demonstrate critical awareness of and value the role of the arts in creating and reflecting culture.

- identify and describe uses of music in daily life, both local and global
- identify opportunities to participate in music in school, community, and the world of work
- compare music from a range of cultural and historical contexts
- examine and describe ways in which music influences and is influenced by local and global culture

GCO 4: Students will be expected to respect the contributions of individuals and cultural groups to the arts in local and global contexts and value the arts as a record of human experience and expression.

- reflect on ways in which music expresses the history and the cultural diversity of local, national, and international communities
- examine ways in which music enhances and expresses life's experiences

General Curriculum Outcomes Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for entry–grade 6 and will also be expected to

GCO 5: Students will be expected to examine the relationship among the arts, societies, and environments.

- define relationships among music, other arts, and other subjects
- examine the roles that music plays in local and global communities

Perceiving and Responding

GCO 6: Students will be expected to apply critical thinking and problem-solving strategies to reflect on and respond to their own and others' expressive works.

- examine and explore a range of possible solutions to musical challenges
- use processes of description, analysis, interpretation, and evaluation to make and support informed responses to their own and others' music and musical performances
- critically reflect on ideas and feelings in works of music, and identify patterns, trends, and generalizations

GCO 7: Students will be expected to understand the role of technologies in creating and responding to expressive works.

- identify combinations of instruments and sound sources, including electronic sources
- identify and describe instruments common to cultures and countries included in the social studies curriculum
- explore a range of non-acoustic musical sound sources
- describe the relationship of instruments and other technologies to the mood and feeling of their own and others' music

GCO 8: Students will be expected to analyse the relationship between artistic intent and the expressive work.

- discuss why a range of musical works has been created
- analyse the source of ideas and reasons for musical decisions in light of original intent
- use feedback from others to examine their own music work in light of their original intent
- analyse performances and provide critical commentary on aspects of musical presentation in light of the performers' intent

Physical Education

General Curriculum Outcomes

Students will be expected to

Knowing

- demonstrate an understanding of the concepts that support human movement
- demonstrate a knowledge of the components and processes needed to develop and maintain a personal level of functional fitness

Doing

- demonstrate motor skills in all movement categories using efficient and effective body mechanics
- participate regularly in a variety of activities that develop and maintain personal physical fitness
- demonstrate creativity in all movement categories

Valuing

- demonstrate positive personal and social behaviours and interpersonal relationships
- demonstrate positive attitudes toward and an appreciation of physical activity through participation
- demonstrate awareness of career and occupational opportunities related to physical activities

Specific Curriculum Outcomes

Students will be expected to

Active Living

- use relaxation techniques for stress management
- design a nutritional plan appropriate for a specific activity (e.g., cross-country skiing, weight lifting, aerobics)
- participate in activities that develop personal fitness for active, healthy living
- plan and participate in personal fitness and activity programs, using the principles of training
- design a circuit that includes activities to develop muscular strength, cardiovascular fitness, flexibility, and endurance
- set specific goals that use community resources or facilities to enhance his/her personal active-living goals

Outdoor Activities

- create a map and design an orienteering course on their school grounds or in a local park
- demonstrate map-reading skills as an aid to navigation
- demonstrate compass-reading skills as an aid to navigation
- participate in at least one land-based (e.g., hiking, orienteering) and one water-based (e.g., swimming, canoeing) seasonal activity that practises environmental safety
- know and practise safety procedures and routines in a variety of outdoor activities

Dance

- research and share with peers dances from other countries and/or cultures
- create and teach an aerobic dance sequence to a small group or the class
- integrate sports themes and music to create dances (e.g., “Sweet Georgia Brown” and basketball, victory dance and football, slow-motion replay and martial arts)
- create, choreograph, and perform dances for themselves and others in a variety of dance forms
- apply the principles of mechanics to improve performance in dance activities

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Students will be expected to

Educational Gymnastics

- demonstrate safety procedures and practices to avoid risks
- create and perform group sequences using basic gymnastics skills on the floor and on small and/or large equipment
- demonstrate balance and body control as they relate to sport (e.g., snowboarding, heading a soccer ball, or catching balls in the air)

Sport Experience

- play a variety of games putting several sport-specific skills into practice
- identify the relationship between body mechanics and performance
- apply game strategies in a variety of sports and games
- demonstrate an understanding of the role that leadership plays in sport experiences
- modify rules of games for a variety of purposes
- demonstrate an understanding of rules through officiating
- demonstrate positive personal and social behaviours that emphasize fair play

Science

General Curriculum Outcomes Specific Curriculum Outcomes

STSE

GCO 1: Students will develop an understanding of the nature of science and technology, of the relationships between science and technology, and of the social and environmental contexts of science and technology.

