Main Criteria: Forward

Secondary Criteria: Alberta Programs of Study, British Columbia Curriculum, Manitoba Curriculum Frameworks, New Brunswick Curriculum, Newfoundland and Labrador Curriculum Guides, Northern Territory Curriculum, Nova Scotia Curriculum, The Ontario Curriculum, Prince Edward Island Curriculum, Québec Education Program Progression of Learning, Programme de formation de l'école québécoise - Progression des apprentissages, Saskatchewan Curriculum

Subjects: Mathematics, Science, Technology Education

Grades: 5, 6, 7, 8, Key Stage 2, Key Stage 3

Forward

Solar Water Disinfection (SODIS)

Alberta Programs of Study

Mathematics

Grade **7** - Adopted: **2007/Updated 2016**

GENERAL OUTCOME / COURSE	AB.MP.	Mathematical Processes
GENERAL OUTCOME / SPECIFIC OUTCOME	[PS]	Problem Solving: Students are expected to develop and apply new mathematical knowledge through problem solving
GENERAL OUTCOME / SPECIFIC OUTCOME	[R]	Reasoning: Students are expected to develop mathematical reasoning
GENERAL OUTCOME / SPECIFIC OUTCOME	[T]	Technology: Students are expected to select and use technologies as tools for learning and for solving problems
GENERAL OUTCOME / SPECIFIC OUTCOME	[V]	Visualization: Students are expected to develop visualization skills to assist in processing information, making connections and solving problems.

Alberta Programs of Study

Mathematics

Grade **8** - Adopted: **2007/Updated 2016**

GENERAL OUTCOME / COURSE	AB.MP.	Mathematical Processes
GENERAL OUTCOME / SPECIFIC OUTCOME	[PS]	Problem Solving: Students are expected to develop and apply new mathematical knowledge through problem solving
GENERAL OUTCOME / SPECIFIC OUTCOME	[R]	Reasoning: Students are expected to develop mathematical reasoning
GENERAL OUTCOME / SPECIFIC OUTCOME	[T]	Technology: Students are expected to select and use technologies as tools for learning and for solving problems

GENERAL OUTCOME / SPECIFIC OUTCOME	[V]	Visualization: Students are expected to develop visualization skills to assist in processing information, making connections and solving problems.
GENERAL OUTCOME / COURSE	**AB.8.3.**	**SHAPE AND SPACE**
GENERAL OUTCOME / SPECIFIC OUTCOME		**(Measurement): Use direct and indirect measurement to solve problems.**
SPECIFIC OUTCOME / ILLUSTRATIVE EXAMPLE	8.3.4.	Develop and apply formulas for determining the volume of right rectangular prisms, right triangular prisms and right cylinders. [C, CN, PS, R, V]

Alberta Programs of Study

Science

Grade **5** - Adopted: **1996**

GENERAL OUTCOME / COURSE	**AB.5-2.**	**Science Inquiry: Recognize the importance of accuracy in observation and measurement; and, with guidance, apply suitable methods to record, compile, interpret and evaluate observations and measurements.**
GENERAL OUTCOME / SPECIFIC OUTCOME	5-2.3.	Explore and Investigate: Students will identify one or more ways of finding answers to given questions.
GENERAL OUTCOME / SPECIFIC OUTCOME	5-2.6.	Explore and Investigate: Students will select appropriate materials and identify how they will be used.
GENERAL OUTCOME / SPECIFIC OUTCOME	5-2.13.	Reflect and Interpret: Students will identify possible applications of what was learned.
GENERAL OUTCOME / COURSE	**AB.5-3.**	**Problem Solving through Technology: Design and carry out an investigation of a practical problem, and develop a possible solution.**
GENERAL OUTCOME / SPECIFIC OUTCOME	5-3.4.	Explore and Investigate: Students will attempt a variety of strategies and modify procedures, as needed (troubleshoot problems).
GENERAL OUTCOME / SPECIFIC OUTCOME	5-3.8.	Reflect and Interpret: Students will evaluate the procedures used to solve the problem and identify possible improvements.
GENERAL OUTCOME / SPECIFIC OUTCOME	5-3.9.	Reflect and Interpret: Students will evaluate a design or product, based on a given set of questions or criteria. The criteria/questions may be provided by the teacher or developed by the students.

GENERAL OUTCOME / SPECIFIC OUTCOME	5-3.10.	Reflect and Interpret: Students will identify new applications for the design or problem solution.
GENERAL OUTCOME / COURSE	**AB.5-4.**	**Attitudes: Demonstrate positive attitudes for the study of science and for the application of science in responsible ways.**
GENERAL OUTCOME / SPECIFIC OUTCOME	5-4.2.	Students will show growth in acquiring and applying confidence in personal ability to learn and develop problem-solving skills.
GENERAL OUTCOME / SPECIFIC OUTCOME	5-4.3.	Students will show growth in acquiring and applying inventiveness and open-mindedness.
GENERAL OUTCOME / SPECIFIC OUTCOME	5-4.5.	Students will show growth in acquiring and applying flexibility in considering new ideas.
GENERAL OUTCOME / SPECIFIC OUTCOME	5-4.6.	Students will show growth in acquiring and applying critical-mindedness in examining evidence and determining what the evidence means.

Alberta Programs of Study

Science

Grade **6** - Adopted: **1996**

GENERAL OUTCOME / COURSE	**AB.6-2.**	**Science Inquiry: Recognize the importance of accuracy in observation and measurement; and apply suitable methods to record, compile, interpret and evaluate observations and measurements.**
GENERAL OUTCOME / SPECIFIC OUTCOME	6-2.3.	Explore and Investigate: Students will identify one or more ways of finding answers to given questions.
GENERAL OUTCOME / SPECIFIC OUTCOME	6-2.9.	Explore and Investigate: Students will select appropriate materials and identify how they will be used.
GENERAL OUTCOME / SPECIFIC OUTCOME	6-2.17.	Reflect and Interpret: Students will identify possible applications of what was learned.
GENERAL OUTCOME / COURSE	**AB.6-3.**	**Problem Solving through Technology: Design and carry out an investigation of a practical problem, and develop a possible solution.**

GENERAL OUTCOME / SPECIFIC OUTCOME	6-3.4.	Explore and Investigate: Students will attempt a variety of strategies and modify procedures, as needed (troubleshoot problems).
GENERAL OUTCOME / SPECIFIC OUTCOME	6-3.8.	Reflect and Interpret: Students will evaluate procedures used and identify possible improvements.
GENERAL OUTCOME / SPECIFIC OUTCOME	6-3.9.	Reflect and Interpret: Students will evaluate a design or product, based on a given set of questions or criteria. The criteria/questions may be provided by the teacher or developed by the students. .
GENERAL OUTCOME / SPECIFIC OUTCOME	6-3.10.	Reflect and Interpret: Students will identify positive and negative impacts that may arise and potential risks that need to be monitored: What good effects and what bad effects could this solution have? What would we need to look for to be sure that it is working as intended?
GENERAL OUTCOME / SPECIFIC OUTCOME	6-3.11.	Reflect and Interpret: Students will identify new applications for the design or problem solution.
GENERAL OUTCOME / COURSE	**AB.6-4.**	**Attitudes: Demonstrate positive attitudes for the study of science and for the application of science in responsible ways.**
GENERAL OUTCOME / SPECIFIC OUTCOME	6-4.2.	Students will show growth in acquiring and applying confidence in personal ability to learn and develop problem-solving skills.
GENERAL OUTCOME / SPECIFIC OUTCOME	6-4.3.	Students will show growth in acquiring and applying inventiveness and open-mindedness.
GENERAL OUTCOME / SPECIFIC OUTCOME	6-4.5.	Students will show growth in acquiring and applying flexibility in considering new ideas.
GENERAL OUTCOME / SPECIFIC OUTCOME	6-4.6.	Students will show growth in acquiring and applying critical-mindedness in examining evidence and determining what the evidence means.

Alberta Programs of Study

Science

Grade **7** - Adopted: **2014**

GENERAL OUTCOME / COURSE	**AB.7.A.**	**Unit A: Interactions and Ecosystems (Social and Environmental Emphasis)**

GENERAL OUTCOME / SPECIFIC OUTCOME	**7.A.STS.**	**Outcomes for Science, Technology and Society (STS) and Knowledge - Students will:**
SPECIFIC OUTCOME / ILLUSTRATIVE EXAMPLE	**7.A.STS.1.**	**Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions**
ILLUSTRATIVE EXAMPLE	7.A.STS.1.1.	Illustrate how life-supporting environments meet the needs of living things for nutrients, energy sources, moisture, suitable habitat, and exchange of gases
GENERAL OUTCOME / COURSE	**AB.7.A.**	**Unit A: Interactions and Ecosystems (Social and Environmental Emphasis)**
GENERAL OUTCOME / SPECIFIC OUTCOME	**7.A.STS.**	**Outcomes for Science, Technology and Society (STS) and Knowledge - Students will:**
SPECIFIC OUTCOME / ILLUSTRATIVE EXAMPLE	**7.A.STS.2.**	**Trace and interpret the flow of energy and materials within an ecosystem**
ILLUSTRATIVE EXAMPLE	7.A.STS.2.4.	Identify mechanisms by which pollutants enter and move through the environment, and can become concentrated in some organisms (e.g., acid rain, mercury, PCBs, DDT)
GENERAL OUTCOME / COURSE	**AB.7.B.**	**Unit B: Plants for Food and Fibre (Science and Technology Emphasis)**
GENERAL OUTCOME / SPECIFIC OUTCOME	**7.B.SO.**	**Skill Outcomes (focus on problem solving)**
SPECIFIC OUTCOME / ILLUSTRATIVE EXAMPLE	**7.B.SO.PR.**	**Performing and Recording - Students will:**
ILLUSTRATIVE EXAMPLE	**7.B.SO.PR.1.**	**Conduct investigations into the relationships between and among observations, and gather and record qualitative and quantitative data**
EXPECTATION	7.B.SO.PR.1.2.	Construct and test a prototype design to achieve a specific purpose (e.g., develop and test a device for watering house plants over a two-week absence)

GENERAL OUTCOME / COURSE	**AB.8.E.**	**Unit E: Freshwater and Saltwater Systems (Social and Environmental Emphasis)**
GENERAL OUTCOME / SPECIFIC OUTCOME	**8.E.STS.**	**Outcomes for Science, Technology and Society (STS) and Knowledge - Students will:**
SPECIFIC OUTCOME / ILLUSTRATIVE EXAMPLE	**8.E.STS.1.**	**Describe the distribution and characteristics of water in local and global environments, and identify the significance of water supply and quality to the needs of humans and other living things**

ILLUSTRATIVE EXAMPLE	8.E.STS.1.3.	Identify major factors used in determining if water is potable, and describe and demonstrate tests of water quality (e.g., investigate and describe the physical characteristics of a sample of water, such as clarity, salinity and hardness; investigate biological tests)

GENERAL OUTCOME / COURSE	**AB.8.E.**	**Unit E: Freshwater and Saltwater Systems (Social and Environmental Emphasis)**
GENERAL OUTCOME / SPECIFIC OUTCOME	**8.E.STS.**	**Outcomes for Science, Technology and Society (STS) and Knowledge - Students will:**
SPECIFIC OUTCOME / ILLUSTRATIVE EXAMPLE	**8.E.STS.3.**	**Analyze factors affecting productivity and species distribution in marine and freshwater environments**

ILLUSTRATIVE EXAMPLE	8.E.STS.3.4.	Analyze relationships between water quality and living things, and infer the quality of water based on the diversity of life supported by it

GENERAL OUTCOME / COURSE	**AB.8.E.**	**Unit E: Freshwater and Saltwater Systems (Social and Environmental Emphasis)**
GENERAL OUTCOME / SPECIFIC OUTCOME	**8.E.STS.**	**Outcomes for Science, Technology and Society (STS) and Knowledge - Students will:**
SPECIFIC OUTCOME / ILLUSTRATIVE EXAMPLE	**8.E.STS.4.**	**Analyze human impacts on aquatic systems; and identify the roles of science and technology in addressing related questions, problems and issues**

ILLUSTRATIVE EXAMPLE	8.E.STS.4.1.	Analyze human water uses, and identify the nature and scope of impacts resulting from different uses (e.g., identify pollutants in ground water and surface water systems resulting from domestic and industrial use; analyze the effects of agriculture and forestry practices on stream flow and water quality)
ILLUSTRATIVE EXAMPLE	8.E.STS.4.2.	Identify current practices and technologies that affect water quality, evaluate environmental costs and benefits, and identify and evaluate alternatives (e.g., research and analyze alternatives for ensuring safe supplies of potable water; research, analyze and debate alternatives for a specific water quality issue, such as the location and design of a landfill, the protection of a natural waterway, the use of secondary and tertiary wastewater treatment, the salinization of soils due to irrigation, the eutrophication of ponds and streams due to excess use of phosphates in fertilizers and detergents, or a proposal to export water resources)
ILLUSTRATIVE EXAMPLE	8.E.STS.4.3.	Illustrate the role of scientific research in monitoring environments and supporting development of appropriate environmental technologies (e.g., describe a local example of aquatic monitoring, and describe how this research contributes to watershed management)

GENERAL OUTCOME / COURSE	**AB.8.E.**	**Unit E: Freshwater and Saltwater Systems (Social and Environmental Emphasis)**
GENERAL OUTCOME / SPECIFIC OUTCOME	**8.E.SO.**	**Skill Outcomes (focus on the use of research and inquiry skills to inform the decision-making process)**
SPECIFIC OUTCOME / ILLUSTRATIVE EXAMPLE	**8.E.SO.IP.**	**Initiating and Planning - Students will:**
ILLUSTRATIVE EXAMPLE	**8.E.SO.IP.1.**	**Ask questions about the relationships between and among observable variables, and plan investigations to address those questions**

EXPECTATION	8.E.SO.IP.1.1.	Identify science-related issues and problems

British Columbia Curriculum

Mathematics

Grade **5** - Adopted: **2016**

CURRICULUM ORGANIZER / COURSE	BC.MA.5.CC.	Curricular Competencies
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**
EXPECTATION / SUB ORGANIZER	**5.CC.1.**	**Reasoning and analyzing**
PRESCRIBED LEARNING OUTCOME	5.CC.1.1.	Use reasoning to explore and make connections
PRESCRIBED LEARNING OUTCOME	5.CC.1.5.	Model mathematics in contextualized experiences

CURRICULUM ORGANIZER / COURSE	BC.MA.5.CC.	Curricular Competencies
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**
EXPECTATION / SUB ORGANIZER	**5.CC.2.**	**Understanding and solving**
PRESCRIBED LEARNING OUTCOME	5.CC.2.1.	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving
PRESCRIBED LEARNING OUTCOME	5.CC.2.2.	Visualize to explore mathematical concepts
PRESCRIBED LEARNING OUTCOME	5.CC.2.3.	Develop and use multiple strategies to engage in problem solving
PRESCRIBED LEARNING OUTCOME	5.CC.2.4.	Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures

CURRICULUM ORGANIZER / COURSE	BC.MA.5.CC.	Curricular Competencies

PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**
EXPECTATION / SUB ORGANIZER	**5.CC.3.**	**Communicating and representing**
PRESCRIBED LEARNING OUTCOME	5.CC.3.1.	Communicate mathematical thinking in many ways
PRESCRIBED LEARNING OUTCOME	5.CC.3.3.	Explain and justify mathematical ideas and decisions

CURRICULUM ORGANIZER / COURSE	**BC.MA.5.CC.**	**Curricular Competencies**
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**
EXPECTATION / SUB ORGANIZER	**5.CC.4.**	**Connecting and reflecting**
PRESCRIBED LEARNING OUTCOME	5.CC.4.1.	Reflect on mathematical thinking
PRESCRIBED LEARNING OUTCOME	5.CC.4.2.	Connect mathematical concepts to each other and to other areas and personal interests

British Columbia Curriculum

Mathematics

Grade **6** - Adopted: **2016**

CURRICULUM ORGANIZER / COURSE	**BC.MA.6.CC.**	**Curricular Competencies**
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**
EXPECTATION / SUB ORGANIZER	**6.CC.1.**	**Reasoning and analyzing**
PRESCRIBED LEARNING OUTCOME	6.CC.1.1.	Use logic and patterns to solve puzzles and play games
PRESCRIBED LEARNING OUTCOME	6.CC.1.2.	Use reasoning and logic to explore, analyze, and apply mathematical ideas

PRESCRIBED LEARNING OUTCOME	6.CC.1.6.	Model mathematics in contextualized experiences

CURRICULUM ORGANIZER / COURSE	BC.MA.6.CC.	Curricular Competencies
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**
EXPECTATION / SUB ORGANIZER	**6.CC.2.**	**Understanding and solving**
PRESCRIBED LEARNING OUTCOME	6.CC.2.1.	Apply multiple strategies to solve problems in both abstract and contextualized situations
PRESCRIBED LEARNING OUTCOME	6.CC.2.2.	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving
PRESCRIBED LEARNING OUTCOME	6.CC.2.3.	Visualize to explore mathematical concepts
PRESCRIBED LEARNING OUTCOME	6.CC.2.4.	Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures

