

**CURRICULUM MAPS FOR GRADE 9****CONTENTS:**

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<b>Subject:</b>	<b>Religion</b>	<b>Grade:</b>	<b>9</b>
<b>Unit:</b>	<b>Title:</b>	<b>Be With Me</b>	
<b>Topic:</b>			

<b>Concept / Values</b>	<b>Course outcomes</b>	<b>Permeation outcomes</b>		
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<b>Be with me</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Students will:	Explore and express the qualities of relationships they want to have	1-4 2-3	Justice Charity	Friendship Respect
	Name how they want others to “be with them”	1-4	Prudence	Honesty Respect
	Know that each person has been created free	2-1	Prudence	Integrity
	Repeat and explain the beatitudes	2-6	Charity	Kindness Respect
	Identify how the beatitudes help us understand the Christian attitude toward being with others	2-2 1-4	Charity	Kindness Empathy
	Articulate the call to be like Christ	1-7	Fortitude	Courage Self-discipline
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<b>Be alive</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Students will:	Value the sacredness of the human body	2-2	Prudence	Stewardship
	Identify ways of cooperating with God in caring for our bodies	2-2	Prudence	Stewardship
	Express ways in which the Incarnation shows the sacredness of the human body	2-2	Prudence	Stewardship
	Respect physical change as part of God’s creation of us	2-1	Charity	Respect
	Understand the ways we use our bodies in prayer	4-1 4-3	Faith	Self-discipline Courage
	Identify their own preferred ways of learning			
	Name a variety of ways of learning and growing			
	Respect the unique intellect of each person	2-5	Charity	Respect
	Consider how intellect shapes faith	1-1	Faith	
	Realize God’s desire to be known through Jesus Christ	2-9	Fortitude	Perseverance
	Identify emotions and their functions in their lives	1-5	Charity	Respect
	Demonstrate how faith guides how we respond to our emotions	2-1	Charity	Responsibility
	Respect everyone’s right to experience their feelings	2-1 4-6	Charity	Stewardship
	Understand that there are morally acceptable and unacceptable ways to express any emotion	2-5	Charity	Friendship Respect
	Explain they are social beings, called to love by God	1-4 2-3	Charity	Kindness Respect
	Summarize stories of Jesus modeling how to live and challenge society	2-8 1-7	Prudence	Self-discipline Courage
	Interpret the model of table fellowship, as used by Jesus, for their own lives	1-2 3-5	Charity Justice	Empathy Integrity
	Explain how the Christian concept of society is inclusive	1-7	Charity	Kindness Empathy

Concept / Values	Course outcomes	Permeation outcomes		
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Be Faithful		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Students will:	Articulate ways that relationships based on faith are reasonable			
	Express what it means to have a relationship with God through Jesus			
	Describe how faith in Jesus Christ challenges them to love and respect others			
	Define Christian prayer			
	Locate in Scripture, describe and demonstrate five forms of prayer: - Adoration and blessing - Petition - Intercession - Thanksgiving - Praise			
	Express different ways God responds to prayer			
	Demonstrate an understanding of the relationship between human freedom, divine prerogative, prayer			
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Be Loving		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Students will:	Examine and Evaluate their understanding of love		Charity	Compassion
	Analyze Scripture where Christ models love		Prudence	Integrity
	Explore Christian dimensions of love within the context of popular notions of love		Prudence	Respect Compassion
	Analyze ways self-love allows love of others		Charity	Respect Self-discipline
	Articulate what it means to love unconditionally		Justice	Kindness Empathy
	Listen prayerfully to the call to be loving		Justice	Self-discipline
	Review and apply the “judge, act, evaluate” model		Fortitude	Work Perseverance
	Understand the role of magisterium, Scripture, Tradition in moral decision making		Prudence	Responsibility Integrity
	Identify when it may be difficult to be loving		Prudence	Responsibility
	Define conscience, understand its role		Prudence	
	Explain how Christian moral decisions and love relate		Prudence	
	Explain how our sexuality can help us to love		Prudence	
	Identify acceptable Christian expressions of love		Justice	
	Explain why having sex belongs in marriage		Fortitude	
	Define Chastity and understand why it is a virtue		Prudence	
	Analyze sexual issues in relation to Chastity		Prudence	
	Identify negative behaviors in relationships		Fortitude Temperance	
	Value the dignity of every person within relationships		Charity	
	Understand appropriate assertive behavior		Justice	
	Use Scripture to develop Christian loving attitudes		Charity	

Concept / Values	Course outcomes	Permeation outcomes		
		Task:	Virtue:	Value:
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Be obedient		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Students will:	Explain the fourth commandment as applied to families		Charity	
	Express the value of obedience and name the challenge of and limits to the Christian call to obedience		Temperance	
	Identify duties, roles, responsibilities shared in families		Justice	
	Explain how family life is the original cell of social life		Prudence	
	To recognize legitimate authority within society		Temperance	
	Explain what makes authority legitimate		Prudence	
	Identify, explain and affirm the duties they have as subjects of legitimate authority		Fortitude	
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Be just		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Students will:	Identify and analyze examples of prejudice		Fortitude	
	Suggest ways to respond compassionately to injustice		Fortitude	
	Understand how responding with compassion leads to peace		Justice	
	Identify social justice issues		Prudence	
	Perceive the challenge of God's preferential option for the poor		Prudence	
	Use the preferential option for the poor as criterion for analyzing social injustice issues		Justice	
	Acknowledge that love of God for all demands justice		Justice	
	Define justice		Prudence	
	Explain how justice is a demand of natural law		Prudence	
	Evaluate their lifestyle in terms of ecological impact		Justice	
	Identify correlations between themselves, God, Earth		Prudence	
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Be honest		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Students will:	Express and apply the seventh commandment	2-6	Prudence	Honesty
	Identify how the 7 <sup>th</sup> commandment challenges actions commonly deemed acceptable	2-9	Justice	Courage
	Define stewardship and discuss vis-à-vis 7 <sup>th</sup> command	2-2	Justice	Responsibility
	Identify the balance between right to own and duty to share in specific situations	1-5	Temperance Charity	Respect
	Evaluate their behavior in light of 7 <sup>th</sup> commandment	2-9	Justice	Honesty
	Understand tithing as offering to God & form of prayer	4-6 2-3	Charity	Stewardship
	Express and apply the eighth commandment	2-2	Fortitude	Responsibility
	Recognize there is an absolute truth and God is source	2-6	Faith	Stewardship
	Explain the role of truthfulness in relationships	2-5	Fortitude	Honesty
	Identify the balance between charity and truth	2-7	Justice Temperance	Cooperation
	Evaluate their behavior in light of 8 <sup>th</sup> commandment	2-9	Prudence	Responsibility
	Explore the signing prayer just before the Gospel	4-1	Faith	Integrity

<b>Concept / Values</b>	<b>Course outcomes</b>	<b>Permeation outcomes</b>		
		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
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<b>Be generous</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Students will:	Examine and evaluate their attitudes toward others	2-6	Justice	Kindness Empathy
	Express the meaning of “pure of heart”	1-6	Justice	Integrity
	Identify ways they can be more generous in attitude	2-7	Charity	Responsibility
	Understand how Jesus models a generous attitude	2-7	Charity	Courage
	Outline strategies for readjusting their attitudes when necessary	4-3	Prudence	Integrity
	Define envy and understand why it is sin	2-5	Justice	Self-discipline
	Compare common attitudes with the 9 <sup>th</sup> and 10 <sup>th</sup> commandment	2-9	Temperance	Integrity
	Use the 9 <sup>th</sup> and 10 <sup>th</sup> commandment as a tool for career reflection on career and life skills planning	1-6 1-7	Justice	Motivation Initiative
Identify and define criteria for achieving satisfaction	1-7	Prudence	Kindness Empathy	
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<b>Be forgiving</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Students will:	Examine the ways Jesus models forgiveness			
	Define forgiveness			
	Express the Christian call to forgiveness			
	Identify areas in their lives where they’re called to forgive			
	Name and appreciate the fruits of forgiveness			
	Define reconciliation	4-3		
	Understand the conditions for reconciliation	4-3		
	Give examples reconciliation restores people to community and heals people	4-6		
	Distinguish between reconciliation and forgiveness	4-6		
	Explain how the Church enables and facilitates reconciliation	4-2		
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<b>Be hopeful</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Students will:	Define hope and its role in Christian living		Hope	
	Explore the ways prayer nourishes hope		Justice	
	Identify people who model Christian hope		Fortitude	
	Find hope for their own lives in the death and resurrection of Jesus		Faith	
	Review the virtues and Beatitudes		Faith	
	Share their faith with others in a class celebration		Charity	

<b>Subject:</b>	<b>English Language Arts</b>	<b>Grade:</b>	<b>9</b>
<b>Unit:</b>		<b>Title:</b>	
<b>Topic:</b>			

<b>Concept / Values</b>	<b>Course outcomes</b>	<b>Permeation outcomes</b>		
		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
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<b>General Outcome 1</b>				
Students will listen, speak, read, write, view and represent to explore thoughts, ideas, feelings and experiences				
<b>1.1 Discover and Explore</b>				
<b>Express ideas and develop understanding</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	talk with others and experience a variety of oral, print and other media texts to explore, develop and justify own opinions and points of view	4-6 2-5	prudence	respect
	explore and explain how interactions with others and with oral, print and other media texts affect personal understandings	2-5 1-5	Prudence Justice	Cooperation Kindness and empathy
	extend understanding by taking different points of view when rereading and reflecting on oral, print and other media texts	4-6 2-7 2-8	Charity	Respect
<b>Experiment with language and forms</b>				
	develop and extend understanding by expressing and responding to ideas on the same topic, in a variety of forms of oral, print and other media texts	3-4 1-10	Faith Prudence	Integrity
<b>Express preferences</b>				
	explain preferences for texts and genres by particular writers, artists, storytellers and filmmakers	1-5 4-6	Fortitude	Praise and celebration Integrity
<b>Set goals</b>				
	identify areas of personal accomplishment and areas for enhancement in language learning and use	2-10 2-9	Hope	Praise and celebration Work and perseverance Self-discipline
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<b>1.2 Clarify and Extend</b>				
<b>Consider others' ideas</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	integrate own perspectives and interpretations with new understandings developed through discussing and through experiencing a variety of oral, print and other media texts	2-3 2-9	Temperance	Cooperation Respect
<b>Combine ideas</b>				
	examine and re-examine ideas, information and experiences from different points of view to find patterns and see relationships	2-6 3-3	Justice	Respect Motivation and initiative
<b>Extend understanding</b>				
	assess whether new information extends understanding by considering diverse opinions and exploring ambiguities	2-5 2-9	Prudence	Perseverance Responsibility
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**General Outcome 2**