Skills

GCO 2: Students will develop the skills required for scientific and technological inquiry, for solving problems, for communicating scientific ideas and results, for working collaboratively, and for making informed decisions.

Knowledge

GCO 3: Students will construct knowledge and understandings of concepts in life science, physical science, and Earth and space science, and apply these understandings to interpret, integrate, and extend their knowledge.

Attitudes

GCO 4: Students will be encouraged to develop attitudes that support the responsible acquisition and application of scientific and technological knowledge to the mutual benefit of self, society, and the environment.

Students will be expected to

Reproduction

Cellular Processes

- recognize that the nucleus of a cell contains genetic information and determines cellular processes (305-1)
- explain the importance of using the terms gene and chromosome properly (109-14)
- identify major shifts in scientific understanding of genetics (110-3)
- illustrate and describe the basic processes of mitosis and meiosis (304-11)
- determine and graph the theoretical growth rate of a cell, and interpolate and extrapolate the cell population from the graph (210-2, 210-4, 210-9)

Asexual and Sexual Reproduction

- distinguish between sexual and asexual reproduction in representative organisms (305-2)
- compare sexual and asexual reproduction in terms of their advantages and disadvantages (305-3)
- identify questions to investigate about sexual reproduction in plants (208-2)
- use tools and apparatus safely to investigate the structure of flowers (209-6)
- communicate the results of an investigation into the structure of flowers (211-2)

Genetic Changes

- provide examples of genetic conditions that cannot be cured using scientific and technological knowledge at the present time (113-10)
- compare factors that may lead to changes in a cell's genetic information: mutations caused by nature and mutations caused by human activities (305-5)
- evaluate information and evidence gathered on the topic of genetics and genetic engineering (209-5, 210-8)
- provide examples of how the knowledge of cellular functions has resulted in the development of technologies (111-1)

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- provide examples of Canadian contributions to science and technology related to heredity and genetic engineering (112-12)

Atoms and Elements**Safety Consideration and Physical Properties**

- compare earlier conceptions of the structure of matter with their conceptions (110-1)
- demonstrate a knowledge of WHMIS standards by using proper techniques for handling and disposing of lab materials (209-7)
- investigate materials and describe them in terms of their physical properties (307-12)
- compile and display data collected during an investigation of the physical properties of materials (210-2)

Chemical Changes/Reactions

- describe changes that result from common chemical reactions:
 - energy change
 - change in colour
 - precipitate formed
 - gas formed
 - new chemical substance formed (307-13)
- determine, where possible, if the change in a material or object is physical or chemical on the basis of experimental data (210-11)
- identify new questions about physical and chemical changes that arise from investigations (210-16)

Atomic Theory

- identify major changes in atomic theory up to and including the Bohr model (110-3)
- use models in describing the structure and the components of atoms and molecules, and explain the importance of choosing words that are scientifically appropriate:
 - determine the number of protons and electrons in the atom of an element, given its atomic number
 - determine the number of protons, electrons, and neutrons, given the mass number and atomic number

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- be able to write the appropriate symbol for an isotope, given the number of protons and neutrons (109-13, 307-14)
- provide examples of technologies that have enhanced, promoted, or made possible scientific research in chemistry (111-4)
- provide examples to illustrate that scientific and technological activities related to atomic structure take place in a variety of individual and group settings (112-8)
- explain the importance of using the terms law and theory in science (109-14)

Periodic Law

- identify examples of common elements, and compare their characteristics and atomic structure (307-15)
- describe and explain the role of collecting evidence, finding relationships, and proposing explanations in the development of the periodic table (109-2)
- use a periodic table to predict properties of a family of elements:
 - period
 - family
 - metals
 - metalloids
 - nonmetals (210-1)
- identify the elements and number of atoms, given a chemical formula (307-16)
- provide examples where knowledge of chemistry has resulted in the development of commercial materials (111-1)
- given and explain examples illustrating how limited resource have forced scientists have forced scientists and technologist to develop more efficient ways to extract elements and compounds from nature, or to find or develop appropriate substitutes (112-3)