CURRICULUM ORGANIZER / COURSE	BC.MA.6.CC.	Curricular Competencies
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**
EXPECTATION / SUB ORGANIZER	**6.CC.3.**	**Communicating and representing**
PRESCRIBED LEARNING OUTCOME	6.CC.3.2.	Explain and justify mathematical ideas and decisions
PRESCRIBED LEARNING OUTCOME	6.CC.3.3.	Communicate mathematical thinking in many ways

CURRICULUM ORGANIZER / COURSE	BC.MA.6.CC.	Curricular Competencies
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**

EXPECTATION / SUB ORGANIZER	**6.CC.4.**	**Connecting and reflecting**
PRESCRIBED LEARNING OUTCOME	6.CC.4.1.	Reflect on mathematical thinking
PRESCRIBED LEARNING OUTCOME	6.CC.4.2.	Connect mathematical concepts to each other and to other areas and personal interests
PRESCRIBED LEARNING OUTCOME	6.CC.4.3.	Use mathematical arguments to support personal choices

British Columbia Curriculum

Mathematics

Grade **7** - Adopted: **2016**

CURRICULUM ORGANIZER / COURSE	**BC.MA.7.CC.**	**Curricular Competencies**
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**
EXPECTATION / SUB ORGANIZER	**7.CC.1.**	**Reasoning and analyzing**
PRESCRIBED LEARNING OUTCOME	7.CC.1.1.	Use logic and patterns to solve puzzles and play games
PRESCRIBED LEARNING OUTCOME	7.CC.1.2.	Use reasoning and logic to explore, analyze, and apply mathematical ideas
PRESCRIBED LEARNING OUTCOME	7.CC.1.6.	Model mathematics in contextualized experiences

CURRICULUM ORGANIZER / COURSE	**BC.MA.7.CC.**	**Curricular Competencies**
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**
EXPECTATION / SUB ORGANIZER	**7.CC.2.**	**Understanding and solving**
PRESCRIBED LEARNING OUTCOME	7.CC.2.1.	Apply multiple strategies to solve problems in both abstract and contextualized situations

PRESCRIBED LEARNING OUTCOME	7.CC.2.2.	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving
PRESCRIBED LEARNING OUTCOME	7.CC.2.3.	Visualize to explore mathematical concepts
PRESCRIBED LEARNING OUTCOME	7.CC.2.4.	Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures

CURRICULUM ORGANIZER / COURSE	**BC.MA.7.CC.**	**Curricular Competencies**
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**
EXPECTATION / SUB ORGANIZER	**7.CC.3.**	**Communicating and representing**
PRESCRIBED LEARNING OUTCOME	7.CC.3.2.	Explain and justify mathematical ideas and decisions
PRESCRIBED LEARNING OUTCOME	7.CC.3.3.	Communicate mathematical thinking in many ways

CURRICULUM ORGANIZER / COURSE	**BC.MA.7.CC.**	**Curricular Competencies**
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**
EXPECTATION / SUB ORGANIZER	**7.CC.4.**	**Connecting and reflecting**
PRESCRIBED LEARNING OUTCOME	7.CC.4.1.	Reflect on mathematical thinking
PRESCRIBED LEARNING OUTCOME	7.CC.4.2.	Connect mathematical concepts to each other and to other areas and personal interests
PRESCRIBED LEARNING OUTCOME	7.CC.4.3.	Use mathematical arguments to support personal choices

CURRICULUM ORGANIZER / COURSE	**BC.MA.7.C.**	**Content**

PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to know the following:**
EXPECTATION / SUB ORGANIZER	7.C.8.	Volume of rectangular prisms and cylinders

British Columbia Curriculum

Mathematics

Grade **8** - Adopted: **2016**

CURRICULUM ORGANIZER / COURSE	**BC.MA.8.CC.**	**Curricular Competencies**
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**
EXPECTATION / SUB ORGANIZER	**8.CC.1.**	**Reasoning and analyzing**
PRESCRIBED LEARNING OUTCOME	8.CC.1.1.	Use logic and patterns to solve puzzles and play games
PRESCRIBED LEARNING OUTCOME	8.CC.1.2.	Use reasoning and logic to explore, analyze, and apply mathematical ideas
PRESCRIBED LEARNING OUTCOME	8.CC.1.6.	Model mathematics in contextualized experiences

CURRICULUM ORGANIZER / COURSE	**BC.MA.8.CC.**	**Curricular Competencies**
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**
EXPECTATION / SUB ORGANIZER	**8.CC.2.**	**Understanding and solving**
PRESCRIBED LEARNING OUTCOME	8.CC.2.1.	Apply multiple strategies to solve problems in both abstract and contextualized situations
PRESCRIBED LEARNING OUTCOME	8.CC.2.2.	Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving
PRESCRIBED LEARNING OUTCOME	8.CC.2.3.	Visualize to explore mathematical concepts

PRESCRIBED LEARNING OUTCOME	8.CC.2.4.	Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures

CURRICULUM ORGANIZER / COURSE	BC.MA.8.CC.	Curricular Competencies
PRESCRIBED LEARNING OUTCOME / ORGANIZER		Students are expected to be able to do the following:
EXPECTATION / SUB ORGANIZER	8.CC.3.	Communicating and representing

PRESCRIBED LEARNING OUTCOME	8.CC.3.2.	Explain and justify mathematical ideas and decisions
PRESCRIBED LEARNING OUTCOME	8.CC.3.3.	Communicate mathematical thinking in many ways

CURRICULUM ORGANIZER / COURSE	BC.MA.8.CC.	Curricular Competencies
PRESCRIBED LEARNING OUTCOME / ORGANIZER		Students are expected to be able to do the following:
EXPECTATION / SUB ORGANIZER	8.CC.4.	Connecting and reflecting

PRESCRIBED LEARNING OUTCOME	8.CC.4.1.	Reflect on mathematical thinking
PRESCRIBED LEARNING OUTCOME	8.CC.4.2.	Connect mathematical concepts to each other and to other areas and personal interests
PRESCRIBED LEARNING OUTCOME	8.CC.4.3.	Use mathematical arguments to support personal choices

CURRICULUM ORGANIZER / COURSE	BC.MA.8.C.	Content
PRESCRIBED LEARNING OUTCOME / ORGANIZER		Students are expected to know the following:

EXPECTATION / SUB ORGANIZER	8.C.9.	Surface area and volume of regular solids, including triangular and other right prisms and cylinders

Science

Grade **5** - Adopted: **2016**

CURRICULUM ORGANIZER / COURSE	BC.SC.5.CC.	Curricular Competencies
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following**
EXPECTATION / SUB ORGANIZER	**5.CC.2.**	**Planning and conducting**
PRESCRIBED LEARNING OUTCOME	5.CC.2.4.	Observe, measure, and record data, using appropriate tools, including digital technologies

CURRICULUM ORGANIZER / COURSE	BC.SC.5.CC.	Curricular Competencies
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following**
EXPECTATION / SUB ORGANIZER	**5.CC.5.**	**Applying and innovating**
PRESCRIBED LEARNING OUTCOME	5.CC.5.2.	Co-operatively design projects
PRESCRIBED LEARNING OUTCOME	5.CC.5.3.	Transfer and apply learning to new situations
PRESCRIBED LEARNING OUTCOME	5.CC.5.4.	Generate and introduce new or refined ideas when problem solving

CURRICULUM ORGANIZER / COURSE	BC.SC.5.CC.	Curricular Competencies
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following**
EXPECTATION / SUB ORGANIZER	**5.CC.6.**	**Communicating**
PRESCRIBED LEARNING OUTCOME	5.CC.6.1.	Communicate ideas, explanations, and processes in a variety of ways

CURRICULUM ORGANIZER / COURSE	BC.SC.6.CC.	Curricular Competencies
PRESCRIBED LEARNING OUTCOME / ORGANIZER		Students are expected to be able to do the following
EXPECTATION / SUB ORGANIZER	6.CC.2.	Planning and conducting
PRESCRIBED LEARNING OUTCOME	6.CC.2.4.	Observe, measure, and record data, using appropriate tools, including digital technologies

CURRICULUM ORGANIZER / COURSE	BC.SC.6.CC.	Curricular Competencies
PRESCRIBED LEARNING OUTCOME / ORGANIZER		Students are expected to be able to do the following
EXPECTATION / SUB ORGANIZER	6.CC.5.	Applying and innovating
PRESCRIBED LEARNING OUTCOME	6.CC.5.2.	Co-operatively design projects
PRESCRIBED LEARNING OUTCOME	6.CC.5.3.	Transfer and apply learning to new situations
PRESCRIBED LEARNING OUTCOME	6.CC.5.4.	Generate and introduce new or refined ideas when problem solving

CURRICULUM ORGANIZER / COURSE	BC.SC.6.CC.	Curricular Competencies
PRESCRIBED LEARNING OUTCOME / ORGANIZER		Students are expected to be able to do the following
EXPECTATION / SUB ORGANIZER	6.CC.6.	Communicating
PRESCRIBED LEARNING OUTCOME	6.CC.6.1.	Communicate ideas, explanations, and processes in a variety of ways

CURRICULUM ORGANIZER / COURSE	BC.SC.7.CC.	Curricular Competencies

PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following**
EXPECTATION / SUB ORGANIZER	**7.CC.2.**	**Planning and conducting**
PRESCRIBED LEARNING OUTCOME	7.CC.2.3.	Observe, measure, and record data (qualitative and quantitative), using equipment, including digital technologies, with accuracy and precision

CURRICULUM ORGANIZER / COURSE	**BC.SC.7.CC.**	**Curricular Competencies**
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following**
EXPECTATION / SUB ORGANIZER	**7.CC.5.**	**Applying and innovating**
PRESCRIBED LEARNING OUTCOME	7.CC.5.2.	Co-operatively design projects
PRESCRIBED LEARNING OUTCOME	7.CC.5.3.	Transfer and apply learning to new situations
PRESCRIBED LEARNING OUTCOME	7.CC.5.4.	Generate and introduce new or refined ideas when problem solving

CURRICULUM ORGANIZER / COURSE	**BC.SC.7.CC.**	**Curricular Competencies**
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following**
EXPECTATION / SUB ORGANIZER	**7.CC.6.**	**Communicating**
PRESCRIBED LEARNING OUTCOME	7.CC.6.1.	Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate

British Columbia Curriculum

Science

Grade **8** - Adopted: **2016**

CURRICULUM ORGANIZER / COURSE	**BC.SC.8.CC.**	**Curricular Competencies**
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**

EXPECTATION / SUB ORGANIZER	**8.CC.2.**	**Planning and conducting**
PRESCRIBED LEARNING OUTCOME	8.CC.2.3.	Observe, measure, and record data (qualitative and quantitative), using equipment, including digital technologies, with accuracy and precision

CURRICULUM ORGANIZER / COURSE	**BC.SC.8.CC.**	**Curricular Competencies**
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**
EXPECTATION / SUB ORGANIZER	**8.CC.5.**	**Applying and innovating**
PRESCRIBED LEARNING OUTCOME	8.CC.5.2.	Co-operatively design projects
PRESCRIBED LEARNING OUTCOME	8.CC.5.3.	Transfer and apply learning to new situations
PRESCRIBED LEARNING OUTCOME	8.CC.5.4.	Generate and introduce new or refined ideas when problem solving

CURRICULUM ORGANIZER / COURSE	**BC.SC.8.CC.**	**Curricular Competencies**
PRESCRIBED LEARNING OUTCOME / ORGANIZER		**Students are expected to be able to do the following:**
EXPECTATION / SUB ORGANIZER	**8.CC.6.**	**Communicating**
PRESCRIBED LEARNING OUTCOME	8.CC.6.1.	Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate

Manitoba Curriculum Frameworks

Mathematics

Grade **5** - Adopted: **2013**

STRAND / COURSE / GENERAL OUTCOME	**MB.5.SS.**	**Shape and Space**
STRAND / SPECIFIC OUTCOME		**(Measurement) Use direct or indirect measurement to solve problems.**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	**5.SS.3.**	**Demonstrate an understanding of volume by: selecting and justifying referents for cm^3 or m^3 units; estimating volume by using referents for cm^3 or m^3; measuring and recording volume (cm^3 or m^3); constructing rectangular prisms for a given volume [C, CN, ME, PS, R, V]**

SPECIFIC OUTCOME / ACHIEVEMENT INDICATOR	5.SS.3.5.	Estimate the volume of a 3-D object using personal referents.
SPECIFIC OUTCOME / ACHIEVEMENT INDICATOR	5.SS.3.6.	Determine the volume of a 3-D object using manipulatives and explain the strategy.

STRAND / COURSE / GENERAL OUTCOME	**MB.5.SS.**	**Shape and Space**
STRAND / SPECIFIC OUTCOME		**(Measurement) Use direct or indirect measurement to solve problems.**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	**5.SS.4.**	**Demonstrate an understanding of capacity by: describing the relationship between mL and L; selecting and justifying referents for mL or L units; estimating capacity by using referents for mL or L; measuring and recording capacity (mL or L) [C, CN, ME, PS, R, V]**
SPECIFIC OUTCOME / ACHIEVEMENT INDICATOR	5.SS.4.5.	Estimate the capacity of a container using personal referents.

STRAND / COURSE / GENERAL OUTCOME	**MB.6.SS.**	**Shape and Space**
STRAND / SPECIFIC OUTCOME		**(Measurement) Use direct or indirect measurement to solve problems.**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	**6.SS.3.**	**Develop and apply a formula for determining the: perimeter of polygons; area of rectangles; volume of right rectangular prisms [C, CN, PS, R, V]**
SPECIFIC OUTCOME / ACHIEVEMENT INDICATOR	6.SS.3.5.	Explain, using models, how the volume of any right rectangular prism can be determined.
SPECIFIC OUTCOME / ACHIEVEMENT INDICATOR	6.SS.3.6.	Generalize a rule for determining the volume of right rectangular prisms.
SPECIFIC OUTCOME / ACHIEVEMENT INDICATOR	6.SS.3.7.	Solve a problem involving the perimeter of polygons, the area of rectangles, or the volume of right rectangular prisms.

Grade **8** - Adopted: **2013**

STRAND / COURSE / GENERAL OUTCOME	**MB.8.SS.**	**Shape and Space**
STRAND / SPECIFIC OUTCOME		**(Measurement) Use direct or indirect measurement to solve problems.**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	**8.SS.3.**	**Determine the surface area of: right rectangular prisms; right triangular prisms; right cylinders to solve problems. [C, CN, PS, R, V]**
SPECIFIC OUTCOME / ACHIEVEMENT INDICATOR	8.SS.3.1.	Explain, using examples, the relationship between the area of 2-D shapes and the surface area of a 3-D object.

STRAND / COURSE / GENERAL OUTCOME	**MB.8.SS.**	**Shape and Space**
STRAND / SPECIFIC OUTCOME		**(Measurement) Use direct or indirect measurement to solve problems.**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	**8.SS.4.**	**Develop and apply formulas for determining the volume of right prisms and right cylinders. [C, CN, PS, R, V]**
SPECIFIC OUTCOME / ACHIEVEMENT INDICATOR	8.SS.4.1.	Determine the volume of a right prism, given the area of the base.
SPECIFIC OUTCOME / ACHIEVEMENT INDICATOR	8.SS.4.2.	Generalize and apply a rule for determining the volume of right cylinders.
SPECIFIC OUTCOME / ACHIEVEMENT INDICATOR	8.SS.4.3.	Explain the relationship between the area of the base of a right 3-D object and the formula for the volume of the object.
SPECIFIC OUTCOME / ACHIEVEMENT INDICATOR	8.SS.4.5.	Apply a formula to solve a problem involving the volume of a right cylinder or a right prism.