Students will listen, speak, read, write, view and represent to comprehend and respond personally and critically to oral, print and other media texts

<b>2.1 Use Strategies and Cues</b>				
<b>Use prior knowledge</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	discuss how interpretations of the same text might vary, according to the prior knowledge and experiences of various readers	2-5 4-7	Charity	Kindness and empathy Forgiveness
	use previous reading experiences, personal experiences and prior knowledge as a basis for reflecting on and interpreting ideas encountered in texts	4-2 4-4	Faith Prudence	Integrity
<b>Use comprehension strategies</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	identify explicit and implicit ideas and information in texts; listen and respond to various interpretations of the same text	2-6 4-7	Prudence Temperance	Self-discipline Perseverance
	select appropriate reading rate and strategies for comprehending texts less closely connected to prior knowledge and personal experiences	1-1	Temperance Faith	Self-discipline Cooperation Work and perseverance
	preview complex texts as to their intent, content and structure, and use this information to set a purpose and select strategies for reading	1-2	Temperance Fortitude	Self-discipline Work and perseverance
<b>Use textual cues</b>				
	use knowledge of visual and textual cues and structural features when skimming and scanning various print and other media texts to locate relevant information effectively and efficiently	1-2	Temperance Fortitude	Self-discipline Work and perseverance
	analyze and discuss how the structural features of informational materials, such as textbooks, bibliographies, databases, catalogues, web sites, commercials and newscasts, enhance the effectiveness and efficiency of communication	1-1		
<b>Use phonics and structural analysis</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	apply and explain effective procedures for identifying and comprehending words in context; adjust procedures according to the purpose for reading and the complexity of the texts			
<b>Use references</b>				
	use reference materials, including a writer's handbook, to verify correct usage, address uncertainties and solve problems that arise			

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<b>2.2 Respond to Texts</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
<b>Experience various texts</b>				
	experience oral, print and other media texts from a variety of cultural traditions and genres, such as essays, broadcast advertisements, novels, poetry, documentaries, films, electronic magazines and realistic fiction			
	identify and discuss how timeless themes are developed in a variety of oral, print and other media texts			
	consider historical context when developing own points of view or interpretations of oral, print and other media texts			
	consider historical context when developing own points of view or interpretations of oral, print and other media texts			
	express the themes of oral, print or other media texts in different forms or genres			
	consider peers' interpretations of oral, print and other media texts, referring to the texts for supporting or contradicting evidence			
<b>Construct meaning from texts</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	analyze how the choices and motives of characters portrayed in oral, print and other media texts provide insight into those of self and others			
	identify and discuss theme and point of view in oral, print and other media texts			
	discuss and explain various interpretations of the same oral, print or other media text			
	relate the themes, emotions and experiences portrayed in oral, print and other media texts to issues of personal interest or significance			
<b>Appreciate the artistry of texts</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	discuss how techniques, such as irony, symbolism, perspective and proportion, communicate meaning and enhance effect in oral, print and other media texts			
	discuss character development in terms of consistency of behaviour and plausibility of change			
	describe how theme, dominant impression and mood are developed and sustained through choices in language use and the interrelationship of plot, setting and character			
	identify features that define particular oral, print and other media texts; discuss differences in style and their effects on content and audience impression			

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<b>2.3 Understand Forms, Elements and Techniques</b>				
<b>Understand forms and genres</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	explain the relationships between purposes and characteristics of various forms and genres of oral, print and other media texts			
	evaluate the effectiveness of different types of media texts for presenting ideas and information			
<b>Understand techniques and elements</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	compare the development of character, plot and theme in two oral, print or other media texts			
	evaluate the effectiveness of oral, print and other media texts, considering the believability of plot and setting, the credibility of characters, and the development and resolution of conflict			
	compare a main character in one text to the main character in another text from a different era, genre or medium			
	identify ways that a change in narrator might affect the overall meaning of oral, print and other media texts			
	summarize the content of media texts, and suggest alternative treatments			
<b>Experiment with language</b>				
	analyze creative uses of language and visuals in popular culture, such as advertisements, electronic magazines and the Internet; recognize how imagery and figurative language, such as metaphor, create a dominant impression, mood and tone			
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<b>2.4 Create Original Text</b>				
<b>Generate ideas</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	generalize from own experience to create oral, print and other media texts on a theme			
<b>Elaborate on the expression of ideas</b>				
	create oral, print and other media texts on common literary themes			
<b>Structure texts</b>				
	create oral, print and other media texts that interrelate plot, setting and character, and reveal the significance of the action			
	create oral, print and other media texts that include main and minor characters, and show how the main character develops and changes as a result of the action and events			
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<b>3.1 Plan and Focus</b>				
<b>Focus attention</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	synthesize ideas and information from a variety of sources to develop own opinions, points of view and general impressions			
	assess adequacy, accuracy, detail and appropriateness of oral, print and other media texts to support or further			

	develop arguments, opinions or points of view			
<b>Determine information needs</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	select types and sources of information to achieve an effective balance between researched information and own ideas			
<b>Plan to gather information</b>				
	select information sources that will provide effective support, convincing argument or unique perspectives			
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<b>3.2 Select and Process</b>				
<b>Use a variety of sources</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	obtain information reflecting multiple perspectives from a variety of sources, such as expository essays, graphs, diagrams, online catalogues, periodical indices, film libraries, electronic databases and the Internet, when conducting research			
<b>Access information</b>				
	expand and use a variety of tools and text features, such as organizational patterns of texts, page layouts, font styles and sizes, colour and voice-overs, to access information			
	distinguish between primary and secondary sources, and determine the usefulness of each for research purposes			
	follow up on cited references to locate additional information			
<b>Evaluate sources</b>				
	evaluate sources for currency, reliability and possible bias of information for a particular research project			
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<b>3.3 Organize, Record and Evaluate</b>				
<b>Organize information</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	organize ideas and information by developing and selecting appropriate categories and organizational structures			
	balance all sections of oral, print and other media texts and ensure sentences, paragraphs and key ideas are linked throughout			
	develop coherence by relating all key ideas to the overall purpose of the oral, print or other media text			
<b>Record information</b>				
	use own words to summarize and record information in a variety of forms; paraphrase and/or quote relevant facts and opinions; reference sources			
	select and record ideas and information that will support an opinion or point of view, appeal to the audience, and suit the tone and length of the chosen form of oral, print or other media text			
	choose specific vocabulary, and use conventions accurately and effectively to enhance credibility			

<b>Evaluate information</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	evaluate usefulness, relevance and completeness of gathered information; address information gaps			
	reflect on new understanding and its value to self and others			
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<b>3.4 Share and Review</b>				
<b>Share ideas and information</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	communicate ideas and information in a variety of oral, print and other media texts, such as media scripts, multimedia presentations, panel discussions and articles			
	integrate appropriate visual, print and/or other media to reinforce overall impression or point of view and engage the audience			
<b>Review research process</b>				
	reflect on the research process, identifying areas of strength and ways to improve further research activities			
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<b>General Outcome 4</b>				
Students will listen, speak, read, write, view and represent to enhance the clarity and artistry of communication				
<b>4.1 Enhance and Improve</b>				
<b>Appraise own and others' work</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	share sample treatments of a topic with peers, and ask for feedback on the relative effectiveness of each			
	work collaboratively to make appropriate revisions based on feedback provided by peers			
<b>Revise and edit</b>				
	revise to ensure effective introductions, consistent points of view, effective transitions between ideas and appropriate conclusions			
	revise to enhance effective transitions between ideas and maintain a consistent organizational pattern			
	revise to combine narration, description and exposition effectively			
<b>Enhance legibility</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	develop personal handwriting styles appropriate for a variety of purposes			
	identify and experiment with some principles of design that enhance the presentation of texts			
<b>Expand knowledge of language</b>				
	distinguish between the denotative and connotative meaning of words, and discuss effectiveness for achieving purpose and affecting audience			
	explore the derivation and use of words, phrases and jargon, including variations in language, accent and dialect in Canadian communities and regions			
<b>Enhance artistry</b>				
	experiment with the language and components of particular forms to communicate themes or represent			

	the perspectives of a variety of people or characters			
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<b>4.2 Attend to Conventions</b>				
<b>Attend to grammar and usage</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	identify and use parallel structure in own writing			
	identify and use coordination, subordination and apposition to enhance communication			
	use a variety of strategies to make effective transitions between sentences and paragraphs in own writing			
<b>Attend to spelling</b>				
	demonstrate the deliberate, conscientious and independent application of a variety of editing and proofreading strategies to confirm spellings in own writing			
	identify situations in which careful attention to correct spelling is especially important			
	identify and use variant spellings for particular effects, depending on audience, purpose, content and context			
<b>Attend to capitalization and punctuation</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	use quotation marks to distinguish words being discussed in own writing			
	use dashes to show sentence breaks or interrupted speech, where appropriate in own writing			
	know that rules for punctuation can vary, and adjust punctuation use for effect in own writing			
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<b>4.3 Present and Share</b>				
<b>Present information</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	select, organize and present information to appeal to the interests and background knowledge of various readers or audiences			
<b>Enhance presentation</b>				
	choose appropriate types of evidence and strategies to clarify ideas and information, and to convince various readers and audiences			
<b>Use effective oral and visual communication</b>				
	integrate a variety of media and display techniques, as appropriate, to enhance the appeal, accuracy and persuasiveness of presentations			
<b>Demonstrate attentive listening and viewing</b>				
	follow the train of thought, and evaluate the credibility of the presenter and the evidence provided			
	provide feedback that encourages the presenter and audience to consider other ideas and additional information			
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<b>General Outcome 5</b>				
Students will listen, speak, read, write, view and represent to respect, support and collaborate with others				
<b>5.1 Respect Others and Strengthen Community</b>				
<b>Appreciate diversity</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	examine how personal experiences, cultural traditions			



<b>Subject:</b>	<b>Science</b>		<b>Grade:</b>	<b>9</b>
<b>Unit:</b>	<b>A</b>	<b>Title:</b>	<b>Biological Diversity</b>	
<b>Topic:</b>				