Characteristics of Electricity**Static Electricity**

- identify properties of static electrical charges:
 - like charges repel
 - unlike charges attract
 - induced charges (308-14)
- explain the production of static electrical charges in some common materials (308-13)

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- provide examples of how knowledge of static electricity has resulted in the development of technologies (111-1, 112-7)
- provide examples of careers related to electricity in their community and province (112-10)

Static Electricity and Electric Current

- describe the flow of charge in an electrical circuit and describe the factors affecting the amount of resistance in a wire (length, diameter, type):
 - voltage
 - electric current
 - resistance (109-14, 308-16)
- compare qualitatively static electricity and electric current (308-15)

Series and Parallel Circuits

- rephrase questions in a restatable form related to series and parallel circuits (208-1)
- use an ammeter and a voltmeter to measure current and voltage in series and parallel circuits (209-3)
- identify potential sources of error in ammeter and voltmeter readings (210-10)
- identify and suggest explanations for discrepancies in data collected using an ammeter and a voltmeter (210-7)
- present graphically the data from investigation of voltage, current, and resistance in series and parallel circuits (210-5, 211-2)
- describe series and parallel (maximum two resistors) circuits involving varying resistance, voltage, and current, using Ohm's Law:
 - draw circuit diagrams, using current symbols for a cell, switch, battery, lamp, resistor, multirange meter (308-17)

Use of Electrical Energy

- relate electrical energy to domestic power consumption costs:
 - watt as a unit of power ($1\text{ W} = 1\text{ J/s}$) (308-18)
- explain that precise language is required to properly interpret Energiguide labels and to understand a utility bill (109-14)
- compare examples of past and current technologies that used current electricity to meet similar needs (110-9)

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- determine quantitatively the efficiency of an electrical appliance that converts electrical energy to heat energy (308-19)

Electricity and the Environment

- describe the transfer and conversion of energy from a generating station to the home (308-20)
- evaluate evidence and sources of information when conducting research on electrical energy production and its impact on the environment (210-8)
- select recent data while conducting research on the environmental problems associated with various types of electrical energy production (113-6, 210-8)
- propose a course of action that reduces the consumption of electrical energy (113-9, 113-13)
- give examples of the development of alternative sources of energy (such as wind generators and solar energy) that are a result of cost and the availability and properties of materials (109-6)

Space Exploration**The Beginnings of the Solar System**

- describe and explain the apparent motion of celestial bodies:
 - moon
 - sun
 - planets
 - comets
 - asteroids (312-4)
- describe theories on the formation of the solar system (312-1)

Composition and Characteristics of the Solar System

- describe the composition and characteristics of the following components of the solar system:
 - terrestrial and gas planets and Pluto
 - periodicity of comets
 - asteroids/meteors (312-5)
- explain the need for new evidence in order to continually test existing theories about the composition and origin of our solar system and galaxies (110-6, 210-3)

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- provide examples of how the Canadian government and/or Canadian Space Agency is involved in research projects about space (112-6)
- defend their position regarding societal support for space exploration (211-5)
- describe the effects of solar phenomena on Earth:
 - sunspots
 - solar flares
 - solar radiation (312-6)
- in small groups, design and describe a model space station on the basis of what they have learned about the sun's influences on Earth (208-4, 211-1)

Composition and Characteristics of the Universe

- describe theories on the origin and evolution of the universe:
 - big bag theory
 - oscillating theory (312-3)
- describe and classify the major components of the universe:
 - nebulae
 - galaxies
 - giant stars
 - dwarf stars
 - quasars
 - black holes (312-2)
- calculate the travel time to a distant star at a given speed:
 - define and explain a light year (210-9)
- explain how data provided by technologies contribute to our knowledge of the universe (109-3)
- working collaboratively with group members, prepare a comparative data table on various stars, and design a model to represent some of these stars relative to our solar system (209-4, 211-1, 211-3)
- working collaboratively with group members, prepare a comparative data table on various stars, and design a model to represent some of these stars relative to our solar system (209-4, 211-1, 211-3)
- describe examples of science-and technology-based careers in Canada that are associated with space exploration (112-11)
- identify new questions and problems that arise from the study of space exploration (210-16)
- describe the science underlying three technologies designed to explore space (109-11, 111-5)

Social Studies

General Curriculum Outcomes

Citizenship, Power, and Governance

GCO: Students will be expected to demonstrate an understanding of the rights and responsibilities of citizenship and the origins, functions, and sources of power, authority, and governance

Individuals, Societies, and Economic Decisions

GCO: Students will be expected to demonstrate the ability to make responsible economic decisions as individuals and as members of society.