Manitoba Curriculum Frameworks

Science

Grade **5** - Adopted: **2006**

STRAND / COURSE / GENERAL OUTCOME	**MB.GLO-A.**	**Foundation A: Nature of Science and Technology**

STRAND / SPECIFIC OUTCOME	GLO-A3.	Distinguish critically between science and technology in terms of their respective contexts, goals, methods, products, and values
STRAND / SPECIFIC OUTCOME	GLO-A5.	Recognize that science and technology interact with and advance one another
STRAND / COURSE / GENERAL OUTCOME	**MB.GLO-B.**	**Foundation B: Science, Technology, Society, and Environment (STSE)**
STRAND / SPECIFIC OUTCOME	GLO-B1.	Describe scientific and technological developments, past and present, and appreciate their impact on individuals, societies and the environment, both locally and globally.
STRAND / SPECIFIC OUTCOME	GLO-B2.	Recognize that scientific and technological endeavors have been and continue to be influenced by human needs and the societal context of the time
STRAND / COURSE / GENERAL OUTCOME	**MB.GLO-C.**	**Foundation C: Scientific and Technological Skills and Attitudes**
STRAND / SPECIFIC OUTCOME	GLO-C3.	Demonstrate appropriate problem-solving skills while seeking solutions to technological challenges
STRAND / SPECIFIC OUTCOME	GLO-C4.	Demonstrate appropriate critical thinking and decision-making skills when choosing a course of action based on scientific and technological information
STRAND / SPECIFIC OUTCOME	GLO-C5.	Demonstrate curiosity, scepticism, creativity, open-mindedness, accuracy, precision, honesty, and persistence, and appreciate their importance as scientific and technological habits of mind
STRAND / SPECIFIC OUTCOME	GLO-C6.	Employ effective communication skills and utilize information technology to gather and share scientific and technological ideas and data
STRAND / COURSE / GENERAL OUTCOME	**MB.5-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**5-0-1.**	**Initiating**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	5-0-1b.	Identify various methods for finding the answer to a specific question and, with guidance, select one to implement. (GLO: C2)

GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	5-0-1c.	Identify practical problems to solve. (GLO: C3)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	5-0-1d.	Identify various methods to solve a practical problem and select and justify one to implement. (GLO: C3)
STRAND / COURSE / GENERAL OUTCOME	**MB.5-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**5-0-3.**	**Planning**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	5-0-3d.	Develop criteria to evaluate a prototype or consumer product. (GLO: C3)
STRAND / COURSE / GENERAL OUTCOME	**MB.5-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**5-0-4.**	**Implementing a Plan**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	5-0-4b.	Construct a prototype. (GLO: C3)
STRAND / COURSE / GENERAL OUTCOME	**MB.5-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**5-0-5.**	**Observing, Measuring, Recording**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	5-0-5b.	Test a prototype or consumer product with respect to pre-determined criteria. (GLO: C3, C5)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	5-0-5c.	Select and use tools and instruments to observe, measure, and construct. (GLO: C2, C3, C5)

GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	5-0-5d.	Evaluate the appropriateness of units and measuring tools in practical contexts. (GLO: C2, C5)

STRAND / COURSE / GENERAL OUTCOME	**MB.5-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**5-0-6.**	**Analysing and Interpreting**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	5-0-6c.	Identify and make improvements to a prototype and explain the rationale for the (GLO: C3, C4)

STRAND / COURSE / GENERAL OUTCOME	**MB.5-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**5-0-7.**	**Concluding and Applying**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	5-0-7e.	Identify new practical problems to solve. (GLO: C3)

STRAND / COURSE / GENERAL OUTCOME	**MB.5-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**5-0-8.**	**Reflecting on Science and Technology**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	5-0-8c.	Recognize that technology is a way of solving problems in response to human needs. (GLO: A3, B2)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	5-0-8d.	Provide examples of technologies from the past and describe how they have evolved over time. (GLO: B1)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	5-0-8g.	Describe positive and negative effects of scientific and technological endeavours. (GLO: A1, B1, B3, B5)

STRAND / COURSE / GENERAL OUTCOME	**MB.5-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**5-0-9.**	**Demonstrating Scientific and Technological Attitudes**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	5-0-9d.	Appreciate the importance of creativity, accuracy, honesty, and perseverance as scientific and technological habits of mind. (GLO: C5)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	5-0-9f.	Frequently and thoughtfully evaluate the potential consequences of their actions. (GLO: B5, C4)

Manitoba Curriculum Frameworks

Science

Grade **6** - Adopted: **2006**

STRAND / COURSE / GENERAL OUTCOME	**MB.GLO-A.**	**Foundation A: Nature of Science and Technology**
STRAND / SPECIFIC OUTCOME	GLO-A3.	Distinguish critically between science and technology in terms of their respective contexts, goals, methods, products, and values
STRAND / SPECIFIC OUTCOME	GLO-A5.	Recognize that science and technology interact with and advance one another
STRAND / COURSE / GENERAL OUTCOME	**MB.GLO-B.**	**Foundation B: Science, Technology, Society, and Environment (STSE)**
STRAND / SPECIFIC OUTCOME	GLO-B1.	Describe scientific and technological developments, past and present, and appreciate their impact on individuals, societies and the environment, both locally and globally.
STRAND / SPECIFIC OUTCOME	GLO-B2.	Recognize that scientific and technological endeavors have been and continue to be influenced by human needs and the societal context of the time
STRAND / COURSE / GENERAL OUTCOME	**MB.GLO-C.**	**Foundation C: Scientific and Technological Skills and Attitudes**
STRAND / SPECIFIC OUTCOME	GLO-C3.	Demonstrate appropriate problem-solving skills while seeking solutions to technological challenges

STRAND / SPECIFIC OUTCOME	GLO-C4.	Demonstrate appropriate critical thinking and decision-making skills when choosing a course of action based on scientific and technological information
STRAND / SPECIFIC OUTCOME	GLO-C5.	Demonstrate curiosity, scepticism, creativity, open-mindedness, accuracy, precision, honesty, and persistence, and appreciate their importance as scientific and technological habits of mind
STRAND / SPECIFIC OUTCOME	GLO-C6.	Employ effective communication skills and utilize information technology to gather and share scientific and technological ideas and data
STRAND / COURSE / GENERAL OUTCOME	**MB.6-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**6-0-1.**	**Initiating**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	6-0-1b.	Identify various methods for finding the answer to a specific question and select one to implement. (GLO: C2)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	6-0-1c.	Identify practical problems to solve. (GLO: C3)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	6-0-1d.	Identify various methods to solve a practical problem and select and justify one to implement. (GLO: C3)
STRAND / COURSE / GENERAL OUTCOME	**MB.6-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**6-0-3.**	**Planning**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	6-0-3d.	Develop criteria to evaluate a prototype or consumer product. (GLO: C3)
STRAND / COURSE / GENERAL OUTCOME	**MB.6-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**6-0-4.**	**Implementing a Plan**

GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	6-0-4b.	Construct a prototype. (GLO: C3)

STRAND / COURSE / GENERAL OUTCOME	**MB.6-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**6-0-5.**	**Observing, Measuring, Recording**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	6-0-5b.	Test a prototype or consumer product with respect to pre-determined criteria. (GLO: C3, C5)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	6-0-5c.	Select and use tools and instruments to observe, measure, and construct. (GLO: C2, C3, C5)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	6-0-5d.	Evaluate the appropriateness of units and measuring tools in practical contexts. (GLO: C2, C5)

STRAND / COURSE / GENERAL OUTCOME	**MB.6-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**6-0-6.**	**Analysing and Interpreting**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	6-0-6c.	Identify and make improvements to a prototype and explain the rationale for the changes. (GLO: C3, C4)

STRAND / COURSE / GENERAL OUTCOME	**MB.6-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**6-0-7.**	**Concluding and Applying**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	6-0-7e.	Identify new practical problems to solve. (GLO: C3)

STRAND / COURSE / GENERAL OUTCOME	**MB.6-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**6-0-8.**	**Reflecting on Science and Technology**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	6-0-8c.	Recognize that technology is a way of solving problems in response to human needs. (GLO: A3, B2)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	6-0-8d.	Provide examples of technologies from the past and describe how they have evolved over time. (GLO: B1)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	6-0-8g.	Describe positive and negative effects of scientific and technological endeavours. (GLO: A1, B1, B3, B5)

STRAND / COURSE / GENERAL OUTCOME	**MB.6-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**6-0-9.**	**Demonstrating Scientific and Technological Attitudes**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	6-0-9d.	Appreciate the importance of creativity, accuracy, honesty, and perseverance as scientific and technological habits of mind. (GLO: C5)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	6-0-9f.	Frequently and thoughtfully evaluate the potential consequences of their actions. (GLO: B5, C4)

Manitoba Curriculum Frameworks

Science

Grade **7** - Adopted: **2006**

STRAND / COURSE / GENERAL OUTCOME	**MB.GLO-A.**	**Foundation A: Nature of Science and Technology**
STRAND / SPECIFIC OUTCOME	GLO-A3.	Distinguish critically between science and technology in terms of their respective contexts, goals, methods, products, and values

STRAND / SPECIFIC OUTCOME	GLO-A5.	Recognize that science and technology interact with and advance one another
STRAND / COURSE / GENERAL OUTCOME	**MB.GLO-B.**	**Foundation B: Science, Technology, Society, and Environment (STSE)**
STRAND / SPECIFIC OUTCOME	GLO-B1.	Describe scientific and technological developments, past and present, and appreciate their impact on individuals, societies and the environment, both locally and globally.
STRAND / SPECIFIC OUTCOME	GLO-B2.	Recognize that scientific and technological endeavors have been and continue to be influenced by human needs and the societal context of the time
STRAND / COURSE / GENERAL OUTCOME	**MB.GLO-C.**	**Foundation C: Scientific and Technological Skills and Attitudes**
STRAND / SPECIFIC OUTCOME	GLO-C3.	Demonstrate appropriate problem-solving skills while seeking solutions to technological challenges
STRAND / SPECIFIC OUTCOME	GLO-C4.	Demonstrate appropriate critical thinking and decision-making skills when choosing a course of action based on scientific and technological information
STRAND / SPECIFIC OUTCOME	GLO-C5.	Demonstrate curiosity, scepticism, creativity, open-mindedness, accuracy, precision, honesty, and persistence, and appreciate their importance as scientific and technological habits of mind
STRAND / SPECIFIC OUTCOME	GLO-C6.	Employ effective communication skills and utilize information technology to gather and share scientific and technological ideas and data
STRAND / COURSE / GENERAL OUTCOME	**MB.7-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**7-0-1.**	**Initiating**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	7-0-1b.	Select and justify a method to be used in finding the answer to a specific question. (GLO: C2)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	7-0-1c.	Identify practical problems to solve. (GLO: C3)

GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	7-0-1d.	Select and justify a method to be used in finding a solution to a practical problem. (GLO: C3)

STRAND / COURSE / GENERAL OUTCOME	**MB.7-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**7-0-3.**	**Planning**

GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	7-0-3d.	Develop criteria to evaluate a prototype or consumer product. (GLO: C3)

STRAND / COURSE / GENERAL OUTCOME	**MB.7-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**7-0-4.**	**Implementing a Plan**

GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	7-0-4b.	Construct a prototype. (GLO: C3)

STRAND / COURSE / GENERAL OUTCOME	**MB.7-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**7-0-5.**	**Observing, Measuring, Recording**

GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	7-0-5b.	Test a prototype or consumer product with respect to pre-determined criteria. (GLO: C3, C5)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	7-0-5c.	Select and use tools to observe, measure, and construct. (GLO: C2, C3, C5)

STRAND / COURSE / GENERAL OUTCOME	**MB.7-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**7-0-6.**	**Analysing and Interpreting**

GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	7-0-6d.	Identify and make improvements to a prototype and explain the rationale for the changes. (GLO: C3, C4)

STRAND / COURSE / GENERAL OUTCOME	**MB.7-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**7-0-7.**	**Concluding and Applying**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	7-0-7e.	Identify new practical problems to solve. (GLO: C3)

STRAND / COURSE / GENERAL OUTCOME	**MB.7-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**7-0-8.**	**Reflecting on Science and Technology**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	7-0-8b.	Describe examples of how scientific knowledge has evolved in light of new evidence, and the role of technology in this evolution. (GLO: A2, A5, B1)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	7-0-8d.	Describe examples of how technologies have evolved over time in response to changing needs and scientific advances. (GLO: A5, B1, B2)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	7-0-8g.	Discuss societal, environmental, and economic impacts of scientific and technological endeavours. (GLO: A1, B1, B3, B5)

STRAND / COURSE / GENERAL OUTCOME	**MB.7-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**7-0-9.**	**Demonstrating Scientific and Technological Attitudes**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	7-0-9d.	Value skepticism, accuracy, precision, and open-mindedness as scientific and technological habits of mind. (GLO: C5)

GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	7-0-9f.	Consider the cause and effects relationships of actions and decisions. (GLO: B5, C4, E3)
STRAND / COURSE / GENERAL OUTCOME	**MB.7-1.**	**Interactions Within Ecosystems - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	7-1-10.	Analyze, using ecological pyramids, the implications of the loss of producers and consumers to the transfer of energy within an ecosystem. (GLO: C2, C8, D2, E4)
STRAND / SPECIFIC OUTCOME	7-1-14.	Identify beneficial and harmful roles played by micro-organisms. (GLO: B3, C2, D2)

Manitoba Curriculum Frameworks

Science

Grade **8** - Adopted: **2006**

STRAND / COURSE / GENERAL OUTCOME	**MB.GLO-A.**	**Foundation A: Nature of Science and Technology**
STRAND / SPECIFIC OUTCOME	GLO-A3.	Distinguish critically between science and technology in terms of their respective contexts, goals, methods, products, and values
STRAND / SPECIFIC OUTCOME	GLO-A5.	Recognize that science and technology interact with and advance one another
STRAND / COURSE / GENERAL OUTCOME	**MB.GLO-B.**	**Foundation B: Science, Technology, Society, and Environment (STSE)**
STRAND / SPECIFIC OUTCOME	GLO-B1.	Describe scientific and technological developments, past and present, and appreciate their impact on individuals, societies and the environment, both locally and globally.
STRAND / SPECIFIC OUTCOME	GLO-B2.	Recognize that scientific and technological endeavors have been and continue to be influenced by human needs and the societal context of the time
STRAND / COURSE / GENERAL OUTCOME	**MB.GLO-C.**	**Foundation C: Scientific and Technological Skills and Attitudes**
STRAND / SPECIFIC OUTCOME	GLO-C3.	Demonstrate appropriate problem-solving skills while seeking solutions to technological challenges

STRAND / SPECIFIC OUTCOME	GLO-C4.	Demonstrate appropriate critical thinking and decision-making skills when choosing a course of action based on scientific and technological information
STRAND / SPECIFIC OUTCOME	GLO-C5.	Demonstrate curiosity, scepticism, creativity, open-mindedness, accuracy, precision, honesty, and persistence, and appreciate their importance as scientific and technological habits of mind
STRAND / SPECIFIC OUTCOME	GLO-C6.	Employ effective communication skills and utilize information technology to gather and share scientific and technological ideas and data
STRAND / COURSE / GENERAL OUTCOME	**MB.8-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**8-0-1.**	**Initiating**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	8-0-1b.	Select and justify a method to be used in finding the answer to a specific question. (GLO: C2)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	8-0-1c.	Identify practical problems to solve. (GLO: C3)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	8-0-1d.	Select and justify a method to be used in finding a solution to a practical problem. (GLO: C3)
STRAND / COURSE / GENERAL OUTCOME	**MB.8-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**8-0-3.**	**Planning**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	8-0-3d.	Develop criteria to evaluate a prototype or consumer product. (GLO: C3)
STRAND / COURSE / GENERAL OUTCOME	**MB.8-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**8-0-4.**	**Implementing a Plan**

GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	8-0-4b.	Construct a prototype. (GLO: C3)

STRAND / COURSE / GENERAL OUTCOME	**MB.8-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**8-0-5.**	**Observing, Measuring, Recording**

GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	8-0-5b.	Test a prototype or consumer product with respect to pre-determined criteria. (GLO: C3, C5)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	8-0-5c.	Select and use tools to observe, measure, and construct. (GLO: C2, C3, C5)

STRAND / COURSE / GENERAL OUTCOME	**MB.8-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**8-0-6.**	**Analysing and Interpreting**

GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	8-0-6d.	Identify and make improvements to a prototype and explain the rationale for the changes. (GLO: C3, C4)

STRAND / COURSE / GENERAL OUTCOME	**MB.8-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**8-0-7.**	**Concluding and Applying**

GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	8-0-7e.	Identify new practical problems to solve. (GLO: C3)

STRAND / COURSE / GENERAL OUTCOME	**MB.8-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**8-0-8.**	**Reflecting on Science and Technology**

GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	8-0-8b.	Describe examples of how scientific knowledge has evolved in light of new evidence, and the role of technology in this evolution. (GLO: A2, A5, B1)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	8-0-8d.	Describe examples of how technologies have evolved over time in response to changing needs and scientific advances. (GLO: A5, B1, B2)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	8-0-8g.	Discuss societal, environmental, and economic impacts of scientific and technological endeavours. (GLO: A1, B1, B3, B5)
STRAND / COURSE / GENERAL OUTCOME	**MB.8-0.**	**Overall Skills and Attitudes - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	**8-0-9.**	**Demonstrating Scientific and Technological Attitudes**
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	8-0-9d.	Value skepticism, accuracy, precision, and open-mindedness as scientific and technological habits of mind. (GLO: C5)
GENERAL OUTCOME / SPECIFIC OUTCOME / SKILL	8-0-9f.	Consider the cause and effects relationships of actions and decisions. (GLO: B5, C4, E3)
STRAND / COURSE / GENERAL OUTCOME	**MB.8-4.**	**Water Systems on Earth - Specific Learning Outcomes**
STRAND / SPECIFIC OUTCOME	8-4-15.	Explain how and why water may need to be treated for use by humans. (GLO: B1, B3, D5)
STRAND / SPECIFIC OUTCOME	8-4-16.	Compare the waste-water disposal system within their communities to one used elsewhere. (GLO: B2, B5)
STRAND / SPECIFIC OUTCOME	8-4-17.	Identify substances that may pollute water, related environmental and societal impacts of pollution, and ways to reduce or eliminate effects of pollution. (GLO: B2, B3, B5, D5)
STRAND / SPECIFIC OUTCOME	8-4-18.	Identify environmental, social, and economic factors that should be considered in the management of water resources. (GLO: B5, D5)

STRAND / SPECIFIC OUTCOME	8-4-19.	Use the design process to develop a system to solve a water-related problem. (GLO: B2, B3, C3, D5)

New Brunswick Curriculum

Mathematics

Grade **5** - Adopted: **2009**

DOCUMENT/GENERAL LEARNING OUTCOME		Grade 5
CATEGORY		**MATHEMATICAL PROCESSES**
SECTION/SPECIFIC LEARNING OUTCOME	C.	communicate in order to learn and express their understanding of mathematics (Communications: C)
SECTION/SPECIFIC LEARNING OUTCOME	PS.	develop and apply new mathematical knowledge through problem solving (Problem Solving: PS)
SECTION/SPECIFIC LEARNING OUTCOME	R.	develop mathematical reasoning (Reasoning: R)
SECTION/SPECIFIC LEARNING OUTCOME	T.	select and use technologies as tools for learning and solving problems (Technology: T)
SECTION/SPECIFIC LEARNING OUTCOME	V.	develop visualization skills to assist in processing information, making connections and solving problems (Visualization: V).