<b>Concept / Values</b>	<b>Course outcomes</b>	<b>Permeation outcomes</b>		
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<b>Outcomes for Science, Technology and Society (STS) and Knowledge</b>				
Investigate and interpret diversity among species and within species, and describe how diversity contributes to species survival		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	observe variation in living things, and describe examples of variation among species and within species ( <i>e.g., observe and describe characteristics that distinguish two closely related species</i> )			
	identify examples of niches, and describe the role of variation in enabling closely related living things to survive in the same ecosystem ( <i>e.g., investigate different bird species found in a local park ecosystem, and infer how each is adapted to life within that ecosystem</i> )			
	investigate and interpret dependencies among species that link the survival of one species to the survival of others ( <i>e.g., by providing habitat, food, means of fertilization, or a source of oxygen</i> )			
	identify the role of variation in species survival under changing environmental conditions ( <i>e.g., resistance to disease, ability to survive in severe environments</i> )			
Investigate the nature of reproductive processes and their role in transmitting species characteristics		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	distinguish between sexual and asexual reproduction, and identify and interpret examples of asexual and sexual reproduction in different species, by: <ul style="list-style-type: none"> <li>- describing representative types of asexual reproduction (<i>e.g., fission in the amoeba, budding in hydra, production of zoospores in some fungi</i>)</li> <li>- describing representative types of sexual reproduction (<i>e.g., cross-fertilization in seed plants, sexual reproduction in mammals</i>)</li> <li>- describing examples of organisms that show both sexual and asexual reproduction (<i>e.g., yeasts that reproduce both by budding and sexual reproduction; plants that reproduce through suckering, runners or bulbs, as well as by seed production</i>)</li> </ul>			

	<ul style="list-style-type: none"> <li>- describing the formation of zygote and embryo in plant and animal reproduction</li> </ul>			
	describe examples of variation of characteristics within a species, and identify examples of both discrete and continuous variation ( <i>e.g., hand clasping preference is an example of a discrete variation, the length of human hands varies on a continuum</i> )			
	<p>investigate the transmission of characteristics from parents to offspring, and identify examples of characteristics in offspring that are:</p> <ul style="list-style-type: none"> <li>- the same as the characteristics of both parents</li> <li>- the same as the characteristics of one parent</li> <li>- intermediate between parent characteristics</li> <li>- different from both parents</li> </ul>			
	distinguish those characteristics that are heritable from those that are not heritable, and identify characteristics for which heredity and environment may both play a role ( <i>e.g., recognize that eye colour is heritable but that scars are not; recognize that a person's height and weight may be largely determined by heredity but that diet may also play a role</i> )			
Describe, in general terms, the role of genetic materials in the continuity and variation of species characteristics; and investigate and interpret related technologies		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	describe, in general terms, the relationship of chromosomes, genes and DNA; and interpret their role as repositories of genetic information			
	distinguish between cell division that leads to identical daughter cells, as in binary fission and mitosis, and cell division that leads to formation of sex cells, as in meiosis; and describe, in general terms, the synthesis of genetic materials that takes place during fertilization [ <i>Note: At this level, students should understand that the formation of sex cells involves the halving of the parent cell's genetic materials and that this process leads to zygote formation. Opportunity for further study of the specific mechanisms of cell division—mitosis and meiosis—will be provided in senior high school courses.</i> ]			
	compare sexual and asexual reproduction, in terms of the advantages and disadvantages ( <i>e.g., recognize that asexual reproduction provides an efficient means of transmitting characteristics and that sexual reproduction provides an opportunity for recombination of characteristics</i> )			
	distinguish between, and identify examples of, natural and artificial selection ( <i>e.g., evolution of beak shapes in birds, development of high milk production in dairy</i> )			

	<i>cows</i>			
	describe, in simple terms, some of the newly emerging technologies for recombining genetic material; and identify questions and issues related to their application			
Identify impacts of human action on species survival and variation within species, and analyze related issues for personal and public decision making		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	describe the relative abundance of species on Earth and in different environments ( <i>e.g., note the overall abundance of insect species; note that in harsh environments there are relatively fewer species found than in temperate and tropical environments</i> )			
	describe ongoing changes in biological diversity through extinction and extirpation of native species, ( <i>e.g., investigate the effect of changing river characteristics on the variety of species living in the river; investigate the effect of changing land use on the survival of wolf or grizzly bear populations</i> )			
	evaluate the success and limitations of various local and global strategies for minimizing loss of species diversity ( <i>e.g., breeding of endangered populations in zoos, development of seed banks, designating protected areas, development of international treaties regulating trade of protected species and animal parts</i> )			
	investigate and describe the use of biotechnology in environmental, agricultural or forest management; and identify potential impacts and issues ( <i>e.g., investigate issues related to the development of patented crop varieties and varieties that require extensive chemical treatments; identify issues related to selective breeding in game farming and in the rearing of fish stocks</i> )			
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<b>Skill Outcomes</b>				
Initiating and Planning		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Ask questions about the relationships between and among observable variables, and plan investigations to address those questions	identify science-related issues ( <i>e.g., identify issues related to loss of species diversity</i> )			
	identify questions to investigate arising from science-related issues ( <i>e.g., "What factors affect the ability of organisms to survive and reproduce in this ecosystem?"</i> )			
	state a prediction and a hypothesis based on background information or an observed pattern of events ( <i>e.g., predict changes to an area of local parkland that is subject to intense use; hypothesize means of impact, such as soil compaction and disturbance of nest sites</i> )			
	define and delimit questions and problems to facilitate investigation ( <i>e.g., delimit an electronic search for information on species survival by</i>			



	Show interest in science-related questions and issues, and confidently pursue personal interests and career possibilities within science-related fields ( <i>e.g., select and explore media on topics related to species diversity; express interest in hobbies and careers that involve the care, culture and study of living things</i> )			
<b>Mutual Respect</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	Appreciate that scientific understanding evolves from the interaction of ideas involving people with different views and backgrounds ( <i>e.g., show awareness that the scientific study of changing animal and plant populations can arise from a variety of global needs, involving many individuals and organizations</i> )			
<b>Scientific Inquiry</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	Seek and apply evidence when evaluating alternative approaches to investigations, problems and issues ( <i>e.g., strive to assess a problem accurately by careful analysis of evidence gathered; critically consider ideas and perceptions, recognizing that the obvious is not always right</i> )			
<b>Collaboration</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	Work collaboratively in carrying out investigations and in generating and evaluating ideas ( <i>e.g., choose a variety of strategies, such as active listening, paraphrasing and questioning, in order to understand other points of view; accept various roles within a group, including that of leader</i> )			
<b>Stewardship</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	Demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment ( <i>e.g., consider implications of changing land use on the welfare and survival of living things; identify potential conflicts between attempting to meet the wants and needs of humans and, at the same time, providing life-supporting environments for all living things; minimize environmental impact during studies by avoiding sampling that will affect an animal or plant population</i> )			
<b>Safety</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	Show concern for safety in planning, carrying out and reviewing activities ( <i>e.g., follow safety procedures in outdoor investigations</i> )			

<b>Subject:</b>	<b>Science</b>	<b>Grade:</b>	<b>8</b>
<b>Unit:</b>	<b>B</b>	<b>Title:</b>	<b>Matter and Chemical Change</b>
<b>Topic:</b>			

<b>Concept / Values</b>	<b>Course outcomes</b>	<b>Permeation outcomes</b>		
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<b>Outcomes for Science, Technology and Society (STS) and Knowledge</b>				
Investigate materials, and describe them in terms of their physical and chemical properties		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	investigate and describe properties of materials ( <i>e.g., investigate and describe the melting point, solubility and conductivity of materials observed</i> )			
	describe and apply different ways of classifying materials based on their composition and properties, including: <ul style="list-style-type: none"> <li>- distinguishing between pure substances, solutions and mechanical mixtures</li> <li>- distinguishing between metals and nonmetals</li> <li>- identifying and applying other methods of classification</li> </ul>			
	identify conditions under which properties of a material are changed, and critically evaluate if a new substance has been produced			
Describe and interpret patterns in chemical reactions		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	identify and evaluate dangers of caustic materials and potentially explosive reactions			
	observe and describe evidence of chemical change in reactions between familiar materials, by: <ul style="list-style-type: none"> <li>- describing combustion, corrosion and other reactions involving oxygen</li> <li>- observing and inferring evidence of chemical reactions between familiar household materials</li> </ul>			
	distinguish between materials that react readily and those that do not ( <i>e.g., compare reactions of different metals to a dilute corrosive solution</i> )			
	observe and describe patterns of chemical change, by: <ul style="list-style-type: none"> <li>- observing heat generated or absorbed in chemical reactions, and identifying examples of exothermic and endothermic reactions</li> <li>- identifying conditions that affect rates of reactions (<i>e.g., investigate and describe how factors such as heat, concentration, surface area and electrical energy can affect a chemical reaction</i>)</li> </ul>			

	<ul style="list-style-type: none"> <li>identifying evidence for conservation of chemical substance (<i>e.g., identify and apply techniques for comparing the quantity of reactants and products in a chemical reaction</i>)</li> </ul>			
Describe ideas used in interpreting the chemical nature of matter, both in the past and present, and identify example evidence that has contributed to the development of these ideas		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	demonstrate understanding of the origins of the periodic table, and relate patterns in the physical and chemical properties of elements to their positions in the periodic table—focusing on the first 18 elements			
	distinguish between observation and theory, and provide examples of how models and theoretical ideas are used in explaining observations ( <i>e.g., describe how observations of electrical properties of materials led to ideas about electrons and protons; describe how observed differences in the densities of materials are explained, in part, using ideas about the mass of individual atoms</i> )			
	use the periodic table to identify the number of protons, electrons and other information about each atom; and describe, in general terms, the relationship between the structure of atoms in each group and the properties of elements in that group ( <i>e.g., use the periodic table to determine that sodium has 11 electrons and protons and, on average, about 12 neutrons; infer that different rows (periods) on the table reflect differences in atomic structure; interpret information on ion charges provided in some periodic tables</i> ) [Note: Knowledge of specific orbital structures for elements and groups of elements is not required at this grade level.]			
	distinguish between ionic and molecular compounds, and describe the properties of some common examples of each			
Apply simplified chemical nomenclature in describing elements, compounds and chemical reactions		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	read and interpret chemical formulas for compounds of two elements, and give the IUPAC (International Union of Pure and Applied Chemistry) name and common name of these compounds ( <i>e.g., give, verbally and in writing, the name for <math>\text{NaCl}_{(s)}</math> (sodium chloride), <math>\text{CO}_{2(g)}</math> (carbon dioxide), <math>\text{MgO}_{(s)}</math> (magnesium oxide), <math>\text{NH}_{3(g)}</math> (nitrogen trihydride or ammonia), <math>\text{CH}_{4(g)}</math> (carbon tetrahydride or methane), <math>\text{FeCl}_{2(s)}</math> (iron(II) chloride), <math>\text{FeCl}_{3(s)}</math> (iron(III) chloride)</i> )			
	identify/describe chemicals commonly found in the home, and write the chemical symbols ( <i>e.g., table salt <math>[\text{NaCl}_{(s)}]</math>, water <math>[\text{H}_2\text{O}_{(l)}]</math>, sodium hydroxide <math>[\text{NaOH}_{(aq)}]</math> used in household cleaning supplies</i> )			