People, Place, and Environment

GCO: Students will be expected to demonstrate an understanding of the interactions among people, places, and the environment

Culture and Diversity

GCO: Students will be expected to demonstrate an understanding of culture, diversity, and world view, recognizing the similarities and differences reflected in various personal, cultural, racial, and ethnic perspectives.

Interdependence

GCO: Students will be expected to demonstrate an understanding of the interdependent relationship among individuals, societies, and the environment—locally, nationally, and globally—and the implications for a sustainable future.

Specific Curriculum Outcomes

Students will be expected to

Theme One: Physical Setting

- 1.1 identify and locate the Atlantic region in the Canadian, North American, and global contexts
- 1.2 describe the area, size, and physical features of Atlantic Canada
- 1.3 identify the basic weather and climatic patterns of Atlantic Canada
- 1.4 link human activity to the natural resources of the Atlantic region
- 1.5 identify and trace population and settlement patterns affecting Atlantic Canadians from Aboriginal to early new-world migration to the present day

Theme Two: Culture

- 2.1 examine and develop a general concept of culture
- 2.2 examine and describe contemporary culture in the Atlantic Canadian context and its connections to other global cultures
- 2.3 demonstrate an understanding of the local and global factors that have shaped the culture(s) of Atlantic Canada
- 2.4 demonstrate an understanding of the nature of the cultural, ethnic, and linguistic groups in Atlantic Canada
- 2.5 demonstrate an understanding of the issues and events surrounding cross-cultural understanding at the local, regional, and global levels
- 2.6 demonstrate an understanding of and appreciation for the link between culture and occupations/lifestyles in Atlantic Canada
- 2.7 demonstrate an understanding of the local and global forces that cause cultures to constantly change
- 2.8 explain how Atlantic Canadians shape political culture by exercising power and influencing political decisions

Theme Three: Economics

- 3.1 examine and explain the role that basic economic principles play in daily life
- 3.2 demonstrate an understanding of the role of economics in Atlantic Canadian society

General Curriculum Outcomes Specific Curriculum Outcomes**Time, Continuity, and Change**

GCO: Students will be expected to demonstrate an understanding of the past and how it affects the present and the future.

Students will be expected to

- 3.3 evaluate the importance of economics in entrepreneurship
- 3.4 examine and explain the contribution of the primary, secondary, tertiary, and quaternary sectors of the economy of Atlantic Canada
- 3.5 analyse local, regional, and global economic patterns and related issues that are challenging Atlantic Canadians
- 3.6 identify and demonstrate an understanding of trade and other economic linkages among Atlantic Canada and the national and global communities.

Theme Four: Technology

- 4.1 develop a concept of technology and explain its regional and global applications
- 4.2 examine and describe the historical application of technology in the Atlantic region
- 4.3 demonstrate an understanding of how technology has affected employment and the standard of living in Atlantic Canada
- 4.4 analyse how technology affects transportation and communications in the Atlantic region
- 4.5 examine and describe the effects of technology on manufacturing in the Atlantic region
- 4.6 analyse the effect of technology on resource industries in Atlantic Canada
- 4.7 evaluate the effects of technology on recreation, home life, and community life

Theme Five: Interdependence

- 5.1 explore his/her concept of world view and explain the factors that influence and are influenced by it
- 5.2 examine and analyse how Atlantic Canadians are members of the global community through different interconnected systems
- 5.3 access the individual qualities and attributes Atlantic Canadians need to become contributing members of the global community
- 5.4 demonstrate an understanding that the future well-being of Atlantic Canada involves co-operation with the national and global communities

Technology Education (Draft)

General Curriculum Outcomes

GCO 1: Students will be expected to design, develop, evaluate, and articulate technological solutions.

GCO 2: Students will be expected to evaluate and manage technological systems.

GCO 3: Students will be expected to demonstrate an understanding of the history and evolution of technology, and of its social and cultural implications.

GCO 4: Students will be expected to demonstrate an understanding of current and evolving careers and of the influence of technology on the nature of work.