DOCUMENT/GENERAL LEARNING OUTCOME		Grade 5
CATEGORY	**SS.**	**Shape & Space (SS): Use direct and indirect measurement to solve problems**
SECTION/SPECIFIC LEARNING OUTCOME	SS3.	Demonstrate an understanding of volume by: selecting and justifying referents for cm^3 or m^3 units; estimating volume by using referents for cm^3 or m^3; measuring and recording volume (cm^3 or m^3); constructing rectangular prisms for a given volume. [C, CN, ME, PS, R, V]

New Brunswick Curriculum

Mathematics

Grade **6** - Adopted: **2010**

DOCUMENT/GENERAL LEARNING OUTCOME		Grade 6
CATEGORY		**MATHEMATICAL PROCESSES**
SECTION/SPECIFIC LEARNING OUTCOME	C.	communicate in order to learn and express their understanding of mathematics (Communications: C)

SECTION/SPECIFIC LEARNING OUTCOME	PS.	develop and apply new mathematical knowledge through problem solving (Problem Solving: PS)
SECTION/SPECIFIC LEARNING OUTCOME	R.	develop mathematical reasoning (Reasoning: R)
SECTION/SPECIFIC LEARNING OUTCOME	T.	select and use technologies as tools for learning and solving problems (Technology: T)
SECTION/SPECIFIC LEARNING OUTCOME	V.	develop visualization skills to assist in processing information, making connections and solving problems (Visualization: V).
DOCUMENT/GENERAL LEARNING OUTCOME		**Grade 6**
CATEGORY	**SS.**	**Shape & Space (SS): Use direct and indirect measurement to solve problems**
SECTION/SPECIFIC LEARNING OUTCOME	SS3.	Develop and apply a formula for determining the: perimeter of polygons; area of rectangles; volume of right rectangular prisms. [C, CN, PS, R, V]

New Brunswick Curriculum

Mathematics

Grade **7** - Adopted: **2008**

DOCUMENT/GENERAL LEARNING OUTCOME		**Grade 7**
CATEGORY		**MATHEMATICAL PROCESSES**
SECTION/SPECIFIC LEARNING OUTCOME	C.	communicate in order to learn and express their understanding of mathematics (Communications: C)
SECTION/SPECIFIC LEARNING OUTCOME	PS.	develop and apply new mathematical knowledge through problem solving (Problem Solving: PS)
SECTION/SPECIFIC LEARNING OUTCOME	R.	develop mathematical reasoning (Reasoning: R)
SECTION/SPECIFIC LEARNING OUTCOME	T.	select and use technologies as tools for learning and solving problems (Technology: T)
SECTION/SPECIFIC LEARNING OUTCOME	V.	develop visualization skills to assist in processing information, making connections and solving problems (Visualization: V).

Mathematics

Grade **8** - Adopted: **2009**

DOCUMENT/GENERAL LEARNING OUTCOME		Grade 8
CATEGORY		**MATHEMATICAL PROCESSES**
SECTION/SPECIFIC LEARNING OUTCOME	C.	communicate in order to learn and express their understanding of mathematics (Communications: C)
SECTION/SPECIFIC LEARNING OUTCOME	PS.	develop and apply new mathematical knowledge through problem solving (Problem Solving: PS)
SECTION/SPECIFIC LEARNING OUTCOME	R.	develop mathematical reasoning (Reasoning: R)
SECTION/SPECIFIC LEARNING OUTCOME	T.	select and use technologies as tools for learning and solving problems (Technology: T)
SECTION/SPECIFIC LEARNING OUTCOME	V.	develop visualization skills to assist in processing information, making connections and solving problems (Visualization: V).

DOCUMENT/GENERAL LEARNING OUTCOME		Grade 8
CATEGORY	**SS.**	**Shape & Space (SS): Use direct and indirect measurement to solve problems**
SECTION/SPECIFIC LEARNING OUTCOME	SS4.	Develop and apply formulas for determining the volume of right prisms and right cylinders. [C, CN, PS, R, V, ME]

New Brunswick Curriculum

Science

Grade **5** - Adopted: **2002**

DOCUMENT/GENERAL LEARNING OUTCOME		Atlantic Canada Science Curriculum (Specific curriculum outcomes)
CATEGORY		**Science 5 Curriculum**
SECTION/SPECIFIC LEARNING OUTCOME		**Unit 4 – Earth and Space Science: Weather**
UNIT/SPECIFIC LEARNING OUTCOME		**Environmental Issues**
SPECIFIC LEARNING OUTCOME		identify positive and negative effects of technologies that affect weather and the environment (108-1)

New Brunswick Curriculum

Science

Grade **8** - Adopted: **2002**

DOCUMENT/GENERAL LEARNING OUTCOME		**Atlantic Canada Science Curriculum (Specific curriculum outcomes)**
CATEGORY		**Science 8 Curriculum**
SECTION/SPECIFIC LEARNING OUTCOME		**EARTH AND SPACE SCIENCE – Unit 1: Water Systems on Earth**
UNIT/SPECIFIC LEARNING OUTCOME		**Oceans and Species Distribution**
SPECIFIC LEARNING OUTCOME		analyse factors that affect productivity and species distribution in marine and fresh water environments: temperature, pollution, overfishing, upwelling (311-8)

Newfoundland and Labrador Curriculum Guides

Mathematics

Grade **5** - Adopted: **2015**

COURSE / STRAND	**NL.5SS.**	**Shape and Space**
STRAND / GCO		**Measurement: Use direct and indirect measurement to solve problems.**
GCO / SCO	**5SS3.**	**Demonstrate an understanding of volume by: selecting and justifying referents for cm^3 or m^3 units; estimating volume, using referents for cm^3 or m^3; measuring and recording volume (cm^3 or m^3); constructing right rectangular prisms for a given volume. [C, CN, ME, PS, R, V]**
OUTCOME / INDICATOR	5SS3.2.	Determine the volume of a given 3-D object, using manipulatives, and explain the strategy.
OUTCOME / INDICATOR	5SS3.8.	Estimate the volume of a given 3-D object, using personal referents.

COURSE / STRAND	**NL.5SS.**	**Shape and Space**
STRAND / GCO		**Measurement: Use direct and indirect measurement to solve problems.**
GCO / SCO	**5SS4.**	**Demonstrate an understanding of capacity by: describing the relationship between mL and L; selecting and justifying referents for mL or L units; estimating capacity, using referents for mL or L; measuring and recording capacity (mL or L). [C, CN, ME, PS, R, V]**
OUTCOME / INDICATOR	5SS4.7.	Estimate the capacity of a given container, using personal referents.

Newfoundland and Labrador Curriculum Guides

Mathematics

Grade **6** - Adopted: **2015**

COURSE / STRAND	**NL.6SS.**	**Shape and Space**
STRAND / GCO		**Measurement: Use direct and indirect measurement to solve problems.**
GCO / SCO	**6SS3.**	**Develop and apply a formula for determining the: perimeter of polygons; area of rectangles; volume of right rectangular prisms. [C, CN, PS, R, V]**

OUTCOME / INDICATOR	6SS3.3.	Solve a given problem involving the perimeter of polygons, the area of rectangles and/or the volume of right rectangular prisms.
OUTCOME / INDICATOR	6SS3.6.	Explain, using models, how the volume of any right rectangular prism can be determined.
OUTCOME / INDICATOR	6SS3.7.	Generalize a rule (formula) for determining the volume of right rectangular prisms.

Newfoundland and Labrador Curriculum Guides

Mathematics

Grade **8** - Adopted: **2015**

COURSE / STRAND	NL.8SS.	Shape and Space
STRAND / GCO		**Measurement: Use direct and indirect measurement to solve problems.**
GCO / SCO	**8SS3.**	**Determine the surface area of: right rectangular prisms; right triangular prisms; right cylinders to solve problems.**
OUTCOME / INDICATOR	8SS3.2.	Explain, using examples, the relationship between the area of a 2-D shape and the surface area of a given 3-D object.

COURSE / STRAND	NL.8SS.	Shape and Space
STRAND / GCO		**Measurement: Use direct and indirect measurement to solve problems.**
GCO / SCO	**8SS4.**	**Develop and apply formulas for determining the volume of right prisms and right cylinders.**
OUTCOME / INDICATOR	8SS4.1.	Determine the volume of a given right prism, given the area of the base.
OUTCOME / INDICATOR	8SS4.3.	Generalize and apply a rule for determining the volume of right cylinders.
OUTCOME / INDICATOR	8SS4.5.	Apply a formula to solve a given problem involving the volume of a right cylinder or a right prism.

Newfoundland and Labrador Curriculum Guides

Science

Grade **5** - Adopted: **2017**

COURSE / STRAND	NL.5.GCO.	General Curriculum Outcomes
STRAND / GCO	**5.GCO.1.**	**Science, Technology, Society, and the Environment – Students will develop an understanding of the nature of science and technology, of the relationships between science and technology, and of the social and environmental contexts of science and technology.**
GCO / SCO	5.GCO.1.1.	Demonstrate that science and technology use specific processes to investigate the natural and constructed world or to seek solutions to practical problems
GCO / SCO	5.GCO.1.3.	Describe ways that science and technology work together in investigating questions and problems and in meeting specific needs
GCO / SCO	5.GCO.1.4.	Describe applications of science and technology that have developed in response to human and environmental needs

GCO / SCO	5.GCO.1.5.	Describe positive and negative effects that result from applications of science and technology in their own lives, the lives of others, and the environment

COURSE / STRAND	NL.5.GCO.	General Curriculum Outcomes
STRAND / GCO	**5.GCO.4.**	**Attitudes – Students will be encouraged to develop attitudes that support the responsible acquisition and application of scientific and technological knowledge to the mutual benefit of self, society, and the environment.**
GCO / SCO	5.GCO.4.1.	Appreciate the role and contribution of science and technology in their understanding of the world
GCO / SCO	5.GCO.4.2.	Realize that the applications of science and technology can have both intended and unintended effects
GCO / SCO	5.GCO.4.4.	Show interest and curiosity about objects and events within different environments

COURSE / STRAND	NL.5.SCO.	Specific Curriculum Outcomes
STRAND / GCO	**5.SCO.i.**	**Unit i: Integrated Skills**
GCO / SCO		**Initiating and Planning**
OUTCOME / INDICATOR	5.SCO.i.7.0.	Identify appropriate tools, instruments, and materials to complete investigations [GCO 2]

COURSE / STRAND	NL.5.SCO.	Specific Curriculum Outcomes
STRAND / GCO	**5.SCO.i.**	**Unit i: Integrated Skills**
GCO / SCO		**Performing and Recording**
OUTCOME / INDICATOR	5.SCO.i.9.0.	Select and use tools [GCO 2]
OUTCOME / INDICATOR	5.SCO.i.10.0.	Follow procedures [GCO 2]
OUTCOME / INDICATOR	5.SCO.i.11.0.	Select and use tools for measuring [GCO 2]
OUTCOME / INDICATOR	5.SCO.i.15.0.	Identify and use a variety of sources and technologies to gather relevant information [GCO 2]
OUTCOME / INDICATOR	5.SCO.i.16.0.	Construct and use devices for a specific purpose [GCO 2]

COURSE / STRAND	NL.5.SCO.	Specific Curriculum Outcomes
STRAND / GCO	**5.SCO.i.**	**Unit i: Integrated Skills**
GCO / SCO		**Analyzing and Interpreting**

OUTCOME / INDICATOR	5.SCO.i.2 2.0.	Suggest improvements to a design or constructed object [GCO 2]

Newfoundland and Labrador Curriculum Guides

Science

Grade **6** - Adopted: **2018**

COURSE / STRAND	NL.6.GCO.	General Curriculum Outcomes
STRAND / GCO	**6.GCO.1.**	**Science, Technology, Society, and the Environment – Students will develop an understanding of the nature of science and technology, of the relationships between science and technology, and of the social and environmental contexts of science and technology.**
GCO / SCO	6.GCO.1.1.	Demonstrate that science and technology use specific processes to investigate the natural and constructed world or to seek solutions to practical problems
GCO / SCO	6.GCO.1.3.	Describe ways that science and technology work together in investigating questions and problems and in meeting specific needs
GCO / SCO	6.GCO.1.4.	Describe applications of science and technology that have developed in response to human and environmental needs
GCO / SCO	6.GCO.1.5.	Describe positive and negative effects that result from applications of science and technology in their own lives, the lives of others, and the environment

COURSE / STRAND	NL.6.GCO.	General Curriculum Outcomes
STRAND / GCO	**6.GCO.3.**	**Knowledge – Students will construct knowledge and understandings of concepts in life science, physical science, and Earth and space science, and apply these understandings to interpret, integrate, and extend their knowledge.**
GCO / SCO	6.GCO.3.2.	Describe and predict causes, effects, and patterns related to change in living and non-living things

COURSE / STRAND	NL.6.GCO.	General Curriculum Outcomes
STRAND / GCO	**6.GCO.4.**	**Attitudes – Students will be encouraged to develop attitudes that support the responsible acquisition and application of scientific and technological knowledge to the mutual benefit of self, society, and the environment.**
GCO / SCO	6.GCO.4.1.	Appreciate the role and contribution of science and technology in their understanding of the world
GCO / SCO	6.GCO.4.2.	Realize that the applications of science and technology can have both intended and unintended effects
GCO / SCO	6.GCO.4.8.	Appreciate the importance of accuracy and honesty

COURSE / STRAND	NL.6.SCO.	Specific Curriculum Outcomes
STRAND / GCO	**6.SCO.i.**	**Unit i: Integrated Skills**
GCO / SCO		**Initiating and Planning**

OUTCOME / INDICATOR	6.SCO.i.8.0.	Identify appropriate tools, instruments, and materials to complete investigations [GCO 2]

COURSE / STRAND	NL.6.SCO.	Specific Curriculum Outcomes
STRAND / GCO	6.SCO.i.	Unit i: Integrated Skills
GCO / SCO		Performing and Recording
OUTCOME / INDICATOR	6.SCO.i.9.0.	Carry out procedures to explore a given problem and to ensure a fair test, controlling major variables [GCO 2]
OUTCOME / INDICATOR	6.SCO.i.10.0.	Select and use tools [GCO 2]
OUTCOME / INDICATOR	6.SCO.i.11.0.	Follow procedures [GCO 2]
OUTCOME / INDICATOR	6.SCO.i.14.0.	Identify and use a variety of sources and technologies to gather relevant information [GCO 2]
OUTCOME / INDICATOR	6.SCO.i.16.0.	Construct and use devices for a specific purpose [GCO 2]

COURSE / STRAND	NL.6.SCO.	Specific Curriculum Outcomes
STRAND / GCO	6.SCO.i.	Unit i: Integrated Skills
GCO / SCO		Analyzing and Interpreting
OUTCOME / INDICATOR	6.SCO.i.22.0.	Suggest improvements to a design or constructed object [GCO 2]

Newfoundland and Labrador Curriculum Guides

Science

Grade **7** - Adopted: **2013**

COURSE / STRAND	NL.7.1.	Interactions Within Ecosystems
STRAND / GCO	7.1.2.	Components of an Ecosystem: Students will be expected to:
GCO / SCO	7.1.2.1.	Demonstrate the importance of choosing words that are scientifically appropriate. (109-12, 109-13)

COURSE / STRAND	NL.7.1.	Interactions Within Ecosystems
STRAND / GCO	7.1.4.	Energy Flow in an Ecosystem:
GCO / SCO	7.1.4.12.	Illustrate and explain the nutrient cycle.