	<p>identify examples of combining ratios/number of atoms per molecule found in some common materials, and use information on ion charges to predict combining ratios in ionic compounds of two elements (<i>e.g., identify the number of atoms per molecule signified by the chemical formulas for <math>CO_{(g)}</math> and <math>CO_{2(g)}</math>; predict combining ratios of iron and oxygen based on information on ion charges of iron and oxygen</i>)</p>			
	<p>assemble or draw simple models of molecular and ionic compounds (<i>e.g., construct models of some carbon compounds using toothpicks, peas and cubes of potato</i>) [Note: <i>Diagrams and models should show the relative positions of atoms. Diagrams of orbital structures are not required at this grade level.</i>]</p>			
	<p>describe familiar chemical reactions, and represent these reactions by using word equations and chemical formulas and by constructing models of reactants and products (<i>e.g., describe combustion reactions, such as: carbon + oxygen <math>\rightarrow</math> carbon dioxide [<math>C_{(s)} + O_{2(g)} \rightarrow CO_{2(g)}</math>]; describe corrosion reactions, such as: iron + oxygen <math>\rightarrow</math> iron(II) oxide [<math>Fe_{(s)} + O_{2(g)} \rightarrow FeO_{(s)}</math>]; describe replacement reactions, such as the following: zinc + copper(II) sulfate <math>\rightarrow</math> zinc sulfate + copper [<math>Zn_{(s)} + CuSO_{4(aq)} \rightarrow ZnSO_{4(aq)} + Cu_{(s)}</math>])[Note 1: <i>This outcome does not require students to explain the formation of polyatomic ions. Some chemicals with polyatomic ions may nevertheless be introduced; e.g., a brief introduction to <math>CuSO_{4(s)}</math>, <math>ZnSO_{4(s)}</math> and <math>H_2SO_{4(aq)}</math> can help prepare students for further study of these materials in units C and D.</i>][Note 2: <i>At this grade level, students are not required to balance reactants and products in chemical equations. Teachers may want to inform students about opportunities for further study of chemistry in Science 10 and in Science 14–24.</i>]</i></p>			
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<b>Skill Outcomes</b>				
Initiating and Planning		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Ask questions about the relationships between and among observable variables, and plan investigations to address	<p>identify questions to investigate (<i>e.g., ask questions about the reactivity of particular materials or about conditions that affect the rate of reaction, after observing that materials react at different rates</i>)</p>			
	<p>define and delimit questions and problems to facilitate investigation (<i>e.g., reframe a general question, such as: “What affects the speed of reactions?” to become one or more specific questions, such as: “How will temperature affect the rate of reaction between materials x and y?” or “How will moisture affect the rate of reaction between x and y?”</i>)</p>			

those questions	state a prediction and a hypothesis based on background information or an observed pattern of events			
	select appropriate methods and tools for collecting data and information and for solving problems ( <i>e.g., plan and conduct a search for information about chemical elements, using appropriate print and electronic sources</i> )			
<b>Performing and Recording</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Conduct investigations into the relationships between and among observations, and gather and record qualitative and quantitative data	carry out procedures, controlling the major variables ( <i>e.g., investigate the effect of particle size on a chemical reaction, taking care to identify and control other potentially relevant variables</i> )			
	observe and record data, and prepare simple drawings ( <i>e.g., represent a molecule studied through a drawing</i> )			
	demonstrate knowledge of WHMIS standards, by using proper techniques for handling and disposing of laboratory materials			
	research information relevant to a given question ( <i>e.g., research properties of materials</i> )			
<b>Analyzing and Interpreting</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Analyze qualitative and quantitative data, and develop and assess possible explanations	compile and display data, by hand or computer, in a variety of formats, including diagrams, flow charts, tables, bar graphs, line graphs and scatterplots ( <i>e.g., present data on different chemical substances in a form that facilitates interpretation</i> )			
	calculate theoretical values of a variable ( <i>e.g., predict the total mass of the products of a chemical reaction, based on the mass of the reactants used</i> ) [Note: In this example, students can apply the law of conservation of mass.]			
	identify and suggest explanations for discrepancies in data			
	state a conclusion, based on experimental data, and explain how evidence gathered supports or refutes an initial idea			
	identify new questions and problems that arise from what was learned ( <i>e.g., identify new questions, such as: "Why do different compounds containing the same elements behave differently?" or "How do atoms stick together in a molecule?"</i> )			
<b>Communication and Teamwork</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Work collaboratively on problems; and use appropriate language and formats to	receive, understand and act on the ideas of others ( <i>e.g., follow given safety procedures</i> )			
	evaluate individual and group processes used in planning and carrying out investigative tasks ( <i>e.g., evaluate the relative success and scientific merits of different approaches to drawing and making models of molecules</i> )			

communicate ideas, procedures and results				
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<b>Attitude Outcomes</b>				
<b>Interest in Science</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	Show interest in science-related questions and issues, and confidently pursue personal interests and career possibilities within science-related fields ( <i>e.g., express a degree of satisfaction at understanding science concepts that are challenging</i> )			
<b>Mutual Respect</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	Appreciate that scientific understanding evolves from the interaction of ideas involving people with different views and backgrounds ( <i>e.g., show an interest in the contributions that women and men—from many cultural backgrounds and different times—have made to the development of modern science; recognize that work done to investigate chemical properties and to develop models are both important steps toward scientific understanding</i> )			
<b>Scientific Inquiry</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	Seek and apply evidence when evaluating alternative approaches to investigations, problems and issues ( <i>e.g., seek data that is accurate and based on appropriate methods of investigation; consider observations and ideas from a number of sources during investigations and before drawing conclusions; honestly report and record all observations, even when the evidence is unexpected</i> )			
<b>Collaboration</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	Work collaboratively in carrying out investigations and in generating and evaluating ideas ( <i>e.g., demonstrate interest and become involved in decision making that requires full-group participation; assume responsibility for their share of the work to be done; work with other individuals</i> )			
<b>Stewardship</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	Demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment ( <i>e.g., recognize that the materials people develop may have environmental consequences when people dispose of them; participate in school projects that address a chemical pollution issue</i> )			
<b>Safety</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	Show concern for safety in planning, carrying out and reviewing activities ( <i>e.g., read the labels of materials before using them, and ask for help if safety symbols are not clear or understood; carefully manipulate materials, using skills learned in class;</i> )			

	<i>wear proper safety attire without having to be reminded; ensure the proper disposal of materials; readily alter a procedure to ensure the safety of members of the group; immediately advise the teacher of spills, and use appropriate techniques and materials to clean up)</i>			
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<b>Subject:</b>	<b>Science</b>		<b>Grade:</b>	<b>9</b>
<b>Unit:</b>	<b>C</b>	<b>Title:</b>	<b>Environmental Chemistry</b>	
<b>Topic:</b>				

<b>Concept / Values</b>	<b>Course outcomes</b>	<b>Permeation outcomes</b>		
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<b>Outcomes for Science, Technology and Society (STS) and Knowledge</b>				
Investigate and describe, in general terms, the role of different substances in the environment in supporting or harming humans and other living things		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	identify common organic and inorganic substances that are essential to the health and growth of humans and other living things, and illustrate the roles served by these materials ( <i>e.g., identify calcium as an essential material for bones; identify minerals that are known to enhance plant growth but that limit growth if too little or too much is available</i> )			
	describe, in general terms, the forms of organic matter synthesized by plants and animals			
	describe and illustrate processes by which chemicals are introduced to the environment or their concentrations are changed ( <i>e.g., dilution in streams, biomagnification through food chains</i> )			
	describe the uptake of materials by living things through ingestion or absorption, and investigate and describe evidence that some materials are difficult for organisms to break down or eliminate ( <i>e.g., DDT, mercury</i> )			
	identify questions that may need to be addressed in deciding what substances—in what amounts—can be safely released into the environment ( <i>e.g., identify questions and considerations that may be important in determining how much phosphate can be released into river water without significant harm to living things</i> )			
Identify processes for measuring the quantity of different substances in the environment and for monitoring air and water quality		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	identify substrates and nutrient sources for living things within a variety of environments			
	describe and illustrate the use of biological monitoring as one method for determining environmental quality ( <i>e.g., assess water quality, by observing the relative abundance of various vertebrate and invertebrate species</i> )			
	identify chemical factors in an environment that might affect the health and distribution of living things in that environment ( <i>e.g., available oxygen, pH, dissolved nutrients in soil</i> )			

	apply and interpret measures of chemical concentration in parts per million, billion or trillion			
	identify acids, bases and neutral substances, based on measures of their pH ( <i>e.g., use indicator solutions or pH meters to measure the pH of water samples</i> )			
	investigate, safely, and describe the effects of acids and bases on each other and on other substances ( <i>e.g., investigate and describe the reaction that results when baking powder is dissolved; describe the role of acids and bases in neutralizing each other</i> )			
	describe effects of acids and bases on living things ( <i>e.g., acid rain in lakes, antacids for upset stomachs, pH in shampoos and conditioners</i> )			
Analyze and evaluate mechanisms affecting the distribution of potentially harmful substances within an environment		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	describe mechanisms for the transfer of materials through air, water and soil; and identify factors that may accelerate or retard distribution ( <i>e.g., wind speed, soil porosity</i> )			
	describe mechanisms for biodegradation, and interpret information on the biodegradability of different materials			
	comprehend and interpret information on the biological impacts of hazardous chemicals on local and global environments ( <i>e.g., interpret evidence for environmental changes in the vicinity of a substance release; interpret LD<sub>50</sub> data and other information on toxicity; identify concerns with the disposal of domestic wastes, such as paints and oils, and industrial wastes</i> ) [Note: LD <sub>50</sub> refers to the amount of a substance found to be lethal to 50% of a population, if ingested.]			
	describe and evaluate methods used to transport, store and dispose of hazardous household chemicals			
	investigate and evaluate potential risks resulting from consumer practices and industrial processes, and identify processes used in providing information and setting standards to manage these risks ( <i>e.g., interpret and explain the significance of manufacturer's information on how wood preservatives can be safely applied; recognize that some individuals may have greater sensitivity to particular chemical substances than do others in the general population</i> )			
	identify and evaluate information and evidence related to an issue in which environmental chemistry plays a major role ( <i>e.g., evaluate evidence that the use of insecticides to control mosquitoes has an effect/has no effect on bird populations</i> )			
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<b>Skill Outcomes</b>				