GCO 5: Students will be expected to demonstrate an understanding of their personal responsibility in determining the future.

Specific Curriculum Outcomes

Students will be expected to

Control Technology 9

Big Ideas

What is a Control System?

- define systems and describe the components of a system
- describe the control elements of sensing, switching, and regulating
- identify examples of control systems and describe the functions of their subsystems
- differentiate between open and closed loop systems

Fluid Control Systems

- explore the evolution of fluidic systems
- describe fluidic systems in terms of components and functions
- distinguish between the two common fluidic systems of pneumatics and hydraulics
- identify ways that other systems have been used to control fluidic systems

Electronic Control Systems

- explore the evolution of electronic systems
- describe electronic systems in terms of subsystems and functions
- identify and describe the function of specific electronic systems
- identify ways that electronic systems have been used to control other systems or processes

Robotics

- explore the evolution of robotic systems
- identify and describe the subsystems of a robot
- describe the functions and operations of robotic devices
- identify ways that robots use control systems

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Programming

- define programming in terms of communications between different devices
- examine simple programs and determine their functions
- demonstrate an understanding of programming, its affect on a machine/device, and implications for entrepreneurs

Control System Safety

- identify the risks in using specific control systems and devices
- develop personal rules of conduct to minimize risk

Control Systems and Careers

- identify ways that control systems are used in the home and the workplace
- discuss ways that evolving control systems are affecting the nature of work
- identify careers that focus specifically on the use and management of control systems or systems that incorporate control systems
- identify required skills and competencies for selected careers

Basic Skills**Schematics and Pictorials**

- identify basic symbol sets that are employed in schematic
- read and interpret a simple schematic drawing
- relate a schematic drawing to a pictorial drawing
- create simple schematic drawings

Fabrication

- develop techniques to adjust tools and processes in order to obtain accuracy, precision, and repeatability
- employ separating, shaping, forming, combining, and finishing techniques to fabricate the physical components of control systems

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Soldering

- identify solder
- define a good solder joint
- identify types of solder for different purposes
- safely employ soldering procedures to join two materials

Interfacing

- describe how a tool or device operates an interface between two dissimilar environments
- construct a simple interface device

Programming

- write an instruction set to describe a simple process
- write and test a simple program to control a process

Troubleshooting

- use established troubleshooting routines to troubleshoot and test components and systems

Design Activities**Step 1: Problem Situation**

- investigate situations, including those at home, at school, or in industry to determine opportunities for design of control systems
- identify specific problems for design and development of control devices and systems

Step 2: Design Briefs

- select a specific problem for design and development of control devices and systems and communicate it clearly in the form of a design brief
- generate a design brief for inclusion in the design portfolio

Step 3: Investigation and Research

- investigate similar problems and situations to determine ways they were solved
- research developments in control systems and devices and determine their applicability

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- investigate resources available to solve this problem
- compile a list of information and resources suitable to solving the problem
- use the design portfolios to document their investigation and research

Step 4: Identify Possible Solutions

- identify a range of solutions to the problem
- maintain portfolio documentation

Step 5: Select the Best Solution

- use established criteria for evaluating the solution options
- examine the most appropriate option, and justify the choice
- use the design portfolio to document the proposed solution and the rationale for choosing it

Step 6: Develop the Solution

- identify tools and materials required to develop the solution, including physical and software-based
- work from detailed plans and instructions to construct the solution
- modify the plans, instructions, and the solution necessary, in accordance with the requirement of the design brief
- incorporate performance testing into all phases of the development process
- use the design portfolios to document the process

Step 7: Evaluate the Solution

- develop testing criteria and procedures to assess the solution
- evaluate the solution based on the developed criteria
- make recommendations for improvement
- construct a project report
- use the design portfolio to document the evaluation criteria and to explain how the solution was assessed

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

Step 8: Present the Report

- present a report which describes the problem, the design brief, the evolution of the solution, the actual solution, an evaluation of the solution, and recommendations for improvement using appropriate language/terminology and resources

Biotechnology 9**Basic Skills****What is Biotechnology?**

- define biotechnology
- explore and identify biotechnology, components used in the community
- identify current careers in biotechnology and future directions in the industry

Agriculture/Environmental Technologies

- identify/describe bio-related technologies contributing to increased agricultural production
- identify and describe bio-related technologies maintaining quality agricultural production
- identify examples of an agricultural product that was developed, enhanced, or improved using bio-related agricultural technology
- appreciate consequences of actions and decisions in agricultural bio-related technologies

Exploration of Biotechnology Systems

- examine a variety of biotechnology systems, for example, agriculture, aquaculture, transgenic plants, and animals
- investigate ways that communications, production, energy/power, and control subsystems are used in biotechnology systems

What are Biotechnology Processes?