Northern Territory Curriculum

Mathematics

Grade **7** - Adopted: **2015**

STRAND / DOMAIN	**ACMMG.7.**	**Measurement and Geometry**
OUTCOME / INDICATOR	**ACMMG.7.1.**	**Using units of measurement**
INDICATOR	**ACMMG.7.1.2.**	**Calculate volumes of rectangular prisms (ACMMG160)**
INDICATOR	ACMMG.7.1.2.1.	Investigating volumes of cubes and rectangular prisms and establishing and using the formula V = l × b × h
INDICATOR	ACMMG.7.1.2.2.	Understanding and using cubic units when interpreting and finding volumes of cubes and rectangular prisms

Northern Territory Curriculum

Science

Grade **5** - Adopted: **2016**

STRAND / DOMAIN	**ACSIS.5.**	**Science Inquiry Skills**
OUTCOME / INDICATOR	**ACSIS.5.2.**	**Planning and conducting**
INDICATOR	**ACSIS.5.2.1.**	**Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks (ACSIS086)**
INDICATOR	ACSIS.5.2.1.4.	Considering different ways to approach problem solving, including researching, using trial and error, experimental testing and creating models

STRAND / DOMAIN	**ACSIS.5.**	**Science Inquiry Skills**
OUTCOME / INDICATOR	**ACSIS.5.2.**	**Planning and conducting**
INDICATOR	**ACSIS.5.2.2.**	**Decide variables to be changed and measured in fair tests, and observe measure and record data with accuracy using digital technologies as appropriate (ACSIS087)**
INDICATOR	ACSIS.5.2.2.2.	Using tools to accurately measure objects and events in investigation and exploring which tools provide the most accurate measurements

STRAND / DOMAIN	**ACSIS.5.**	**Science Inquiry Skills**
OUTCOME / INDICATOR	**ACSIS.5.5.**	**Communicating**
INDICATOR	**ACSIS.5.5.1.**	**Construct and use a range of representations, including tables and graphs, to represent and describe observations, patterns or relationships in data using digital technologies as appropriate (ACSIS090)**
INDICATOR	ACSIS.5.5.1.2.	Constructing multi-modal texts to communicate science ideas

Northern Territory Curriculum

Science

Grade **6** - Adopted: **2016**

STRAND / DOMAIN	**ACSIS.6.**	**Science Inquiry Skills**
OUTCOME / INDICATOR	**ACSIS.6.5.**	**Communicating**

INDICATOR	**ACSIS.6.5.1.**	**Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi- modal texts (ACSIS110)**
INDICATOR	ACSIS.6.5.1.1.	Discussing the best way to communicate science ideas and what should be considered when planning a text
INDICATOR	ACSIS.6.5.1.2.	Using a variety of communication modes, such as reports, explanations, arguments, debates and procedural accounts, to communicate science ideas

Northern Territory Curriculum

Science

Grade **7** - Adopted: **2016**

STRAND / DOMAIN	**ACSSU.7.**	**Science Understanding**
OUTCOME / INDICATOR	**ACSSU.7.3.**	**Earth and space sciences**
INDICATOR	**ACSSU.7.3.2.**	**Some of Earth's resources are renewable, including water that cycles through the environment, but others are non- renewable (ACSSU116)**
INDICATOR	ACSSU.7.3.2.6.	Exploring how human management of water impacts on the water cycle

STRAND / DOMAIN	**ACSHE.7.**	**Science as a Human Endeavour**
OUTCOME / INDICATOR	**ACSHE.7.1.**	**Nature and development of science**
INDICATOR	**ACSHE.7.1.2.**	**Science knowledge can develop through collaboration across the disciplines of science and the contributions of people from a range of cultures (ACSHE223)**
INDICATOR	ACSHE.7.1.2.1.	Considering how water use and management relies on knowledge from different areas of science, and involves the application of technology

STRAND / DOMAIN	**ACSHE.7.**	**Science as a Human Endeavour**
OUTCOME / INDICATOR	**ACSHE.7.2.**	**Use and influence of science**
INDICATOR	**ACSHE.7.2.1.**	**Solutions to contemporary issues that are found using science and technology, may impact on other areas of society and may involve ethical considerations (ACSHE120)**
INDICATOR	ACSHE.7.2.1.2.	Considering issues relating to the use and management of water within a community

STRAND / DOMAIN	**ACSHE.7.**	**Science as a Human Endeavour**
OUTCOME / INDICATOR	**ACSHE.7.2.**	**Use and influence of science**
INDICATOR	**ACSHE.7.2.2.**	**People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity (ACSHE121)**
INDICATOR	ACSHE.7.2.2.2.	Investigating how advances in science and technology have been applied to the treatment of water in industrial and household systems
INDICATOR	ACSHE.7.2.2.5.	Recognising that water management plays a role in areas such as farming, land management and gardening

STRAND / DOMAIN	**ACSIS.7.**	**Science Inquiry Skills**
OUTCOME / INDICATOR	**ACSIS.7.1.**	**Questioning and predicting**
INDICATOR	**ACSIS.7.1.1.**	**Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge (ACSIS124)**
INDICATOR	ACSIS.7.1.1.2.	Recognising that the solution of some questions and problems requires consideration of social, cultural, economic or moral aspects rather than or as well as scientific investigation

STRAND / DOMAIN	**ACSIS.7.**	**Science Inquiry Skills**
OUTCOME / INDICATOR	**ACSIS.7.2.**	**Planning and conducting**
INDICATOR	**ACSIS.7.2.2.**	**Measure and control variables, select equipment appropriate to the task and collect data with accuracy (ACSIS126)**
INDICATOR	ACSIS.7.2.2.3.	Using specialised equipment to increase the accuracy of measurement within an investigation

STRAND / DOMAIN	**ACSIS.7.**	**Science Inquiry Skills**
OUTCOME / INDICATOR	**ACSIS.7.5.**	**Communicating**
INDICATOR	**ACSIS.7.5.1.**	**Communicate ideas, findings and evidence based solutions to problems using scientific language, and representations, using digital technologies as appropriate (ACSIS133)**
INDICATOR	ACSIS.7.5.1.1.	Presenting the outcomes of research using effective forms of representation of data or ideas and scientific language that is appropriate for the target audience

Northern Territory Curriculum

Science

Grade **8** - Adopted: **2016**

STRAND / DOMAIN	**ACSIS.8.**	**Science Inquiry Skills**
OUTCOME / INDICATOR	**ACSIS.8.1.**	**Questioning and predicting**
INDICATOR	**ACSIS.8.1.1.**	**Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge (ACSIS139)**
INDICATOR	ACSIS.8.1.1.2.	Recognising that the solution of some questions and problems requires consideration of social, cultural, economic or moral aspects rather than or as well as scientific investigation

STRAND / DOMAIN	**ACSIS.8.**	**Science Inquiry Skills**
OUTCOME / INDICATOR	**ACSIS.8.2.**	**Planning and conducting**
INDICATOR	**ACSIS.8.2.2.**	**Measure and control variables, select equipment appropriate to the task and collect data with accuracy (ACSIS141)**
INDICATOR	ACSIS.8.2.2.1.	Using specialised equipment to increase the accuracy of measurement within an investigation

STRAND / DOMAIN	**ACSIS.8.**	**Science Inquiry Skills**
OUTCOME / INDICATOR	**ACSIS.8.5.**	**Communicating**
INDICATOR	**ACSIS.8.5.1.**	**Communicate ideas, findings and evidence based solutions to problems using scientific language, and representations, using digital technologies as appropriate (ACSIS148)**
INDICATOR	ACSIS.8.5.1.1.	Using digital technologies to construct a range of text types to present science ideas
INDICATOR	ACSIS.8.5.1.2.	Selecting and using appropriate language and representations to communicate science ideas within a specified text type and for a specified audience

Northern Territory Curriculum

Technology Education

Grade **5** - Adopted: **2016 (ACARA)**

STRAND / DOMAIN		**Design and Technologies**
OUTCOME / INDICATOR	**ACTDEP.5-6.**	**Design and Technologies Processes and Production Skills**
INDICATOR	**ACTDEP.5-6.2.**	**Generate, develop and communicate design ideas and processes for audiences using appropriate technical terms and graphical representation techniques (ACTDEP025)**
INDICATOR	ACTDEP.5-6.2.1.	Generating a range of design ideas for products, services or environments using prior knowledge, skills and research
INDICATOR	ACTDEP.5-6.2.2.	Developing alternative design ideas and considering implications for the future to broaden the appeal and acceptance of design ideas
INDICATOR	ACTDEP.5-6.2.3.	Analysing and modifying design ideas to enhance and improve the sustainability of the product, service, environment or system
INDICATOR	ACTDEP.5-6.2.4.	Representing and communicating design ideas using modelling and drawing standards including the use of digital technologies, for example scale; symbols and codes in diagrams; pictorial maps and aerial views using web mapping service applications
INDICATOR	ACTDEP.5-6.2.5.	Experimenting with materials, tools and equipment to refine design ideas, for example considering the selection of materials and joining techniques to suit the purpose of a product

STRAND / DOMAIN		**Design and Technologies**
OUTCOME / INDICATOR	**ACTDEP.5-6.**	**Design and Technologies Processes and Production Skills**
INDICATOR	**ACTDEP.5-6.5.**	**Develop project plans that include consideration of resources when making designed solutions individually and collaboratively (ACTDEP028)**
INDICATOR	ACTDEP.5-6.5.1.	Examining the essential features of existing processes to inform project planning including safe work practices that minimise risk
INDICATOR	ACTDEP.5-6.5.2.	Setting milestones for production processes and allocating roles to team members

INDICATOR	ACTDEP.5-6.5.3.	Identifying when materials, tools and equipment are required for making the solution
INDICATOR	ACTDEP.5-6.5.4.	Outlining the planning and production steps needed to produce a product, service or environment using digital technologies
INDICATOR	ACTDEP.5-6.5.5.	Reflecting on planned steps to see if improvements can be made

STRAND / DOMAIN		**Digital Technologies**
OUTCOME / INDICATOR	**ACTDIP.5-6.**	**Digital Technologies Processes and Production Skills**
INDICATOR	**ACTDIP.5-6.2.**	**Define problems in terms of and functional requirements drawing on previously solved problems (ACTDIP017)**
INDICATOR	ACTDIP.5-6.2.4.	describing in simple terms the nature of a problem and what a solution needs to achieve, for example what need the problem is associated with, who the solution is needed for, what data are needed and what features the solution would need to include

STRAND / DOMAIN		**Digital Technologies**
OUTCOME / INDICATOR	**ACTDIP.5-6.**	**Digital Technologies Processes and Production Skills**
INDICATOR	**ACTDIP.5-6.2.**	**Define problems in terms of data and functional requirements drawing on previously solved problems (ACTDIP017)**
INDICATOR	ACTDIP.5-6.2.8.	describing in simple terms the nature of a problem and what a solution needs to achieve, for example what need the problem is associated with, who the solution is needed for, what data are needed and what features the solution would need to include

Northern Territory Curriculum

Technology Education

Grade **6** - Adopted: **2016 (ACARA)**

STRAND / DOMAIN		**Design and Technologies**
OUTCOME / INDICATOR	**ACTDEP.5-6.**	**Design and Technologies Processes and Production Skills**
INDICATOR	**ACTDEP.5-6.2.**	**Generate, develop and communicate design ideas and processes for audiences using appropriate technical terms and graphical representation techniques (ACTDEP025)**
INDICATOR	ACTDEP.5-6.2.1.	Generating a range of design ideas for products, services or environments using prior knowledge, skills and research
INDICATOR	ACTDEP.5-6.2.2.	Developing alternative design ideas and considering implications for the future to broaden the appeal and acceptance of design ideas
INDICATOR	ACTDEP.5-6.2.3.	Analysing and modifying design ideas to enhance and improve the sustainability of the product, service, environment or system
INDICATOR	ACTDEP.5-6.2.4.	Representing and communicating design ideas using modelling and drawing standards including the use of digital technologies, for example scale; symbols and codes in diagrams; pictorial maps and aerial views using web mapping service applications

INDICATOR	ACTDEP.5-6.2.5.	Experimenting with materials, tools and equipment to refine design ideas, for example considering the selection of materials and joining techniques to suit the purpose of a product

STRAND / DOMAIN		**Design and Technologies**
OUTCOME / INDICATOR	**ACTDEP.5-6.**	**Design and Technologies Processes and Production Skills**
INDICATOR	**ACTDEP.5-6.5.**	**Develop project plans that include consideration of resources when making designed solutions individually and collaboratively (ACTDEP028)**
INDICATOR	ACTDEP.5-6.5.1.	Examining the essential features of existing processes to inform project planning including safe work practices that minimise risk
INDICATOR	ACTDEP.5-6.5.2.	Setting milestones for production processes and allocating roles to team members
INDICATOR	ACTDEP.5-6.5.3.	Identifying when materials, tools and equipment are required for making the solution
INDICATOR	ACTDEP.5-6.5.4.	Outlining the planning and production steps needed to produce a product, service or environment using digital technologies
INDICATOR	ACTDEP.5-6.5.5.	Reflecting on planned steps to see if improvements can be made

STRAND / DOMAIN		**Digital Technologies**
OUTCOME / INDICATOR	**ACTDIP.5-6.**	**Digital Technologies Processes and Production Skills**
INDICATOR	**ACTDIP.5-6.2.**	**Define problems in terms of and functional requirements drawing on previously solved problems (ACTDIP017)**
INDICATOR	ACTDIP.5-6.2.4.	describing in simple terms the nature of a problem and what a solution needs to achieve, for example what need the problem is associated with, who the solution is needed for, what data are needed and what features the solution would need to include

STRAND / DOMAIN		**Digital Technologies**
OUTCOME / INDICATOR	**ACTDIP.5-6.**	**Digital Technologies Processes and Production Skills**
INDICATOR	**ACTDIP.5-6.2.**	**Define problems in terms of data and functional requirements drawing on previously solved problems (ACTDIP017)**
INDICATOR	ACTDIP.5-6.2.8.	describing in simple terms the nature of a problem and what a solution needs to achieve, for example what need the problem is associated with, who the solution is needed for, what data are needed and what features the solution would need to include

Northern Territory Curriculum

Technology Education

Grade **7** - Adopted: **2016 (ACARA)**

STRAND / DOMAIN		**Design and Technologies**
OUTCOME / INDICATOR	**ACTDEP.7-8.**	**Design and Technologies Processes and Production Skills**

INDICATOR	**ACTDEP.7-8.2.**	**Generate, develop, test and communicate design ideas, plans and processes for various audiences using appropriate technical terms and technologies including graphical representation techniques (ACTDEP036)**
INDICATOR	ACTDEP.7-8.2.1.	Using a variety of critical and creative thinking strategies such as brainstorming, sketching, 3-D modelling and experimenting to generate innovative design ideas
INDICATOR	ACTDEP.7-8.2.2.	Considering which ideas to further explore and investigating the benefits and drawbacks of ideas, for example using digital polling to capture the views of different groups in the community
INDICATOR	ACTDEP.7-8.2.3.	Identifying factors that may hinder or enhance project development, for example intercultural understanding
INDICATOR	ACTDEP.7-8.2.4.	Developing models, prototypes or samples using a range of materials, tools and equipment to test the functionality of ideas
INDICATOR	ACTDEP.7-8.2.5.	Producing annotated concept sketches and drawings, using: technical terms, scale, symbols, pictorial and aerial views to draw environments; production drawings, orthogonal drawings; patterns and templates to explain design ideas
INDICATOR	ACTDEP.7-8.2.6.	Documenting and communicating the generation and development of design ideas for an intended audience, for example developing a digital portfolio with images and text which clearly communicates each step of a design process
STRAND / DOMAIN		**Digital Technologies**
OUTCOME / INDICATOR	**ACTDIP.7-8.**	**Digital Technologies Processes and Production Skills**
INDICATOR	**ACTDIP.7-8.7.**	**Design algorithms represented diagrammatically and in English, and trace algorithms to predict output for a given input and to identify errors (ACTDIP029)**
INDICATOR	ACTDIP.7-8.7.2.	checking the accuracy of an algorithm before it is implemented, for example desk checking it with test data to see if the instructions produce the expected results
INDICATOR	ACTDIP.7-8.7.4.	using structured English to express algorithmic instructions, for example using conventional statements such as ‘while’ and ‘endwhile’ in a ‘while loop’ when describing interactive instruction
STRAND / DOMAIN		**Digital Technologies**
OUTCOME / INDICATOR	**ACTDIP.7-8.**	**Digital Technologies Processes and Production Skills**
INDICATOR	**ACTDIP.7-8.8.**	**Implement and modify programs with user interfaces involving branching, iteration and functions in a general-purpose programming language (ACTDIP030)**
INDICATOR	ACTDIP.7-8.8.1.	developing and modifying digital solutions by implementing instructions contained in algorithms through programs
INDICATOR	ACTDIP.7-8.8.3.	programming a robot to recognise particular objects and to treat them differently, for example choose objects based on colour
STRAND / DOMAIN		**Digital Technologies**

OUTCOME / INDICATOR	**ACTDIP.7-8.**	**Digital Technologies Processes and Production Skills**
INDICATOR	**ACTDIP.7-8.9.**	**Evaluate how student solutions and existing information systems meet needs, are innovative, and take account of future risks and sustainability (ACTDIP031)**
INDICATOR	ACTDIP.7-8.9.1.	comparing student solutions with existing solutions that solve similar problems, for example identifying differences in the user interface of two adventure games and explaining how these differences affect the usability or appeal of the game
INDICATOR	ACTDIP.7-8.9.2.	judging the quality of a student solution based on specific criteria such as meeting an economic need or contributing to social sustainability