Initiating and Planning		Task:	Virtue:	Value:
Ask questions about the relationships between and among observable variables, and plan investigations to address those questions	identify science-related issues ( <i>e.g., identify issues regarding the use of soil fertilizers</i> )			
	identify questions arising from practical problems and issues ( <i>e.g., ask questions about the needs of different living things for nutrients and about the mechanisms by which these nutrients are obtained</i> )			
	state a prediction and a hypothesis about the concentration or dispersal of a chemical substance within an environment ( <i>e.g., state a hypothesis that relates the amount of oxygen in a local water sample to the presence or absence of dissolved nutrients</i> )			
	select appropriate methods and tools for collecting data and information and for solving problems ( <i>e.g., design an investigation to compare the chemical characteristics of two soils</i> )			
Performing and Recording		Task:	Virtue:	Value:
Conduct investigations into the relationships between and among observations, and gather and record qualitative and quantitative data	identify data and information that are relevant to the issue			
	select and integrate information that is relevant to the issue ( <i>e.g., demonstrate proficiency in uploading and downloading text, image, audio and video files</i> )			
	use instruments and materials effectively and accurately for collecting data ( <i>e.g., measure and compare the pH in household products, foods and environments</i> )			
	organize data, using a format that is appropriate to the task or experiment			
	use tools and apparatus safely			
Analyzing and Interpreting		Task:	Virtue:	Value:
Analyze qualitative and quantitative data, and develop and assess possible explanations	identify strengths and weaknesses of different ways of displaying data			
	identify and suggest explanations for discrepancies in data ( <i>e.g., identify possible reasons for variation in the measured concentration of a chemical, where one sample is very different from others or where one group has a very different result from others</i> )			
	identify the line of best fit on a scatterplot, and interpolate or extrapolate based on the line of best fit ( <i>e.g., interpret class data on the effects of acidity on mould growth, graph the data, prepare a line of best fit, and predict the amount of growth that might be expected at different acidity values</i> )			
	apply given criteria for evaluating evidence and sources of information ( <i>e.g., use scatterplot data in evaluating how strong a relationship exists between two variables; evaluate claims of environmental impacts, based on the scope and relevance of supporting evidence</i> )			
	identify new questions and problems that arise from what was learned			

Communication and Teamwork		Task:	Virtue:	Value:
Work collaboratively on problems; and use appropriate language and formats to communicate ideas, procedures and results	work cooperatively with team members to develop and carry out a plan, and troubleshoot problems as they arise			
	receive, understand and act on the ideas of others ( <i>e.g., seek and achieve group consensus on procedures to be used in an investigative activity, and act on that consensus</i> )			
	defend a given position on an issue or problem, based on their findings ( <i>e.g., provide a clear rationale for a choice between alternative chemical products in a consumer application</i> )			
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Attitude Outcomes		Task:	Virtue:	Value:
Interest in Science				
	Show interest in science-related questions and issues, and confidently pursue personal interests and career possibilities within science-related fields ( <i>e.g., actively participate in extracurricular activities, such as science fairs, science clubs, or science and technology challenges</i> )			
Mutual Respect				
	Appreciate that scientific understanding evolves from the interaction of ideas involving people with different views and backgrounds ( <i>e.g., consider more than one perspective when formulating conclusions, solving problems or making decisions on environmental quality issues</i> )			
Scientific Inquiry				
	Seek and apply evidence when evaluating alternative approaches to investigations, problems and issues ( <i>e.g., consider observations and ideas from a number of sources during investigations and before drawing conclusions; strive to assess a problem or situation accurately, by careful analysis of evidence gathered</i> )			
Collaboration				
	Work collaboratively in carrying out investigations and in generating and evaluating ideas ( <i>e.g., assume responsibility for their share of work in preparing for investigations and in gathering and recording evidence; consider alternative ideas and approaches suggested by members of the group</i> )			
Stewardship				
	Demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment ( <i>e.g., show respect for all forms of life; modify their behaviour in light of an issue related to conservation and protection of the environment; recognize that the materials people use may have environmental consequences when people dispose of them</i> )			

Safety	Task:	Virtue:	Value:
	<p>Show concern for safety in planning, carrying out and reviewing activities (<i>e.g., take the time to organize their work area so that accidents can be prevented; read the labels on materials before using them, and ask for help if safety symbols are not clear or understood; clean their work area during and after an activity; use safety precautions without being reminded</i>)</p>		

<b>Subject:</b>	<b>Science</b>	<b>Grade:</b>	<b>9</b>
<b>Unit:</b>	<b>D</b>	<b>Title:</b>	<b>Electrical Principles and Technologies</b>
<b>Topic:</b>			

Concept / Values	Course outcomes	Permeation outcomes		
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<b>Outcomes for Science, Technology and Society (STS) and Knowledge</b>				
Investigate and interpret the use of devices to convert various forms of energy to electrical energy, and electrical energy to other forms of energy		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	identify, describe and interpret examples of mechanical, chemical, thermal (heat) and electrical energy			
	investigate and describe evidence of energy transfer and transformation ( <i>e.g., mechanical energy transformed into electrical energy, electrical energy transferred through power grids, chemical energy converted to electrical energy and then to light energy in a flashlight, thermal energy converted to electrical energy in a thermocouple</i> )			
	investigate and evaluate the use of different chemicals, chemical concentrations and designs for electrical storage cells ( <i>e.g., build and test different forms of wet cells</i> )			
	construct, use and evaluate devices for transforming mechanical energy into electrical energy and for transforming electrical energy into mechanical energy			
	modify the design of an electrical device, and observe and evaluate resulting changes ( <i>e.g., investigate the effect of changes in the orientation and placement of magnets, commutator and armature in a St. Louis motor or in a personally-built model of a motor</i> )			
Describe technologies for transfer and control of electrical energy		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	assess the potential danger of electrical devices, by referring to the voltage and current rating (amperage) of the devices; and distinguish between safe and unsafe activities			
	distinguish between static and current electricity, and identify example evidence of each			
	identify electrical conductors and insulators, and compare the resistance of different materials to electric flow ( <i>e.g., compare the resistance of copper wire and nickel-chromium/Nichrome wire; investigate the conduction of electricity through different solutions; investigate applications of electrical resistance in polygraph or lie detector tests</i> )			
	use switches and resistors to control electrical flow,			

	and predict the effects of these and other devices in given applications ( <i>e.g., investigate and describe the operation of a rheostat</i> )			
	describe, using models, the nature of electrical current; and explain the relationship among current, resistance and voltage ( <i>e.g., use a hydro-flow model to explain current, resistance and voltage</i> )			
	measure voltages and amperages in circuits, and calculate resistance using Ohm's law ( <i>e.g., determine the resistance in a circuit with a dry cell and miniature light; determine the resistances of copper, nickel-chromium/Nichrome wire, pencil leads and salt solution</i> ) [Note: At this level, students are not required to use Ohm's law to calculate current flow.]			
	develop, test and troubleshoot circuit designs for a variety of specific purposes, based on low voltage circuits ( <i>e.g., develop and test a device that is activated by a photoelectric cell; develop a model hoist that will lift a load to a given level, then stop and release its load; test and evaluate the use of series and parallel circuits for wiring a set of lights</i> )			
	investigate toys, models and household appliances; and draw circuit diagrams to show the flow of electricity through them ( <i>e.g., safely dismantle discarded devices, such as heating devices or motorized toys, and draw diagrams to show the loads, conductors and switching mechanisms</i> )			
	identify similarities and differences between microelectronic circuits and circuits in a house ( <i>e.g., compare switches in a house with transistors in a microcircuit</i> )			
Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	identify the forms of energy inputs and outputs in a device or system			
	apply appropriate units, measures and devices in determining and describing quantities of energy transformed by an electrical device ( <i>e.g., measure amperage and voltage, and calculate the number of watts consumed by an electrical device, using the formula <math>P = IV</math> [power (in watts) = current (in amps) <math>\times</math> voltage (in volts)]; calculate the quantity of electric energy, in joules, transformed by an electrical device, using the formula <math>E = P \times t</math> [energy (in joules) = power (in watts) <math>\times</math> time (in seconds)]</i> )			
	apply the concepts of conservation of energy and efficiency to the analysis of energy devices ( <i>e.g., identify examples of energy dissipation in the form of heat, and describe the effect of these losses on useful energy output</i> )			
	compare energy inputs and outputs of a device, and			





	<i>participate in extracurricular activities, such as science fairs or science and technology challenges; pursue a science- or technology-related hobby; choose to investigate topics related to electrical technologies)</i>			
<b>Mutual Respect</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	<i>Appreciate that scientific understanding evolves from the interaction of ideas involving people with different views and backgrounds (e.g., show awareness of and respect for the scientific thinking, craftsmanship and collaborative effort that goes into the development of electrical devices and systems)</i>			
<b>Scientific Inquiry</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	<i>Seek and apply evidence when evaluating alternative approaches to investigations, problems and issues (e.g., strive to assess a problem or situation accurately, by careful analysis of evidence gathered; ask questions to clarify meaning or confirm their understanding; report the limitations of their designs; continue working on a problem or research project until the best possible solutions or answers are found)</i>			
<b>Collaboration</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	<i>Work collaboratively in carrying out investigations and in generating and evaluating ideas (e.g., demonstrate interest and become involved in decision making that requires full-group participation; consider alternative ideas and interpretations suggested by members of the group; share the responsibility for difficulties encountered in an activity)</i>			
<b>Stewardship</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	<i>Demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment (e.g., objectively identify potential conflicts between responding to human wants and needs and protecting the environment)</i>			
<b>Safety</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	<i>Show concern for safety in planning, carrying out and reviewing activities (e.g., select safe methods in using electrical devices; readily alter a procedure to ensure the safety of members of the group; stay at their own work area during an activity, respecting others' space, materials and work)</i>			