- describe and explain the following biotechnology processes: fermentation, biodegradability, separation, and purification, microbiology and process monitoring
- identify examples of biotechnology process
- identify the role of enzymes in bioprocessing

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- demonstrate an understanding of bioprocessing conditions

Issues and Trends

- investigate the comment on current issues and emerging practices and trends in the development of biotechnology systems
- present an assessment of the impact of biotechnology on the need to be technologically literate

Ethical and Legal Implications

- examine the ethical issues involved in genetic manipulation of plants and animals, including patenting of life forms
- discuss the rights of individuals and societies with respect to use of biotechnologies
- discuss the legal implications for individuals, governments, and companies of biotechnology systems

Health and Safety

- identify safety issues and concerns in selected biotechnology processes
- develop personal risk management strategies
- specify safe ways to dispose of biotechnology waste products
- examine the impact of biotechnologies on health

Biotechnology and Careers

- identify workplaces and careers in each area of biotechnology and determine the features and requirements of each career
- examine ways that careers and workplaces are being affected by evolution in biotechnology
- identify opportunities for entrepreneurial activity in biotechnology

Basic Skills**Monitoring and Controlling Biotechnology Processes**

- use a variety of sensors and data-logging devices to collect data related to biotechnology processes

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- employ a variety of control systems to manage and regulate biotechnology processes

Investigating and Identifying Resources Employed for Biotechnology

- investigate the variety of current and emerging biotechnology systems, processes, and products
- research and report on systems and resources employed in biotechnology systems

Design Activities**Step 1: Problem Situation**

- investigate situations to determine opportunities for the development of biotechnology systems that are capable of producing biotechnology products
- identify specific problems for design and development of biotechnology systems

Step 2: Design Briefs

- use appropriate language to describe and write about control technology such as: input, process, output, sensors, interfaces, programs, relays, and indicators
- Incorporate communications, production, energy, power, and transportation technologies into control technology related problem-solving activities

Step 3: Investigation and Research

- research, and demonstrate understanding of, technological systems use in control technology
- present a critical evaluation of products, both their role and others, including suggestions for improvement
- investigate control technology
- use of the language and terminology of control technology
- use appropriate language to describe and write about control technology
- use appropriate language to describe problem situations, solution ideas, procedures and processes to implement the solution (including technical drawings closed), and to assess and report on the effectiveness of the solution

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- use communications technologies, production technologies, energy, power, transportation technologies as an integral components of control technology

Step 4: Identify Possible Solutions

- develop multiple options for a solution and identify the most appropriate solution considering conservation of resources, suitability of the solution, outcomes of the solution, and the technical activity required to produce it
- use appropriate language to describe and write about control technology-related issues
- maintain portfolio documentation

Step 5: Select the Best Solution

- use established criteria, access the solution options, select the most appropriate option, and justify the choice
- use appropriate language to describe and write about control technology-related issues.
- maintaining portfolio documentation

Step 6: Develop the Solution

- identify tools and materials required to develop the solution, including physical and software-based
- develop plans and procedures to construct the solution
- modify the plans, instructions, and the solution necessary, in accordance with the requirement of the design brief
- incorporate performance testing into all phases of the development process
- maintain portfolio documentation

Step 7: Evaluate the Solution

- present a critical evaluation of products, both their own and others, including suggestions for improvement
- explore ethical decision making and intellectual honesty as factors in making technological choices
- use action-related language to describe problem situations, solution ideas, procedures and processes to implement the solution in the project report as part of the portfolio
- make recommendations for improvement

General Curriculum Outcomes Specific Curriculum Outcomes

Students will be expected to

- maintain portfolio documentation

Step 8: Present the Report

- present a report which describes the problem, the design brief, the evolution of the solution, the actual solution, an evaluation of the solution, and recommendations for improvement using appropriate language/terminology and communications resources
- use communications technologies to collaborate with students, teachers, and others at a distance in order to develop and implement solutions to control technology problems

Visual Arts

General Curriculum Outcomes

Key-Stage Curriculum Outcomes

NOTE: Specific curriculum outcomes have not yet been developed for Visual Arts 7–9. Teachers may wish to use the following general curriculum outcomes and key-stage curriculum outcomes from the *Foundation for the Atlantic Canada Arts Education Curriculum* in planning their visual arts program.