Northern Territory Curriculum

Technology Education

Grade **8** - Adopted: **2016 (ACARA)**

STRAND / DOMAIN		**Design and Technologies**
OUTCOME / INDICATOR	**ACTDEP.7-8.**	**Design and Technologies Processes and Production Skills**
INDICATOR	**ACTDEP.7-8.2.**	**Generate, develop, test and communicate design ideas, plans and processes for various audiences using appropriate technical terms and technologies including graphical representation techniques (ACTDEP036)**
INDICATOR	ACTDEP.7-8.2.1.	Using a variety of critical and creative thinking strategies such as brainstorming, sketching, 3-D modelling and experimenting to generate innovative design ideas
INDICATOR	ACTDEP.7-8.2.2.	Considering which ideas to further explore and investigating the benefits and drawbacks of ideas, for example using digital polling to capture the views of different groups in the community
INDICATOR	ACTDEP.7-8.2.3.	Identifying factors that may hinder or enhance project development, for example intercultural understanding
INDICATOR	ACTDEP.7-8.2.4.	Developing models, prototypes or samples using a range of materials, tools and equipment to test the functionality of ideas
INDICATOR	ACTDEP.7-8.2.5.	Producing annotated concept sketches and drawings, using: technical terms, scale, symbols, pictorial and aerial views to draw environments; production drawings, orthogonal drawings; patterns and templates to explain design ideas
INDICATOR	ACTDEP.7-8.2.6.	Documenting and communicating the generation and development of design ideas for an intended audience, for example developing a digital portfolio with images and text which clearly communicates each step of a design process
STRAND / DOMAIN		**Digital Technologies**
OUTCOME / INDICATOR	**ACTDIP.7-8.**	**Digital Technologies Processes and Production Skills**
INDICATOR	**ACTDIP.7-8.7.**	**Design algorithms represented diagrammatically and in English, and trace algorithms to predict output for a given input and to identify errors (ACTDIP029)**
INDICATOR	ACTDIP.7-8.7.2.	checking the accuracy of an algorithm before it is implemented, for example desk checking it with test data to see if the instructions produce the expected results

INDICATOR	ACTDIP.7-8.7.4.	using structured English to express algorithmic instructions, for example using conventional statements such as ‘while’ and ‘endwhile’ in a ‘while loop’ when describing interactive instruction

STRAND / DOMAIN		**Digital Technologies**
OUTCOME / INDICATOR	**ACTDIP.7-8.**	**Digital Technologies Processes and Production Skills**
INDICATOR	**ACTDIP.7-8.8.**	**Implement and modify programs with user interfaces involving branching, iteration and functions in a general-purpose programming language (ACTDIP030)**
INDICATOR	ACTDIP.7-8.8.1.	developing and modifying digital solutions by implementing instructions contained in algorithms through programs
INDICATOR	ACTDIP.7-8.8.3.	programming a robot to recognise particular objects and to treat them differently, for example choose objects based on colour

STRAND / DOMAIN		**Digital Technologies**
OUTCOME / INDICATOR	**ACTDIP.7-8.**	**Digital Technologies Processes and Production Skills**
INDICATOR	**ACTDIP.7-8.9.**	**Evaluate how student solutions and existing information systems meet needs, are innovative, and take account of future risks and sustainability (ACTDIP031)**
INDICATOR	ACTDIP.7-8.9.1.	comparing student solutions with existing solutions that solve similar problems, for example identifying differences in the user interface of two adventure games and explaining how these differences affect the usability or appeal of the game
INDICATOR	ACTDIP.7-8.9.2.	judging the quality of a student solution based on specific criteria such as meeting an economic need or contributing to social sustainability

Nova Scotia Curriculum

Mathematics

Grade **5** - Adopted: **2015**

GENERAL LEARNING OUTCOME	**NS.5.SCO.**	**Specific Curriculum Outcomes**
CURRICULUM OUTCOME	**5.SCO.M.**	**Measurement (M)**
GRADE LEVEL EXPECTATION	**5.SCO.M03.**	**Students will be expected to demonstrate an understanding of volume by: selecting and justifying referents for cubic centimetre (cm3) or cubic metre (m3) units, estimating volume using referents for cubic centimetre (cm3) or cubic metre (m3), measuring and recording volume (cm3 or m3), constructing rectangular prisms for a given volume [C, CN, ME, PS, R, V]**
EXPECTATION	5.SCO.M03.05.	Estimate the volume of a given 3-D object using personal referents
EXPECTATION	5.SCO.M03.07.	Construct a rectangular prism for a given volume

GENERAL LEARNING OUTCOME	**NS.5.SCO.**	**Specific Curriculum Outcomes**
CURRICULUM OUTCOME	**5.SCO.M.**	**Measurement (M)**

GRADE LEVEL EXPECTATION	**5.SCO.M04.**	**Students will be expected to demonstrate an understanding of capacity by: describing the relationship between millilitre (mL) and litre (L) units, selecting and justifying referents for millilitre (mL) and litre (L) units, estimating capacity using referents for millilitre (mL) and litre (L), measuring and recording capacity (mL or L) [C, CN, ME, PS, R, V]**
EXPECTATION	5.SCO.M04.05.	Estimate the capacity of a given container using personal referents

Nova Scotia Curriculum

Mathematics

Grade **6** - Adopted: **2014**

GENERAL LEARNING OUTCOME	**NS.6.SCO.**	**Specific Curriculum Outcomes**
CURRICULUM OUTCOME	**6.SCO.M.**	**Measurement (M)**
GRADE LEVEL EXPECTATION	**6.SCO.M03.**	**Students will be expected to develop and apply a formula for determining the: perimeter of polygons; area of rectangles; volume of right rectangular prisms [C, CN, PS, R, V]**
EXPECTATION	6.SCO.M03.06.	Generalize a rule (formula) for determining the volume of rectangular prisms.
EXPECTATION	6.SCO.M03.07.	Solve a given problem involving the perimeter of polygons, the area of rectangles, and/or the volume of right rectangular prisms.

Nova Scotia Curriculum

Mathematics

Grade **8** - Adopted: **2015**

GENERAL LEARNING OUTCOME	**NS.8.SCO.**	**Specific Curriculum Outcomes**
CURRICULUM OUTCOME	**8.SCO.M.**	**Measurement (M)**
GRADE LEVEL EXPECTATION	**8.SCO.M03.**	**Students will be expected to determine the surface area of right rectangular prisms, right triangular prisms, and right cylinders to solve problems. [C, CN, PS, R, V]**
EXPECTATION	8.SCO.M03.01.	Explain, using examples, the relationship between the area of 2-D shapes and the surface area of a given 3-D object.

GENERAL LEARNING OUTCOME	**NS.8.SCO.**	**Specific Curriculum Outcomes**
CURRICULUM OUTCOME	**8.SCO.M.**	**Measurement (M)**
GRADE LEVEL EXPECTATION	**8.SCO.M04.**	**Students will be expected to develop and apply formulas for determining the volume of right rectangular prisms, right triangular prisms, and right cylinders. [C, CN, PS, R, V]**
EXPECTATION	8.SCO.M04.01.	Determine the volume of a given right prism, given the area of the base.
EXPECTATION	8.SCO.M04.02.	Generalize and apply a rule for determining the volume of right cylinders.
EXPECTATION	8.SCO.M04.03.	Explain the connection between the area of the base of a given right 3-D object and the formula for the volume of the object.

EXPECTATION	8.SCO.M 04.05.	Apply a formula to solve a given problem involving the volume of a right cylinder or a right prism.

Nova Scotia Curriculum

Science

Grade **5** - Adopted: **2015**

GENERAL LEARNING OUTCOME	**NS.5.GCO.**	**General Curriculum Outcomes**
CURRICULUM OUTCOME	**5.GCO.1.**	**STSE/Knowledge**
GRADE LEVEL EXPECTATION	5.GCO.1.1.	Students will develop an understanding of the nature of science and technology, of the relationships between science and technology, and of the social and environmental contexts of science and technology. (STSE)
GRADE LEVEL EXPECTATION	5.GCO.1.3.	Students will construct knowledge and understandings of concepts in life science, physical science, and Earth and space science, and apply these understandings to interpret, integrate, and extend their knowledge. (Knowledge)
GENERAL LEARNING OUTCOME	**NS.5.GCO.**	**General Curriculum Outcomes**
CURRICULUM OUTCOME	**5.GCO.2.**	**Skills**
GRADE LEVEL EXPECTATION	5.GCO.2.2.	Students will develop the skills required for scientific and technological inquiry, for solving problems, for communicating scientific ideas and results, for working collaboratively, and for making informed decisions.

Nova Scotia Curriculum

Science

Grade **6** - Adopted: **2015**

GENERAL LEARNING OUTCOME	**NS.6.GCO.**	**General Curriculum Outcomes**
CURRICULUM OUTCOME	**6.GCO.1.**	**STSE/Knowledge**
GRADE LEVEL EXPECTATION	6.GCO.1.1.	Students will develop an understanding of the nature of science and technology, of the relationships between science and technology, and of the social and environmental contexts of science and technology. (STSE)
GRADE LEVEL EXPECTATION	6.GCO.1.3.	Students will construct knowledge and understandings of concepts in life science, physical science, and Earth and space science, and apply these understandings to interpret, integrate, and extend their knowledge. (Knowledge)
GENERAL LEARNING OUTCOME	**NS.6.GCO.**	**General Curriculum Outcomes**
CURRICULUM OUTCOME	**6.GCO.2.**	**Skills**
GRADE LEVEL EXPECTATION	6.GCO.2.2.	Students will develop the skills required for scientific and technological inquiry, for solving problems, for communicating scientific ideas and results, for working collaboratively, and for making informed decisions.
GENERAL LEARNING OUTCOME	**NS.6.SCO.**	**Specific Curriculum Outcomes**
CURRICULUM OUTCOME	**6.SCO.LS.**	**Life Science: Diversity of Life**

GRADE LEVEL EXPECTATION	6.SCO.LS.3.	MICRO-ORGANISMS
EXPECTATION	6.SCO.LS.3.2.	Provide examples of how science and technology have been used in identifying and controlling micro-organisms by different people around the world (107-3, 107-6)

Nova Scotia Curriculum

Science

Grade **7** - Adopted: **2015**

GENERAL LEARNING OUTCOME	NS.7.GCO.	General Curriculum Outcomes
CURRICULUM OUTCOME	7.GCO.1.	STSE
GRADE LEVEL EXPECTATION	7.GCO.1.1.	Students will develop an understanding of the nature of science and technology, of the relationships

GENERAL LEARNING OUTCOME	NS.7.GCO.	General Curriculum Outcomes
CURRICULUM OUTCOME	7.GCO.2.	SKILLS
GRADE LEVEL EXPECTATION	7.GCO.2.2.	Students will develop the skills required for scientific and technological inquiry, for solving problems, for communicating scientific ideas and results, for working collaboratively, and for making informed decisions. between science and technology, and of the social and environmental contexts of science and technology.

Nova Scotia Curriculum

Science

Grade **8** - Adopted: **2015**

GENERAL LEARNING OUTCOME	NS.8.GCO.	General Curriculum Outcomes
CURRICULUM OUTCOME	8.GCO.1.	STSE
GRADE LEVEL EXPECTATION	8.GCO.1.1.	Students will develop an understanding of the nature of science and technology, of the relationships between science and technology, and of the social and environmental contexts of science and technology.

GENERAL LEARNING OUTCOME	NS.8.GCO.	General Curriculum Outcomes
CURRICULUM OUTCOME	8.GCO.2.	SKILLS
GRADE LEVEL EXPECTATION	8.GCO.2.1.	Students will develop the skills required for scientific and technological inquiry, for solving problems, for communicating scientific ideas and results, for working collaboratively, and for making informed decisions.

Prince Edward Island Curriculum

Mathematics

Grade **5** - Adopted: **2012**

STRAND / COURSE	PE.5.SS.	Shape and Space (SS): Use direct and indirect measure to solve problems.
GENERAL LEARNING OUTCOME	5.SS3.	Demonstrate an understanding of volume by.

CURRICULUM OUTCOME	5.SS3.2.	Estimate volume by using referents for cm^3 or m^3.

STRAND / COURSE	**PE.5.SS.**	**Shape and Space (SS): Use direct and indirect measure to solve problems.**
GENERAL LEARNING OUTCOME	**5.SS4.**	**Demonstrate an understanding of capacity by:**

CURRICULUM OUTCOME	5.SS4.3.	Estimating capacity by using referents for mL or L.

Prince Edward Island Curriculum

Mathematics

Grade **8** - Adopted: **2012**

STRAND / COURSE	**PE.8.SS.**	**Shape and Space (SS)**
GENERAL LEARNING OUTCOME	**6.SP4.**	**Describe and analyse position and motion of objects and shapes.**

CURRICULUM OUTCOME	8.SS4.	Develop and apply formulas for determining the volume of right prisms and right cylinders.

Prince Edward Island Curriculum

Science

Grade **5** - Adopted: **2012**

STRAND / COURSE	**PE.5.4.**	**Earth and Space Science: Weather**
GENERAL LEARNING OUTCOME	**5.4.6.**	**Environmental Issues**
CURRICULUM OUTCOME		**Students will be expected to**

GRADE LEVEL EXPECTATION	5.4.6.2.	Identify positive and negative effects of technologies that affect weather and the environment (108-1).

Programme de formation de l'école québécoise - Progression des apprentissages

Mathematics

Grade **5** - Adopted: **2009**

STRAND	**QC.5.**	**Mesures**
STANDARD	**5.C.**	**Volumes**
SUBSTRAND	**5.C.1.**	**Les estimations de volume et des mesures**

COMPETENCY	5.C.1.b.	En utilisant des unités conventionnelles

STRAND	**QC.5.**	**Mesures**
STANDARD	**5.E.**	**Capacités**

SUBSTRAND	5.E.2.	Les estimations et les mesures de capacité en utilisant des unités conventionnelles

Programme de formation de l'école québécoise - Progression des apprentissages

Mathematics

Grade **6** - Adopted: **2009**

STRAND	**QC.5.**	**Mesures**
STANDARD	**5.C.**	**Volumes**
SUBSTRAND	**5.C.1.**	**Les estimations de volume et des mesures**
COMPETENCY	5.C.1.b.	En utilisant des unités conventionnelles

STRAND	**QC.5.**	**Mesures**
STANDARD	**5.E.**	**Capacités**
SUBSTRAND	5.E.2.	Les estimations et les mesures de capacité en utilisant des unités conventionnelles

Programme de formation de l'école québécoise - Progression des apprentissages

Science

Grade **5** - Adopted: **2009**

STRAND	**QC.1.**	**Material World**
STANDARD	**1.D.**	**Systèmes et interaction**
SUBSTRAND	**1.D.1.**	**Tous les jours des objets techniques**
COMPETENCY	1.D.1.a.	Décrit les pièces et des mécanismes qui composent un objet
COMPETENCY	1.D.1.b.	Identifie les besoins qu'un objet a été initialement conçus pour répondre aux

STRAND	**QC.1.**	**Material World**
STANDARD	**1.D.**	**Systèmes et interaction**
SUBSTRAND	**1.D.3.**	**Autres machines**
COMPETENCY	1.D.3.a.	Identifier la fonction principale de quelques machines complexes (par exemple chariot, roue hydraulique, éolienne)

STRAND	**QC.1.**	**Material World**
STANDARD	**1.D.**	**Systèmes et interaction**
SUBSTRAND	**1.D.4.**	**Fonctionnement d'objets fabriqués**
COMPETENCY	1.D.4.a.	Identifier des pièces mécaniques (engrenages, cames, ressorts, machines simples, bielles)

STRAND	**QC.1.**	**Material World**
STANDARD	**1.D.**	**Systèmes et interaction**
SUBSTRAND	**1.D.7.**	**Electron technologie**
COMPETENCY	1.D.7.a.	Reconnaître l'influence et l'impact des appareils électriques sur le mode de vie des gens et l'environnement (ex.: téléphone, radio, télévision, ordinateur)

STRAND	**QC.1.**	**Material World**
STANDARD	**1.E.**	**Techniques et instrumentation**