<b>Subject:</b>	<b>Science</b>	<b>Grade:</b>	<b>9</b>
<b>Unit:</b>	<b>E</b>	<b>Title:</b>	<b>Space Exploration</b>
<b>Topic:</b>			

<b>Concept / Values</b>	<b>Course outcomes</b>	<b>Permeation outcomes</b>		
////////////////////////////////////				
<b>Outcomes for Science, Technology and Society (STS) and Knowledge</b>				
Investigate and describe ways that human understanding of Earth and space has depended on technological development		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	identify different perspectives on the nature of Earth and space, based on culture and science ( <i>e.g., describe cosmologies based on an Earth-centred universe [Note: detailed knowledge of epicycles is not required]; describe aboriginal views of space and those of other cultures; describe the role of observation in guiding scientific understanding of space</i> )			
	investigate and illustrate the contributions of technological advances—including optical telescopes, spectral analysis and space travel—to a scientific understanding of space			
	describe, in general terms, the distribution of matter in space ( <i>e.g., stars, star systems, galaxies, nebulae</i> )			
	identify evidence for, and describe characteristics of, bodies that make up the solar system; and compare their characteristics with those of Earth			
	describe and apply techniques for determining the position and motion of objects in space, including: <ul style="list-style-type: none"> <li>- constructing and interpreting drawings and physical models that illustrate the motion of objects in space (<i>e.g., represent the orbit of comets around the Sun, using a looped-string model</i>)</li> <li>- describing techniques used to estimate distances of objects in space and to determine their motion</li> <li>- describing the position of objects in space, using angular coordinates (<i>e.g., describe the location of a spot on a wall, by identifying its angle of elevation and its bearing or azimuth; describe the location of the Sun and other stars using altitude-azimuth coordinates, also referred to as horizon coordinates or local coordinates</i>) [<i>Note: A description of star positions based on right ascension and declination is not required.</i>]</li> </ul>			
	investigate predictions about the motion, alignment			

	and collision of bodies in space; and critically examine the evidence on which they are based ( <i>e.g., investigate predictions about eclipses; identify uncertainties in predicting and tracking meteor showers</i> )			
Identify problems in developing technologies for space exploration, describe technologies developed for life in space, and explain the scientific principles involved		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	analyze space environments, and identify challenges that must be met in developing life-supporting systems ( <i>e.g., analyze implications of variations in gravity, temperature, availability of water, atmospheric pressure and atmospheric composition</i> )			
	describe technologies for life-support systems, and interpret the scientific principles on which they are based ( <i>e.g., investigate systems that involve the recycling of water and air</i> )			
	describe technologies for space transport, and interpret the scientific principles involved ( <i>e.g., describe the development of multistage rockets, shuttles and space stations; build a model vehicle to explore a planet or moon</i> )			
	identify materials and processes developed to meet needs in space, and identify related applications ( <i>e.g., medicines, remote sensing, microelectronics, polymers, medical imaging, wireless communication technologies, synthesis of fuels</i> )			
	describe the development of artificial satellites, and explain the major purposes for which they are used ( <i>e.g., communication, GPS—global positioning system, weather observation</i> )			
Describe and interpret the science of optical and radio telescopes, space probes and remote sensing technologies		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	explain, in general terms, the operation of optical telescopes, including telescopes that are positioned in space environments			
	explain the role of radio and optical telescopes in determining characteristics of stars and star systems			
	describe and interpret, in general terms, the technologies used in global positioning systems and in remote sensing ( <i>e.g., use triangulation to determine the position of an object, given information on the distance from three different points</i> ) [Note: This example involves the use of geometric approaches rather than mathematical calculations.]			
Identify issues and opportunities arising from the application of space technology, identify alternatives involved, and analyze implications		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	recognize risks and dangers associated with space exploration ( <i>e.g., space junk, fuel expenditure,</i>			

	<i>satellites burning up in the atmosphere, solar radiation)</i>			
	describe Canadian contributions to space research and development and to the astronaut program (e.g., <i>Canadarm</i> )			
	identify and analyze factors that are important to decisions regarding space exploration and development (e.g., <i>identify examples of costs and potential benefits that may be considered; investigate and describe political, environmental and ethical issues related to the ownership and use of resources in space</i> )			
////////////////////////////////////				
<b>Skill Outcomes</b>				
Initiating and Planning		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Ask questions about the relationships between and among observable variables, and plan investigations to address those questions	identify practical problems (e.g., <i>identify problems that must be addressed in developing a life-supporting space environment</i> )			
	propose alternative solutions to a given practical problem, select one, and develop a plan (e.g., <i>design and describe a model of a technology to be used in a space station</i> )			
	state a prediction and a hypothesis based on background information or an observed pattern of events (e.g., <i>predict the next appearance of a comet, based on past observations; develop a hypothesis about the geologic history of a planet or its moon, based on recent data</i> )			
Performing and Recording		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Conduct investigations into the relationships between and among observations, and gather and record qualitative and quantitative data	research information relevant to a given problem			
	select and integrate information from various print and electronic sources or from several parts of the same source (e.g., <i>compile and compare information about two exploratory missions</i> )			
	organize data, using a format that is appropriate to the task or experiment (e.g., <i>maintain a log of observed changes in the night sky; prepare a data table to compare various planets</i> )			
Analyzing and Interpreting		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Analyze qualitative and quantitative data, and develop and assess possible explanations	test the design of a constructed device or system (e.g., <i>create and test a model device for remote manipulation of materials</i> )			
	identify and correct practical problems in the way a prototype or constructed device functions (e.g., <i>identify and correct problems in the functioning of a model "remote transportation device" that they have designed and built</i> )			
	identify the strengths and weaknesses of different methods of collecting and displaying data (e.g.,			

	<i>compare Earth-based observations with those made from spacecraft)</i>			
	identify new questions and problems that arise from what was learned (e.g., <i>identify questions to guide further investigation, such as: “What limits the travelling distance and duration of space exploration?”</i> , <i>“How old are the planets, and how did they form?”</i> )			

Communication and Teamwork		Task:	Virtue:	Value:
Work collaboratively on problems; and use appropriate language and formats to communicate ideas, procedures and results	receive, understand and act on the ideas of others ( <i>e.g., take into account advice provided by other students or individuals in designing a model space suit or space vehicle</i> )			
	work cooperatively with team members to develop and carry out a plan, and troubleshoot problems as they arise ( <i>e.g., write and act out a skit to demonstrate tasks carried out by astronauts on a mission</i> )			
	defend a given position on an issue or problem, based on their findings ( <i>e.g., conduct appropriate research to justify their position on the economic costs or benefits of space exploration</i> )			
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Attitude Outcomes				
Interest in Science		Task:	Virtue:	Value:
	Show interest in science-related questions and issues, and confidently pursue personal interests and career possibilities within science-related fields ( <i>e.g., express interest in and describe media programs on space science and technology; take an interest in directly observing and interpreting space environments and in personal and group excursions to a space science centre</i> )			
Mutual Respect		Task:	Virtue:	Value:
	Appreciate that scientific understanding evolves from the interaction of ideas involving people with different views and backgrounds ( <i>e.g., show an interest in the contributions that women and men from many cultural backgrounds have made to the development of modern science and technology</i> )			
Scientific Inquiry		Task:	Virtue:	Value:
	Seek and apply evidence when evaluating alternative approaches to investigations, problems and issues ( <i>e.g., seek accurate data that is based on appropriate methods of investigation; consider observations and ideas from a number of sources before drawing conclusions</i> )			
Collaboration		Task:	Virtue:	Value:
	Work collaboratively in carrying out investigations and in generating and evaluating ideas ( <i>e.g., work with others to identify problems and explore possible solutions; share observations and ideas with other members of the group, and consider alternative ideas suggested by other group members; share the responsibility for carrying out decisions</i> )			
Stewardship		Task:	Virtue:	Value:
	Demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment ( <i>e.g., consider immediate</i>			

	<i>and long-term consequences of personal and group actions; objectively identify potential conflicts between responding to human wants and needs and protecting the environment)</i>			
<b>Safety</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	Show concern for safety in planning, carrying out and reviewing activities ( <i>e.g., select safe methods and tools for collecting evidence and solving problems; readily alter a procedure to ensure the safety of members of the group</i> )			

<b>Subject:</b>	<b>Social Studies</b>		<b>Grade:</b>	<b>9</b>
<b>Unit:</b>	<b>Topic 1</b>	<b>Title:</b>		
<b>Topic:</b>	<b>9.1 Issues for Canadians: Governance and Rights</b>			

Concept / Values	Course outcomes	Permeation outcomes		
		Task:	Virtue:	Value:
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	<b>9.1.1 appreciate the impact of the Canadian Charter of Rights and Freedoms on rights and governance in Canada (C, I, PADM)</b>			
	<b>9.1.2 appreciate the various effects of government policies on citizenship and on Canadian society (C, I, PADM)</b>			
	<b>9.1.3 appreciate how emerging issues impact quality of life, citizenship and identity in Canada (C, I, PADM)</b>			
	<b>9.1.4 examine the structure of Canada’s federal political system by exploring and reflecting upon the following questions and issues:</b>			
	How are laws passed in the federal political system? (PADM)			
	What is the relationship between the executive, legislative and judicial branches of Canada’s federal political system? (PADM)			
	What processes are used to determine Members of Parliament (MPs) and Senators? (PADM)			
	To whom are Members of Parliament and Senators accountable? (PADM, C)			
	What is the role of political parties within Canada’s federal political system? (PADM, C)			
	What is the role of the media in relation to political issues? (PADM, C)			
	How do lobby groups impact government decision making? (PADM, C)			
	To what extent do political and legislative processes meet the needs of all Canadians? (PADM, C)			
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	<b>9.1.5 analyze the role that citizens and organizations play in Canada’s justice system by exploring and reflecting upon the following questions and issues:</b>	<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	How do citizens and organizations participate in Canada’s justice system (i.e., jury duty, knowing the law, advocacy, John Howard Society, Elizabeth Fry Society)? (C, PADM)			
	What are citizens’ legal roles and their responsibilities? (C, PADM)			
	What is the intention of the <i>Youth Criminal Justice Act</i> ? (C, PADM)			

C	Citizenship	CC	Culture and Community
I	Identity	TCC	Time, Continuity and Change
ER	Economics and Resources	GC	Global Connections
LPP	The Land: Places and People	PADM	Power, Authority and Decision Making