By the end of grade 9, students will have achieved the outcomes for entry–grade 6 and will also be expected to

Creating, Making, and Presenting

GCO 1: Students will be expected to explore, challenge, develop, and express ideas using the skills, language, techniques, and processes of the arts.

- manipulate and organize design elements and principles to achieve planned compositions
- assess and utilize the properties of various art media and their ability to convey messages and meaning
- create artworks, integrating themes found through direct observation, personal experience, and imagination
- respond verbally and visually to the use of art elements in personal works and the work of others
- analyse and use a variety of image development techniques (e.g., distortion, metamorphosis, fragmentation)
- demonstrate increasing complexity in art skills and techniques

GCO 2: Students will be expected to create and/or present, collaboratively and independently, expressive products in the arts for a range of audiences and purposes.

- invent and incorporate unique visual symbols to create personal meaning in their art
- analyse and make use of visual, spatial, and temporal concepts in creating art images
- select, critique, and organize a display of personally meaningful images from their own portfolio
- acknowledge and respect individual approaches to and opinions of art
- work interactively, co-operatively, and collaboratively

Understanding and Connecting Contexts of Time, Place, and Community

GCO 3: Students will be expected to demonstrate critical awareness of and value the role of the arts in creating and reflecting culture.

- examine the role and the influence of visual images in their daily lives, including mass media and popular culture
- evaluate visual communication systems as a part of daily life
- through their own art develop concepts and imagery based on personal ideas and experience

General Curriculum Outcomes Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for entry–grade 6 and will also be expected to

GCO 4: Students will be expected to respect the contributions of individuals and cultural groups to the arts in local and global contexts and value the arts as a record of human experience and expression.

- recognize and describe the role of the visual arts in challenging, sustaining, and reflecting society’s beliefs and traditions
- identify opportunities to participate in the visual arts in school, community, and the world of work
- develop an appreciation of diversity among individuals as reflected in their art work
- recognize the existence of a variety of visual languages that reflect cultural, socio-economic, and national origins
- recognize that and investigate how art as a human activity emerges from human needs, values, beliefs, ideas, and experiences
- demonstrate an understanding of how individual and societal values affect our response to visual art
- create personally meaningful imagery that reflects influence from a variety of historical and contemporary artists
- compare the characteristics of artwork from different cultures and periods in history

GCO 5: Students will be expected to examine the relationship among the arts, societies, and environments.

- draw upon other arts disciplines as a resource in the creation of their own art works
- use, with confidence, experiences from their personal, social, cultural, and physical environments as a basis for visual expression
- demonstrate an understanding of how individual and societal values affect our response to visual art
- interpret visual parallels between the structures of natural and built environments
- recognize and respect the ethical and moral considerations involved in copying works

Perceiving and Responding

GCO 6: Students will be expected to apply critical thinking and problem solving strategies to reflect on and respond to their own and others’ expressive work.

- develop independent thinking in interpreting and making judgments about subject matter
- constructively critique the work of others
- analyse the works of artists to determine how they have used the elements and principles of design to solve specific visual design problems
- engage in critical reflective thinking as part of the decision-making and problem-solving process
- investigate and analyse how meaning is embedded in works of art

General Curriculum Outcomes Key-Stage Curriculum Outcomes

By the end of grade 9, students will have achieved the outcomes for entry–grade 6 and will also be expected to

GCO 7: Students will be expected to understand the role of technologies in creating and responding to expressive works.

- practise safety associated with proper care of art materials and tools
- create images that solve complex problems that take into consideration form and function, and understand the value of looking for alternative solutions
- evaluate and use various media and technological processes for their sensory qualities and ability to convey messages and meaning
- realize the direct influence expanding technology has had and continues to have on the individual and society

GCO 8: Students will be expected to analyse the relationship between artistic intent and the expressive work.

- analyse artwork and determine the artist's intention
- analyse why images were created by artists
- identify and discuss the source of ideas behind their own work and the work of others
- use feedback from others to examine their own art works in light of their original intent