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<b>9.1.6 critically assess the impact of the Canadian Charter of Rights and Freedoms on the legislative process in Canada by exploring and reflecting upon the following questions and issues:</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	In what ways has the Canadian Charter of Rights and Freedoms fostered recognition of individual rights in Canada? (PADM, I)			
	How does the Canadian Charter of Rights and Freedoms support individuals in exercising their rights? (PADM, C, I)			
	In what ways has the Canadian Charter of Rights and Freedoms affected conditions in the work place (i.e., issues of gender, age, race, religion)? (PADM, I, C)			
	What is the relationship between the rights guaranteed in the Canadian Charter of Rights and Freedoms and the responsibilities of Canadian citizens? (PADM, C)			
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<b>9.1.7 critically assess how the increased demand for recognition of collective rights has impacted the legislative process in Canada by exploring and reflecting upon the following questions and issues:</b>				
	In what ways has the Canadian Charter of Rights and Freedoms fostered recognition of collective rights in Canada? (PADM, I)			
	In what ways does the Canadian Charter of Rights and Freedoms meet the needs of Francophones in minority settings? (I, PADM)			
	To what extent does the Canadians Charter of Rights and Freedoms meet the needs of Francophones in Québec? (PADM, I, C)			
	To what extent should federal and provincial governments support and promote the rights of official language minorities in Canada? (PADM, I, C)			
	How does the <i>Indian Act</i> recognize the status and identity of Aboriginal peoples? (PADM, I, C)			
	How does legislation such as Treaty 6, Treaty 7 and Treaty 8 recognize status and identity of Aboriginal peoples? (I, PADM, LPP)			
	How do governments recognize Métis cultures and rights through legislation (i.e., treaties, governance, land claims, Métis Settlements in Alberta)? (PADM, I, CC, LPP)			

C	Citizenship	CC	Culture and Community
I	Identity	TCC	Time, Continuity and Change
ER	Economics and Resources	GC	Global Connections
LPP	The Land: Places and People	PADM	Power, Authority and Decision Making

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<b>9.1.8 critically assess how legislative processes attempt to address emerging issues of immigration by exploring and reflecting upon the following questions and issues:</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	What factors influence immigration policies in Canada (i.e., economic, political, health, security)? (C, ER, PADM)			
	How are changes to Canadian policies on immigration and refugees a reflection of world issues? (PADM, GC, C, I)			
	What impact does increasing immigration have on Aboriginal peoples and communities? (C, I, GC, PADM)			
	How are provincial governments able to influence and implement immigration policies? (PADM, GC)			
	How is the implementation of immigration policies in Québec an attempt to strengthen the French language in North America? (PADM, GC, C, I)			
	What is the relationship between immigration policies in Canada and the rights guaranteed in the Canadian Charter of Rights and Freedoms? (I, PADM)			
	To what extent does Canada benefit from immigration? (GC, PADM)			

C	Citizenship	CC	Culture and Community
I	Identity	TCC	Time, Continuity and Change
ER	Economics and Resources	GC	Global Connections
LPP	The Land: Places and People	PADM	Power, Authority and Decision Making



	How is consumerism used as a power of a collective (e.g., boycotts)? (ER, PADM, C)			
	To what extent do perspectives regarding consumerism, economic growth and quality of life differ regionally in North America? (PADM, ER, GC, I)			
	What societal values underlie Canadian social programs in Canada and in the United States? (PADM, ER, GC, I)			
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<b>9.2.6 critically assess the interrelationship between political decisions and economic systems by exploring and reflecting upon the following questions and issues:</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	How do the economic platforms of political parties differ from one another (i.e., democrat vs. republican; liberal vs. conservative)? (ER, PADM)			
	How is a political party's philosophy reflected in its platform (i.e., social programs, specific taxes, taxation model)? (ER, PADM)			
	How does the underground economy impact the federal and provincial tax base and social programs (i.e., tax evasion, black market)? (ER, PADM, C)			
	How do government decisions on environmental issues impact quality of life (i.e., preservation, exploitation and trade of natural resources)? (PADM, ER)			

C	Citizenship	CC	Culture and Community
I	Identity	TCC	Time, Continuity and Change
ER	Economics and Resources	GC	Global Connections
LPP	The Land: Places and People	PADM	Power, Authority and Decision Making

<b>Subject:</b>	<b>Social Studies</b>	<b>Grade:</b>	<b>9</b>
<b>Unit:</b>		<b>Title:</b>	
<b>Topic:</b>	<b>Skills and Processes</b>		

<b>Concept / Values</b>	<b>Course outcomes</b>	<b>Permeation outcomes</b>		
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<b>9.S.1</b>	<b>develop skills of critical thinking and creative thinking:</b>	<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	determine the validity of information based on context, bias, source, objectivity, evidence or reliability to broaden understanding of a topic or an issue			
	critically evaluate ideas, information and positions from multiple perspectives			
	demonstrate the ability to analyze current affairs from multiple perspectives			
	re-evaluate personal opinions to broaden understanding of a topic or an issue			
	generate creative ideas and strategies in individual and group activities			
	access diverse viewpoints on particular topics, using appropriate technologies			
	assemble and organize different viewpoints in order to assess their validity			
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<b>9.S.2</b>	<b>develop skills of historical thinking:</b>	<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	analyze selected issues and problems from the past, placing people and events in a context of time and place			
	distinguish cause, effect, sequence and correlation in historical events and issues, including the long- and short-term causal relations			
	use historical and community resources to organize the sequence of historical events			
	analyze the historical contexts of key events of a given time period			
	create a simulation or a model, using technology that permits the making of inferences			
	identify patterns in organized information			
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<b>9.S.3</b>	<b>develop skills of geographic thinking:</b>	<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	interpret thematic maps to analyze economic and political issues			
	use geographic tools, such as Geographic Information Systems (GIS) software, to assist in preparing graphs and maps			
	construct diagrams, charts, graphs and tables to analyze geographic information			

	define geographic problems and issues and pose geographic questions			
	access and operate multimedia applications and technologies from stand-alone and online sources, (e.g., GIS)			
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<b>9.S.4. demonstrate skills of decision making and problem solving:</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	take appropriate action and initiative when required in decision making and problem solving scenarios			
	participate in and predict outcomes of problem-solving and decision-making scenarios			
	participate in and predict outcomes of problem-solving and decision-making scenarios			
	propose and apply new ideas and strategies to contribute to problem solving and decision making, supported with facts and reasons			
	articulate clearly a plan of action to use technology to solve a problem			
	identify the appropriate materials and tools to use in order to accomplish a plan of action			
	evaluate choices and the progress in problem solving, then redefining the plan of action, as necessary			
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<b>9.S.5 demonstrate skills of cooperation, conflict resolution and consensus building:</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	demonstrate leadership in groups, where appropriate, to achieve consensus and resolve conflicts peacefully and equitably			
	demonstrate a positive attitude regarding the needs and perspectives of others access, retrieve and share information from electronic sources such as common files use networks to brainstorm, plan and share ideas with group members			
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<b>9.S.6 develop age-appropriate behaviour for social involvement as responsible citizens contributing to their community, such as:</b>				
	develop leadership skills by assuming specific roles and responsibilities in organizations, projects and events within their community			
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<b>9.S.7 apply the research process:</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	reflect on changes of perspective or opinion based on information gathered and research conducted			
	integrate and synthesize concepts to provide an informed point of view on a research question or an issue			
	develop a position supported by information gathered during research			

	draw conclusions based upon research and evidence			
	determine how information serves a variety of purposes and that the accuracy or relevance may need verification			
	organize and synthesize researched information			
	formulate new questions as research progresses			
	practice responsible and ethical use of information and technology			
	include and organize references as part of research			
	create a plan for an inquiry that includes consideration of time management demonstrate the advanced search skills necessary to limit the number of hits desired for online and offline databases; for example, the use of “and” or “or” between search topics and the choice of appropriate search engines for the topic			
	develop a process to manage volumes of information that can be made available through electronic sources			
	evaluate the relevance of electronically accessed information to a particular topic make connections among related, organized data and assemble various pieces into a unified message			
	refine searches to limit sources to a manageable number			
	analyze and synthesize information to create a product			
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<b>9.S.8</b>	<b>demonstrate skills of oral, written and visual literacy:</b>	<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	communicate in a persuasive and engaging manner through speeches, multimedia presentations, written and oral reports, taking particular audiences and purposes into consideration			
	use skills of informal debate to persuasively express differing viewpoints regarding an issue			
	elicit, clarify and respond appropriately to questions, ideas and diverse points of view presented in discussions			
	make reasoned comments relating to the topic of discussion			
	listen to others in order to understand their perspectives			
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<b>9.S.9</b>	<b>develop skills of media literacy:</b>	<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	examine techniques used to enhance the authority and authenticity of media messages			
	examine the values, lifestyles and points of view represented in a media message			
	analyze the impact of television, Internet, radio and print media on a particular current affairs issue			

## Glossary of Terms and Concepts—Grade 9

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The following terms and concepts are contained within the general and specific outcomes in the grade. The definitions are provided to facilitate a better understanding and more effective application of the social studies concepts presented.

<b>Canadian Charter of Rights and Freedoms</b>	Document entrenched in the 1982 Constitutional Act, that lists and describes the fundamental rights and freedoms guaranteed to Canadians.
<b>consumerism</b>	Economic theory concerned specifically with the purchase and/or use of goods and services.
<b>Executive Branch</b>	Government body that ensures the administration of laws and of the country, comprised of the Prime Minister of Canada and the Cabinet.
<b>governance</b>	The act, process or power of governing.
<b>Indian Act</b>	Law pertaining to the rights and status of Aboriginal peoples; initially enacted in 1876 and was amended several times.
<b>Judicial Branch</b>	Government body that ensures the interpretation of laws, comprised of the Supreme Court of Canada.
<b>Legislative Branch</b>	Government body that is authorized to pass federal laws/legislation, comprised of the House of Commons and the Senate.
<b>market economy</b>	Economic system in which individuals are free to make their own decisions with little or no intervention from the government and where resources are the private property of persons or companies.
<b>mixed economy</b>	Economic system in which both the public and the private sectors play a significant role in the economy and where some resources are owned by the private sector and some by the public sector.
<b>social programs</b>	Programs established by the government to reduce economic inequalities and to promote the well-being of citizens.
<b>tax base</b>	Total amount of taxes paid to the government by citizens and companies used to finance economic and social programs and the functioning of government.
<b>underground economy</b>	Pertaining to secretive economic activities that are not within the law, often referred to as the “black market”.

<b>Subject:</b>	<b>Health</b>	<b>Grade:</b>	<b>Grade 9</b>
<b>Unit:</b>		<b>Title:</b>	
<b>Topic:</b>			

Concept / Values	Course outcomes	Permeation outcomes		
		Task:	Virtue:	Value:
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<b>WELLNESS CHOICES–General Outcome</b> <i>Students will make responsible and informed choices to maintain health and to promote safety for self and others</i>				
<b>1. Personal Health</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	use knowledge of a healthy, active lifestyle to promote and encourage family/peer/community involvement			
	analyze how positive health habits can be supported by a variety of approaches to health practices and treatments; e.g., acupuncture			
	<i>apply coping strategies when experiencing different rates of physical, emotional, sexual and social development; e.g., positive self-talk</i>			
	analyze and develop strategies to reduce the effects of stereotyping on body image; e.g., health risks of altering natural body size/shape to meet media ideal			
	develop strategies that promote healthy nutritional choices for self and others; e.g., adopt goals that reflect healthy eating, encourage the placement of nutritious food in vending machines			
	analyze addictions; e.g., stages, kinds, and resources available to treat addictions			
<b>2. Safety and Responsibility</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	<i>evaluate implications and consequences of sexual assault on a victim and those associated with that victim</i>			
	develop strategies to promote harm reduction/risk management; e.g., differentiate between choosing personal challenges or acting impulsively, encourage others to evaluate risks			
	analyze and evaluate laws and policies that promote personal, community and workplace safety; e.g., driving, boating, employment standards			
	assess the quality and reliability of health information provided by different sources; e.g., on the Internet			
	use personal resiliency skills; e.g., seek out appropriate mentors, have a sense of purpose, have clear standards for personal behaviour			
	<i>determine “safer” sex practices; e.g., communicate with partner, maintain abstinence, limit partners, access/use condoms/contraceptives properly</i>			
	<i>identify and describe the responsibilities and resources associated with pregnancy and parenting</i>			
	<i>develop strategies that address factors to prevent or</i>			

	<i>reduce sexual risk; e.g., abstain from drugs and alcohol, date in groups, use assertive behaviour</i>			
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<b>RELATIONSHIP CHOICES–General Outcome</b> <i>Students will develop effective interpersonal skills that demonstrate responsibility, respect and caring in order to establish and maintain healthy interactions</i>				
<b>1. Understanding and Expressing Feelings</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	identify appropriate strategies to foster positive feelings/attitudes			
	analyze why individuals choose not to express or manage feelings in situations; e.g., using anger to manipulate others, avoid others, feel powerful			
	analyze, evaluate and refine personal strategies for managing stress/crises			
	analyze, evaluate and refine personal communication patterns			
<b>2. Interactions</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	describe and analyze factors that contribute to the development of unhealthy relationships, and develop strategies to deal with unhealthy relationships			
	model integrity and honesty in accordance with ethical principles; e.g., develop strategies to behave in an ethical manner			
	refine personal conflict management skills; e.g., negotiation, mediation strategies			
<b>3. Group Roles and Processes</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	analyze skills required to maintain individuality within a group; e.g., self-respect, assertiveness, refusal skills			
	evaluate group effectiveness, and generate strategies to improve group effectiveness; e.g., develop skills in facilitating discussions or meetings			
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<b>LIFE LEARNING CHOICES–General Outcome</b> <i>Students will use resources effectively to manage and explore life roles and career opportunities and challenges</i>				
<b>1. Learning Strategies</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	apply personal time management skills to a variety of learning opportunities; e.g., develop strategies to overcome procrastination			
	relate the value of lifelong learning to personal success and satisfaction			
	use decision-making skills to select appropriate risk-taking activities for personal growth and empowerment; e.g., increasing freedom means increased responsibility for consequences of choices			
	refine personal goals and priorities relevant to learning and career paths; e.g., investigate education programs including senior high school programs and those related to potential careers			
<b>2. Life Roles and Career Development</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	extend and improve a personal portfolio; e.g., include sample application form, personal résumé, answers to			

	typical interview questions			
	develop strategies to deal with transitional experiences; e.g., create a learning plan for transition to senior high school, keeping future career plans in mind			
<b>3. Volunteerism</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	analyze the potential impact of volunteerism on career opportunities			
	investigate personal safety procedures for working as a volunteer; e.g., work in pairs			

Please note that *italicized* outcomes contain topics related to human sexuality and that parents reserve the right to exempt their children from this instruction.

<b>Subject:</b>	<b>Phys Ed / Health</b>	<b>Grade:</b>	<b>9</b>
<b>Unit:</b>	<b>Title:</b>	<b>Mapped Phys. Ed and Health curriculums</b>	
<b>Topic:</b>			

<b>Concept / Values</b>	<b>Course outcomes</b>	<b>Permeation outcomes</b>		
		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
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<b>Physical Education Curriculum</b>		<b>Health Curriculum</b>			
Benefits Health – Cooperation – Do It Daily!		Wellness Choices	<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	D9-9 develop strategies to counteract influences that limit involvement in physical activity	W9.1 use knowledge of a healthy, active lifestyle to promote and encourage family/peer/community involvement			
	B9-4 acknowledge and analyze the media and peer influences on body image	W9.4 analyze and develop strategies to reduce the effects of stereotyping on body image; e.g., health risks of altering natural body size/shape to meet media ideal			
	B9-1 design, monitor and personally analyze nutrition programs that will affect physical performance	W9.5 develop strategies that promote healthy nutritional choices for self and others; e.g., adopt goals that reflect healthy eating, encourage the placement of nutritious food in vending machines			
	C9-2 identify and discuss the positive behaviours that are demonstrated by active living role models	W9.11 use personal resiliency skills; e.g., seek out appropriate mentors, have a sense of purpose, have clear standards for personal behaviour			

<b>Physical Education Curriculum</b>		<b>Health Curriculum</b>	<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
Benefits Health - Cooperation		Relationship Choices			
	B9-8 select and perform appropriate physical activities for personal stress management and relaxation	R9.3 analyze, evaluate and refine personal strategies for managing stress/crises			
	C9-6 identify and demonstrate positive behaviours that show respect for self and others	R9.8 analyze skills required to maintain individuality within a group; e.g., self- respect, assertiveness, refusal skills			
	C9-4 describe, apply, monitor and practice leadership and followership skills related to physical activity	R9.9 evaluate group effectiveness, and generate strategies to improve group effectiveness; e.g., develop skills in facilitating discussions or meetings			
	C9-5 develop practices that contribute to				

	teamwork				
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<b>Subject:</b>	<b>Phys Ed</b>	<b>Grade:</b>	<b>9</b>
<b>Unit:</b>		<b>Title:</b>	
<b>Topic:</b>			

<b>Concept / Values</b>	<b>Course outcomes</b>	<b>Permeation outcomes</b>		
		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
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	<i>Students will acquire skills through a variety of developmentally appropriate movement activities; dance, games, types of gymnastics, individual activities and activities in an alternative environment; e.g., aquatics and outdoor pursuits</i>			
	<b>Basic Skills—Locomotor; e.g., walking, running, hopping, jumping, leaping, rolling, skipping, galloping, climbing, sliding, propulsion through water</b>	<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	A9-1 apply and refine locomotor skills and concepts to a variety of activities with increased control to improve personal performance			
	A9-2 apply and refine locomotor skills by using elements of body and space awareness, effort and relationships to improve personal performance			
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	<b>Basic Skills—Nonlocomotor; e.g., turning, twisting, swinging, balancing, bending, landing, stretching, curling, hanging</b>	<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	A9-3 apply and refine nonlocomotor skills and concepts to a variety of activities with increased control to improve personal performance			
	A9-4 apply and refine nonlocomotor skills by using elements of body and space awareness, effort and relationships, to improve personal performance			
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	<b>Basic Skills—Manipulative: receiving; e.g., catching, collecting; retaining: e.g., dribbling, carrying, bouncing, trapping: sending; e.g., throwing, kicking, striking</b>	<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	A9-5 apply and refine ways to receive, retain and send an object with increased speed, accuracy and distance in skills specific to an activity			
	A9-6 apply and refine manipulative skills by using elements of space awareness, effort and relationships, with and without objects, to improve performance			
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	<b>Application of Basic Skills in an Alternative Environment</b>	<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	A9-7 apply and refine activity- specific skills in a variety of environments; e.g., hiking, wall climbing			
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	<b>Application of Basic Skills in Dance</b>	<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	A9-8 create, refine and present a variety of dance sequences; e.g., jazz, square, social and novelty, alone and with others			
	A9-9 choreograph and perform dance sequences, using the elements of movement and basic dance steps and patterns			

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<b>Application of Basic Skills in Games</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	A9-10 apply and refine activity- specific basic skills in a variety of games			
	A9-11 create and plan activities that emphasize specific strategies and tactics that coordinate effort with others; e.g., team/fair play, in order to achieve a common activity goal			
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<b>Application of Basic Skills in Types of Gymnastics</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	A9-12 apply and refine ways to improve the functional and expressive qualities of movements, that combine basic skills in a variety of gymnastic experiences individually, with a partner, or in a group; e.g., educational, rhythmic and artistic			
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<b>Application of Basic Skills in Individual Activities</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	A9-13 apply and refine activity- specific skills in a variety of individual pursuits; e.g., fitness activities			
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<b>GENERAL OUTCOME B: <i>Students will understand, experience and appreciate the health benefits that result from physical activity</i></b>				
<b>Functional Fitness</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	B9-1 design, monitor and personally analyze nutrition programs that will affect physical performance			
	B9-2 demonstrate, monitor and analyze ways to achieve a personal functional level of physical fitness			
	B9-3 design and implement a personal fitness and activity plan, using the principles of training: frequency intensity, duration			
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<b>Body Image</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	B9-4 acknowledge and analyze the media and peer influences on body image			
	B9-5 discuss the effects of performance-enhancing substances on body type and body image as a part of physical activity			
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<b>Well-being</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	B9-6 analyze and explain the effects that nutrition, fitness and physical activity have on body systems before, during and after exercise			
	B9-7 monitor, analyze and assess fitness changes as a result of physical activity			
	B9-8 select and perform appropriate physical activities for personal stress management and relaxation			
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<b>GENERAL OUTCOME C: <i>Students will interact positively with others</i></b>				
<b>Communication</b>		<b>Task:</b>	<b>Virtue:</b>	<b>Value:</b>
	C9-1 communicate thoughts and feelings in an appropriate respectful manner as they relate to			