SUBSTRAND	**1.E.3.**	**Utilisation d'outils**
COMPETENCY	1.E.3.a.	Adéquatement et de façon sécuritaire des outils (pince, tournevis, marteau, clé, gabarit simple)
STRAND	**QC.1.**	**Material World**
STANDARD	**1.E.**	**Techniques et instrumentation**
SUBSTRAND	**1.E.4.**	**Conception et fabrication d'instruments, outils, machines, des structures (ponts, par exemple, les tours), des dispositifs (dispositif de filtration de l'eau), des modèles (ex.: planeur) et des circuits simples**
COMPETENCY	1.E.4.d.	Dessine et découpe des pièces à partir de matériaux divers en utilisant des outils appropriés
COMPETENCY	1.E.4.e.	Utilise des méthodes appropriées d'assemblage (p.ex. vis, colle, clous, punaises, noix)
COMPETENCY	1.E.4.f.	Utiliser les outils appropriés pour les travaux de finition correcte
COMPETENCY	1.E.4.g.	Utilise des machines simples, des mécanismes ou des composants électriques pour concevoir ou fabriquer un objet
STRAND	**QC.2.**	**Terre et Espace**
STANDARD	**2.A.**	**Importance**
SUBSTRAND	**2.A.1.**	**Propriétés et caractéristiques de la matière sur la Terre**
COMPETENCY	2.A.1.b.	Décrit les différentes façons dont la qualité de l'eau, le sol ou l'air sur les êtres vivants
STRAND	**QC.2.**	**Terre et Espace**
STANDARD	**2.E.**	**Techniques et instrumentation**
SUBSTRAND	**2.E.3.**	**Conception et fabrication d'instruments de mesure et de prototypes**
COMPETENCY	2.E.3.a.	Conçoit et fabrique des instruments de mesure et de prototypes
STRAND	**QC.3.**	**Les êtres vivants**
STANDARD	**3.A.**	**Importance**
SUBSTRAND	**3.A.1.**	**Caractéristiques des êtres vivants**
COMPETENCY	3.A.1.a.	Expliquer les besoins essentiels du métabolisme des êtres vivants (par exemple la nutrition, la respiration)
STRAND	**QC.3.**	**Les êtres vivants**
STANDARD	**3.F.**	**Un langage appropri**
SUBSTRAND	**3.F.1.**	**Terminologie liée à la compréhension des êtres vivants**
COMPETENCY	3.F.1.a.	Utiliser adéquatement la terminologie liée à la compréhension des êtres vivants
COMPETENCY	3.F.1.b.	Distinguer le sens d'un terme utilisé dans un contexte scientifique ou technologique et de sa signification dans le langage courant (par exemple l'habitat, la métamorphose)

STRAND	**QC.1.**	**Material World**
STANDARD	**1.D.**	**Systèmes et interaction**
SUBSTRAND	**1.D.1.**	**Tous les jours des objets techniques**
COMPETENCY	1.D.1.a.	Décrit les pièces et des mécanismes qui composent un objet
COMPETENCY	1.D.1.b.	Identifie les besoins qu'un objet a été initialement conçus pour répondre aux

STRAND	**QC.1.**	**Material World**
STANDARD	**1.D.**	**Systèmes et interaction**
SUBSTRAND	**1.D.3.**	**Autres machines**
COMPETENCY	1.D.3.a.	Identifier la fonction principale de quelques machines complexes (par exemple chariot, roue hydraulique, éolienne)

STRAND	**QC.1.**	**Material World**
STANDARD	**1.D.**	**Systèmes et interaction**
SUBSTRAND	**1.D.4.**	**Fonctionnement d'objets fabriqués**
COMPETENCY	1.D.4.a.	Identifier des pièces mécaniques (engrenages, cames, ressorts, machines simples, bielles)

STRAND	**QC.1.**	**Material World**
STANDARD	**1.D.**	**Systèmes et interaction**
SUBSTRAND	**1.D.7.**	**Electron technologie**
COMPETENCY	1.D.7.a.	Reconnaître l'influence et l'impact des appareils électriques sur le mode de vie des gens et l'environnement (ex.: téléphone, radio, télévision, ordinateur)

STRAND	**QC.1.**	**Material World**
STANDARD	**1.E.**	**Techniques et instrumentation**
SUBSTRAND	**1.E.3.**	**Utilisation d'outils**
COMPETENCY	1.E.3.a.	Adéquatement et de façon sécuritaire des outils (pince, tournevis, marteau, clé, gabarit simple)

STRAND	**QC.1.**	**Material World**
STANDARD	**1.E.**	**Techniques et instrumentation**
SUBSTRAND	**1.E.4.**	**Conception et fabrication d'instruments, outils, machines, des structures (ponts, par exemple, les tours), des dispositifs (dispositif de filtration de l'eau), des modèles (ex.: planeur) et des circuits simples**
COMPETENCY	1.E.4.d.	Dessine et découpe des pièces à partir de matériaux divers en utilisant des outils appropriés
COMPETENCY	1.E.4.e.	Utilise des méthodes appropriées d'assemblage (p.ex. vis, colle, clous, punaises, noix)
COMPETENCY	1.E.4.f.	Utiliser les outils appropriés pour les travaux de finition correcte

COMPETENCY	1.E.4.g.	Utilise des machines simples, des mécanismes ou des composants électriques pour concevoir ou fabriquer un objet

STRAND	**QC.2.**	**Terre et Espace**
STANDARD	**2.A.**	**Importance**
SUBSTRAND	**2.A.1.**	**Propriétés et caractéristiques de la matière sur la Terre**
COMPETENCY	2.A.1.b.	Décrit les différentes façons dont la qualité de l'eau, le sol ou l'air sur les êtres vivants

STRAND	**QC.2.**	**Terre et Espace**
STANDARD	**2.E.**	**Techniques et instrumentation**
SUBSTRAND	**2.E.3.**	**Conception et fabrication d'instruments de mesure et de prototypes**
COMPETENCY	2.E.3.a.	Conçoit et fabrique des instruments de mesure et de prototypes

STRAND	**QC.3.**	**Les êtres vivants**
STANDARD	**3.A.**	**Importance**
SUBSTRAND	**3.A.1.**	**Caractéristiques des êtres vivants**
COMPETENCY	3.A.1.a.	Expliquer les besoins essentiels du métabolisme des êtres vivants (par exemple la nutrition, la respiration)

STRAND	**QC.3.**	**Les êtres vivants**
STANDARD	**3.F.**	**Un langage appropri**
SUBSTRAND	**3.F.1.**	**Terminologie liée à la compréhension des êtres vivants**
COMPETENCY	3.F.1.a.	Utiliser adéquatement la terminologie liée à la compréhension des êtres vivants
COMPETENCY	3.F.1.b.	Distinguer le sens d'un terme utilisé dans un contexte scientifique ou technologique et de sa signification dans le langage courant (par exemple l'habitat, la métamorphose)

Programme de formation de l'école québécoise - Progression des apprentissages

Science

Grade **7** - Adopted: **2009**

STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.B.**	**Génie mécanique**
SUBSTRAND	**4.B.1.**	**Forces et mouvements**
COMPETENCY	**4.B.1.a.**	**Types de mouvement**
OBJECTIVE	4.B.1.a.i.	Identifie les parties qui se déplacent d'une manière spécifique dans un objet technique (rectiligne translation, rotation, hélicoïdal)

STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.B.**	**Génie mécanique**
SUBSTRAND	**4.B.2.**	**Les systèmes technologiques**
COMPETENCY	**4.B.2.a.**	**Système**

OBJECTIVE	4.B.2.a.i.	Identifie un système (ensemble d'éléments connectés qui interagissent les uns avec les autres) dans un objet technique ou à l'application technologique
OBJECTIVE	4.B.2.a.ii.	Décrit la fonction globale d'un système technologique
OBJECTIVE	4.B.2.a.iii.	Noms des entrées et sorties d'un système technologique
OBJECTIVE	4.B.2.a.iv.	Noms des processus et des éléments de commande d'un système technologique
STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.B.**	**Génie mécanique**
SUBSTRAND	**4.B.2.**	**Les systèmes technologiques**
COMPETENCY	**4.B.2.b.**	**Composantes d'un système**
OBJECTIVE	4.B.2.b.i.	Décrit le rôle des composants d'un système technologique (par exemple, explique le rôle des parties d'un système d'éclairage)
STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.B.**	**Génie mécanique**
SUBSTRAND	**4.B.2.**	**Les systèmes technologiques**
COMPETENCY	**4.B.2.c.**	**Transformations de l'énergie**
OBJECTIVE	4.B.2.c.ii.	Définit les transformations d'énergie
OBJECTIVE	4.B.2.c.iii.	Identifie les transformations d'énergie dans un objet technique ou du système technologique
STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.B.**	**Génie mécanique**
SUBSTRAND	**4.B.3.**	**Ingénierie**
COMPETENCY	**4.B.3.a.**	**De base des fonctions mécaniques (liaisons, de contrôle de guidage)**
OBJECTIVE	4.B.3.a.i.	Décrit le rôle des liens et des contrôles directeurs dans un objet technique
OBJECTIVE	4.B.3.a.ii.	Identifie un contrôle de guidage dans un objet technique, ainsi que les liens connexes (par exemple, une roulette à pizza est guidé par un pivot, qui le lie à la poignée)
STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.B.**	**Génie mécanique**
SUBSTRAND	**4.B.3.**	**Ingénierie**
COMPETENCY	**4.B.3.h.**	**Des systèmes de transmission de mouvement**
OBJECTIVE	4.B.3.h.i.	Identifie les systèmes de transmission de mouvement dans des objets techniques
STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.B.**	**Génie mécanique**

SUBSTRAND	**4.B.3.**	**Ingénierie**
COMPETENCY	**4.B.3.k.**	**Systèmes de transformation de mouvement**
OBJECTIVE	4.B.3.k.i.	Identifie les systèmes de transformation de mouvement dans des objets techniques

STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.D.**	**Matériels**
SUBSTRAND	**4.D.1.**	**Les ressources matérielles**
COMPETENCY	**4.D.1.c.**	**Équipement**
OBJECTIVE	4.D.1.c.i.	Définit les outils et les équipements que les éléments nécessaires à la fabrication d'un objet (usinage, contrôle, assemblage)

STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.E.**	**Fabrication**
SUBSTRAND	**4.E.a.**	**Caractéristiques**
COMPETENCY	4.E.a.ii.	Évalue un objet prototype ou technique, basée sur les environnements décrits dans le cahier des charges (humaine, technique, industriel, économique, physique, de l'environnement)

STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.E.**	**Fabrication**
SUBSTRAND	**4.E.b.**	**Feuille de processus de fabrication**
COMPETENCY	4.E.b.i.	Définit une feuille processus de fabrication comme un ensemble d'étapes à suivre pour usiner les pièces qui composent un objet technique
COMPETENCY	4.E.b.ii.	Suit un processus et une feuille de montage pour construire un objet constitué de composants rares ou pour construire une partie de cet objet

STRAND	**QC.5.**	**Parcours de formation générale: Techniques**
STANDARD	**5.A.**	**Technologie**
SUBSTRAND	**5.A.2.**	**Fabrication**
COMPETENCY	**5.A.2.a.**	**En toute sécurité en utilisant des machines et tools4**
OBJECTIVE	5.A.2.a.i.	Utiliser les outils en toute sécurité (par exemple couteau rétractable, marteau, tournevis, pinces)

STRAND	**QC.5.**	**Parcours de formation générale: Techniques**
STANDARD	**5.A.**	**Technologie**
SUBSTRAND	**5.A.2.**	**Fabrication**
COMPETENCY	**5.A.2.b.**	**Mesure et portant sur**
OBJECTIVE	5.A.2.b.iii.	Adopte la position appropriée pour la lecture d'un instrument
OBJECTIVE	5.A.2.b.iv.	Marque les matériaux à être façonné à l'aide d'un crayon ou d'un poinçon

STRAND	QC.5.	Parcours de formation générale: Techniques
STANDARD	5.A.	Technologie
SUBSTRAND	5.A.2.	Fabrication
COMPETENCY	5.A.2.c.	Usinage et formant
OBJECTIVE	5.A.2.c.i.	Choisit les matériaux appropriés, des outils, des techniques et des processus
OBJECTIVE	5.A.2.c.iii.	Immobilise la partie à former
OBJECTIVE	5.A.2.c.iv.	Formulaires de la partie en conformité avec les étapes dans les processus d'usinage suivantes: le sciage, le forage, ponçage, le dépôt

STRAND	QC.5.	Parcours de formation générale: Techniques
STANDARD	5.A.	Technologie
SUBSTRAND	5.A.2.	Fabrication
COMPETENCY	5.A.2.d.	Finition
OBJECTIVE	5.A.2.d.i.	Sables les côtés ou ébavurer les bords de chaque pièce après formage
OBJECTIVE	5.A.2.d.ii.	Utilise la finition appropriée (teinture, peinture)

STRAND	QC.5.	Parcours de formation générale: Techniques
STANDARD	5.A.	Technologie
SUBSTRAND	5.A.2.	Fabrication
COMPETENCY	5.A.2.e.	Assemblage
OBJECTIVE	5.A.2.e.ii.	Immobilise pièces lors du collage
OBJECTIVE	5.A.2.e.iii.	Perceuses à le diamètre des vis, des clous ou des rivets utilisés
OBJECTIVE	5.A.2.e.iv.	Fraises des ouvertures pour vis à tête fraisée

STRAND	QC.5.	Parcours de formation générale: Techniques
STANDARD	5.A.	Technologie
SUBSTRAND	5.A.2.	Fabrication
COMPETENCY	5.A.2.f.	Montage et démontage
OBJECTIVE	5.A.2.f.i.	Identifie et réunit les pièces et la quincaillerie
OBJECTIVE	5.A.2.f.ii.	Choisit les outils appropriés
OBJECTIVE	5.A.2.f.iii.	Pour le démontage, les chiffres et d'enregistrer l'emplacement des pièces

STRAND	QC.5.	Parcours de formation générale: Techniques

STANDARD	**5.B.**	**Science**
SUBSTRAND	**5.B.d.**	**Utilisation d'instruments de mesure**
COMPETENCY	5.B.d.i.	Adopte la position appropriée pour la lecture d'un instrument

STRAND	**QC.5.**	**Parcours de formation générale: Techniques**
STANDARD	**5.B.**	**Science**
SUBSTRAND	**5.B.e.**	**Utilisation d'instruments d'observation**
COMPETENCY	5.B.e.i.	Utilise des instruments d'observation appropriée (loupe, loupe binoculaire, jumelles, microscope)

STRAND	**QC.6.**	**Parcours de formation générale: Stratégies**
STANDARD	**6.A.**	**Stratégies d'exploration**
SUBSTRAND	6.A.1.	L'étude d'un problème ou un phénomène de différents points de vue (social, environnemental, historique, économique)
SUBSTRAND	6.A.2.	La distinction entre les différents types d'informations utiles pour résoudre le problème
SUBSTRAND	6.A.8.	Explorer différentes manières de résoudre le problème
SUBSTRAND	6.A.11.	Tenant compte des contraintes liées à la résolution d'un problème ou faire un objet (par exemple: spécifications, les ressources disponibles, le temps alloué)
SUBSTRAND	6.A.13.	Utilisation de différents types de raisonnement (par exemple, induction, déduction, l'inférence, la comparaison, la classification)
SUBSTRAND	6.A.14.	En utilisant des approches empiriques (par exemple du procès et l'erreur, l'analyse, l'exploration en utilisant ses sens)

STRAND	**QC.6.**	**Parcours de formation générale: Stratégies**
STANDARD	**6.B.**	**Stratégies d'instrumentation**
SUBSTRAND	6.B.3.	Recourir au design technique pour illustrer une solution (par exemple des diagrammes, des croquis, des dessins techniques)
SUBSTRAND	6.B.4.	En utilisant des outils différents pour l'enregistrement des informations (par exemple des diagrammes, des notes, des graphiques, des procédures, le journal de bord)
SUBSTRAND	6.B.5.	En utilisant une variété de techniques d'observation et d'outils
SUBSTRAND	6.B.6.	Sélection des techniques appropriées ou des outils pour l'observation

STRAND	**QC.6.**	**Parcours de formation générale: Stratégies**
STANDARD	**6.C.**	**Des stratégies analytiques**
SUBSTRAND	6.C.1.	Identifier les contraintes et les éléments importants liés à la situation de résolution de problèmes

SUBSTRAND	6.C.2.	Diviser un problème complexe en sous-problèmes plus simples
SUBSTRAND	6.C.3.	Utilisation de différents types de raisonnement (par exemple le raisonnement inductif et déductif, la comparaison, la classification, priorisation) afin de traiter l'information
STRAND	**QC.6.**	**Parcours de formation générale: Stratégies**
STANDARD	**6.D.**	**Les stratégies de communication**
SUBSTRAND	6.D.1.	En utilisant différents moyens de communication pour proposer des explications ou des solutions (par exemple une présentation orale, présentation écrite, la procédure)
SUBSTRAND	6.D.3.	L'échange d'informations
SUBSTRAND	6.D.5.	L'utilisation d'outils pour afficher des informations dans différents formats (par exemple des tableaux de données, graphiques, diagrammes)

Programme de formation de l'école québécoise - Progression des apprentissages

Science

Grade **8** - Adopted: **2009**

STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.B.**	**Génie mécanique**
SUBSTRAND	**4.B.1.**	**Forces et mouvements**
COMPETENCY	**4.B.1.a.**	**Types de mouvement**
OBJECTIVE	4.B.1.a.i.	Identifie les parties qui se déplacent d'une manière spécifique dans un objet technique (rectiligne translation, rotation, hélicoïdal)

STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.B.**	**Génie mécanique**
SUBSTRAND	**4.B.2.**	**Les systèmes technologiques**
COMPETENCY	**4.B.2.a.**	**Système**
OBJECTIVE	4.B.2.a.i.	Identifie un système (ensemble d'éléments connectés qui interagissent les uns avec les autres) dans un objet technique ou à l'application technologique
OBJECTIVE	4.B.2.a.ii.	Décrit la fonction globale d'un système technologique
OBJECTIVE	4.B.2.a.iii.	Noms des entrées et sorties d'un système technologique
OBJECTIVE	4.B.2.a.iv.	Noms des processus et des éléments de commande d'un système technologique

STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.B.**	**Génie mécanique**
SUBSTRAND	**4.B.2.**	**Les systèmes technologiques**
COMPETENCY	**4.B.2.b.**	**Composantes d'un système**

OBJECTIVE	4.B.2.b.i.	Décrit le rôle des composants d'un système technologique (par exemple, explique le rôle des parties d'un système d'éclairage)

STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.B.**	**Génie mécanique**
SUBSTRAND	**4.B.2.**	**Les systèmes technologiques**
COMPETENCY	**4.B.2.c.**	**Transformations de l'énergie**
OBJECTIVE	4.B.2.c.ii.	Définit les transformations d'énergie
OBJECTIVE	4.B.2.c.iii.	Identifie les transformations d'énergie dans un objet technique ou du système technologique

STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.B.**	**Génie mécanique**
SUBSTRAND	**4.B.3.**	**Ingénierie**
COMPETENCY	**4.B.3.a.**	**De base des fonctions mécaniques (liaisons, de contrôle de guidage)**
OBJECTIVE	4.B.3.a.i.	Décrit le rôle des liens et des contrôles directeurs dans un objet technique
OBJECTIVE	4.B.3.a.ii.	Identifie un contrôle de guidage dans un objet technique, ainsi que les liens connexes (par exemple, une roulette à pizza est guidé par un pivot, qui le lie à la poignée)

STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.B.**	**Génie mécanique**
SUBSTRAND	**4.B.3.**	**Ingénierie**
COMPETENCY	**4.B.3.h.**	**Des systèmes de transmission de mouvement**
OBJECTIVE	4.B.3.h.i.	Identifie les systèmes de transmission de mouvement dans des objets techniques

STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.B.**	**Génie mécanique**
SUBSTRAND	**4.B.3.**	**Ingénierie**
COMPETENCY	**4.B.3.k.**	**Systèmes de transformation de mouvement**
OBJECTIVE	4.B.3.k.i.	Identifie les systèmes de transformation de mouvement dans des objets techniques

STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.D.**	**Matériels**
SUBSTRAND	**4.D.1.**	**Les ressources matérielles**
COMPETENCY	**4.D.1.c.**	**Équipement**
OBJECTIVE	4.D.1.c.i.	Définit les outils et les équipements que les éléments nécessaires à la fabrication d'un objet (usinage, contrôle, assemblage)

STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**

STANDARD	**4.E.**	**Fabrication**
SUBSTRAND	**4.E.a.**	**Caractéristiques**
COMPETENCY	4.E.a.ii.	Évalue un objet prototype ou technique, basée sur les environnements décrits dans le cahier des charges (humaine, technique, industriel, économique, physique, de l'environnement)

STRAND	**QC.4.**	**Parcours de formation générale: Le monde technologique**
STANDARD	**4.E.**	**Fabrication**
SUBSTRAND	**4.E.b.**	**Feuille de processus de fabrication**
COMPETENCY	4.E.b.i.	Définit une feuille processus de fabrication comme un ensemble d'étapes à suivre pour usiner les pièces qui composent un objet technique
COMPETENCY	4.E.b.ii.	Suit un processus et une feuille de montage pour construire un objet constitué de composants rares ou pour construire une partie de cet objet

STRAND	**QC.5.**	**Parcours de formation générale: Techniques**
STANDARD	**5.A.**	**Technologie**
SUBSTRAND	**5.A.2.**	**Fabrication**
COMPETENCY	**5.A.2.a.**	**En toute sécurité en utilisant des machines et tools4**
OBJECTIVE	5.A.2.a.i.	Utiliser les outils en toute sécurité (par exemple couteau rétractable, marteau, tournevis, pinces)

STRAND	**QC.5.**	**Parcours de formation générale: Techniques**
STANDARD	**5.A.**	**Technologie**
SUBSTRAND	**5.A.2.**	**Fabrication**
COMPETENCY	**5.A.2.b.**	**Mesure et portant sur**
OBJECTIVE	5.A.2.b.iii.	Adopte la position appropriée pour la lecture d'un instrument
OBJECTIVE	5.A.2.b.iv.	Marque les matériaux à être façonné à l'aide d'un crayon ou d'un poinçon

STRAND	**QC.5.**	**Parcours de formation générale: Techniques**
STANDARD	**5.A.**	**Technologie**
SUBSTRAND	**5.A.2.**	**Fabrication**
COMPETENCY	**5.A.2.c.**	**Usinage et formant**
OBJECTIVE	5.A.2.c.i.	Choisit les matériaux appropriés, des outils, des techniques et des processus
OBJECTIVE	5.A.2.c.iii.	Immobilise la partie à former
OBJECTIVE	5.A.2.c.iv.	Formulaires de la partie en conformité avec les étapes dans les processus d'usinage suivantes: le sciage, le forage, ponçage, le dépôt

STRAND	QC.5.	Parcours de formation générale: Techniques
STANDARD	5.A.	Technologie
SUBSTRAND	5.A.2.	Fabrication
COMPETENCY	5.A.2.d.	Finition
OBJECTIVE	5.A.2.d.i.	Sables les côtés ou ébavurer les bords de chaque pièce après formage
OBJECTIVE	5.A.2.d.ii.	Utilise la finition appropriée (teinture, peinture)

STRAND	QC.5.	Parcours de formation générale: Techniques
STANDARD	5.A.	Technologie
SUBSTRAND	5.A.2.	Fabrication
COMPETENCY	5.A.2.e.	Assemblage
OBJECTIVE	5.A.2.e.ii.	Immobilise pièces lors du collage
OBJECTIVE	5.A.2.e.iii.	Perceuses à le diamètre des vis, des clous ou des rivets utilisés
OBJECTIVE	5.A.2.e.iv.	Fraises des ouvertures pour vis à tête fraisée

STRAND	QC.5.	Parcours de formation générale: Techniques
STANDARD	5.A.	Technologie
SUBSTRAND	5.A.2.	Fabrication
COMPETENCY	5.A.2.f.	Montage et démontage
OBJECTIVE	5.A.2.f.i.	Identifie et réunit les pièces et la quincaillerie
OBJECTIVE	5.A.2.f.ii.	Choisit les outils appropriés
OBJECTIVE	5.A.2.f.iii.	Pour le démontage, les chiffres et d'enregistrer l'emplacement des pièces

STRAND	QC.5.	Parcours de formation générale: Techniques
STANDARD	5.B.	Science
SUBSTRAND	5.B.d.	Utilisation d'instruments de mesure
COMPETENCY	5.B.d.i.	Adopte la position appropriée pour la lecture d'un instrument

STRAND	QC.5.	Parcours de formation générale: Techniques
STANDARD	5.B.	Science
SUBSTRAND	5.B.e.	Utilisation d'instruments d'observation
COMPETENCY	5.B.e.i.	Utilise des instruments d'observation appropriée (loupe, loupe binoculaire, jumelles, microscope)

STRAND	QC.6.	Parcours de formation générale: Stratégies

STANDARD	**6.A.**	**Stratégies d'exploration**
SUBSTRAND	6.A.1.	L'étude d'un problème ou un phénomène de différents points de vue (social, environnemental, historique, économique)
SUBSTRAND	6.A.2.	La distinction entre les différents types d'informations utiles pour résoudre le problème
SUBSTRAND	6.A.8.	Explorer différentes manières de résoudre le problème
SUBSTRAND	6.A.11.	Tenant compte des contraintes liées à la résolution d'un problème ou faire un objet (par exemple: spécifications, les ressources disponibles, le temps alloué)
SUBSTRAND	6.A.13.	Utilisation de différents types de raisonnement (par exemple, induction, déduction, l'inférence, la comparaison, la classification)
SUBSTRAND	6.A.14.	En utilisant des approches empiriques (par exemple du procès et l'erreur, l'analyse, l'exploration en utilisant ses sens)
STRAND	**QC.6.**	**Parcours de formation générale: Stratégies**
STANDARD	**6.B.**	**Stratégies d'instrumentation**
SUBSTRAND	6.B.3.	Recourir au design technique pour illustrer une solution (par exemple des diagrammes, des croquis, des dessins techniques)
SUBSTRAND	6.B.4.	En utilisant des outils différents pour l'enregistrement des informations (par exemple des diagrammes, des notes, des graphiques, des procédures, le journal de bord)
SUBSTRAND	6.B.5.	En utilisant une variété de techniques d'observation et d'outils
SUBSTRAND	6.B.6.	Sélection des techniques appropriées ou des outils pour l'observation
STRAND	**QC.6.**	**Parcours de formation générale: Stratégies**
STANDARD	**6.C.**	**Des stratégies analytiques**
SUBSTRAND	6.C.1.	Identifier les contraintes et les éléments importants liés à la situation de résolution de problèmes
SUBSTRAND	6.C.2.	Diviser un problème complexe en sous-problèmes plus simples
SUBSTRAND	6.C.3.	Utilisation de différents types de raisonnement (par exemple le raisonnement inductif et déductif, la comparaison, la classification, priorisation) afin de traiter l'information
STRAND	**QC.6.**	**Parcours de formation générale: Stratégies**
STANDARD	**6.D.**	**Les stratégies de communication**
SUBSTRAND	6.D.1.	En utilisant différents moyens de communication pour proposer des explications ou des solutions (par exemple une présentation orale, présentation écrite, la procédure)
SUBSTRAND	6.D.3.	L'échange d'informations

SUBSTRAND	6.D.5.	L'utilisation d'outils pour afficher des informations dans différents formats (par exemple des tableaux de données, graphiques, diagrammes)

Québec Education Program Progression of Learning
Mathematics
Grade **5** - Adopted: **2009**

STRAND	**QC.5.**	**Measurement**
STANDARD	**5.C.**	**Volumes**
SUBSTRAND	**5.C.1.**	**Estimates and measures volume**
COMPETENCY	5.C.1.b.	Using conventional units

STRAND	**QC.5.**	**Measurement**
STANDARD	**5.E.**	**Capacities**
SUBSTRAND	5.E.2.	Estimates and measures capacity using conventional units

Québec Education Program Progression of Learning
Mathematics
Grade **6** - Adopted: **2009**

STRAND	**QC.5.**	**Measurement**
STANDARD	**5.C.**	**Volumes**
SUBSTRAND	**5.C.1.**	**Estimates and measures volume**
COMPETENCY	5.C.1.b.	Using conventional units

STRAND	**QC.5.**	**Measurement**
STANDARD	**5.E.**	**Capacities**
SUBSTRAND	5.E.2.	Estimates and measures capacity using conventional units

Québec Education Program Progression of Learning
Science
Grade **5** - Adopted: **2009**

STRAND	**QC.1.**	**Material World**
STANDARD	**1.D.**	**Systems and interaction**
SUBSTRAND	**1.D.1.**	**Everyday technical objects**
COMPETENCY	1.D.1.a.	Describes the parts and mechanisms that make up an object
COMPETENCY	1.D.1.b.	Identifies the needs that an object was originally designed to meet

STRAND	**QC.1.**	**Material World**
STANDARD	**1.D.**	**Systems and interaction**
SUBSTRAND	**1.D.3.**	**Other machines**

COMPETENCY	1.D.3.a.	Identifies the main function of some complex machines (e.g. cart, waterwheel, wind turbine)

STRAND	**QC.1.**	**Material World**
STANDARD	**1.D.**	**Systems and interaction**
SUBSTRAND	**1.D.4.**	**How manufactured objects work**
COMPETENCY	1.D.4.a.	Identifies the mechanical parts (e.g. gears, cams, springs, simple machines, connecting rods)

STRAND	**QC.1.**	**Material World**
STANDARD	**1.D.**	**Systems and interaction**
SUBSTRAND	**1.D.7.**	**Electron technology**
COMPETENCY	1.D.7.a.	Recognizes the influence and the impact of electric appliances on people's way of life and surroundings (e.g. telephone, radio, television, computer)

STRAND	**QC.1.**	**Material World**
STANDARD	**1.E.**	**Techniques and instrumentation**
SUBSTRAND	**1.E.3.**	**Use of tools**
COMPETENCY	1.E.3.a.	Appropriately and safely uses tools (e.g. pliers, screwdriver, hammer, wrench, simple template)

STRAND	**QC.1.**	**Material World**
STANDARD	**1.E.**	**Techniques and instrumentation**
SUBSTRAND	**1.E.4.**	**Design and manufacture of instruments, tools, machines, structures (e.g. bridges, towers), devices (e.g. water filtration device), models (e.g. glider) and simple circuits**
COMPETENCY	1.E.4.d.	Draws and cuts parts out of various materials using appropriate tools
COMPETENCY	1.E.4.e.	Uses appropriate assembling methods (e.g. screws, glue, nails, tacks, nuts)
COMPETENCY	1.E.4.f.	Uses appropriate tools for proper finishing work
COMPETENCY	1.E.4.g.	Uses simple machines, mechanisms or electrical components to design or make an object

STRAND	**QC.2.**	**Earth and Space**
STANDARD	**2.A.**	**Matter**
SUBSTRAND	**2.A.1.**	**Properties and characteristics of matter on Earth**
COMPETENCY	2.A.1.b.	Describes the various ways in which the quality of water, soil or air affects living things

STRAND	**QC.2.**	**Earth and Space**
STANDARD	**2.E.**	**Techniques and instrumentation**
SUBSTRAND	**2.E.3.**	**Design and manufacture of measuring instruments and prototypes**
COMPETENCY	2.E.3.a.	Designs and manufactures measuring instruments and prototypes

STRAND	QC.3.	Living Things
STANDARD	3.A.	Matter
SUBSTRAND	3.A.1.	Characteristics of living things
COMPETENCY	3.A.1.a.	Explains the basic needs of the metabolism of living things (e.g. nutrition, respiration)

STRAND	QC.3.	Living Things
STANDARD	3.F.	Appropriate language
SUBSTRAND	3.F.1.	Terminology related to an understanding of living things
COMPETENCY	3.F.1.a.	Appropriately uses terminology related to an understanding of living things
COMPETENCY	3.F.1.b.	Distinguishes between the meaning of a term used in a scientific or technological context and its meaning in everyday language (e.g. habitat, metamorphosis)

Québec Education Program Progression of Learning

Science

Grade **6** - Adopted: **2009**

STRAND	QC.1.	Material World
STANDARD	1.D.	Systems and interaction
SUBSTRAND	1.D.1.	Everyday technical objects
COMPETENCY	1.D.1.a.	Describes the parts and mechanisms that make up an object
COMPETENCY	1.D.1.b.	Identifies the needs that an object was originally designed to meet

STRAND	QC.1.	Material World
STANDARD	1.D.	Systems and interaction
SUBSTRAND	1.D.3.	Other machines
COMPETENCY	1.D.3.a.	Identifies the main function of some complex machines (e.g. cart, waterwheel, wind turbine)

STRAND	QC.1.	Material World
STANDARD	1.D.	Systems and interaction
SUBSTRAND	1.D.4.	How manufactured objects work
COMPETENCY	1.D.4.a.	Identifies the mechanical parts (e.g. gears, cams, springs, simple machines, connecting rods)

STRAND	QC.1.	Material World
STANDARD	1.D.	Systems and interaction
SUBSTRAND	1.D.7.	Electron technology
COMPETENCY	1.D.7.a.	Recognizes the influence and the impact of electric appliances on people's way of life and surroundings (e.g. telephone, radio, television, computer)

STRAND	**QC.1.**	**Material World**
STANDARD	**1.E.**	**Techniques and instrumentation**
SUBSTRAND	**1.E.3.**	**Use of tools**
COMPETENCY	1.E.3.a.	Appropriately and safely uses tools (e.g. pliers, screwdriver, hammer, wrench, simple template)

STRAND	**QC.1.**	**Material World**
STANDARD	**1.E.**	**Techniques and instrumentation**
SUBSTRAND	**1.E.4.**	**Design and manufacture of instruments, tools, machines, structures (e.g. bridges, towers), devices (e.g. water filtration device), models (e.g. glider) and simple circuits**
COMPETENCY	1.E.4.d.	Draws and cuts parts out of various materials using appropriate tools
COMPETENCY	1.E.4.e.	Uses appropriate assembling methods (e.g. screws, glue, nails, tacks, nuts)
COMPETENCY	1.E.4.f.	Uses appropriate tools for proper finishing work
COMPETENCY	1.E.4.g.	Uses simple machines, mechanisms or electrical components to design or make an object

STRAND	**QC.2.**	**Earth and Space**
STANDARD	**2.A.**	**Matter**
SUBSTRAND	**2.A.1.**	**Properties and characteristics of matter on Earth**
COMPETENCY	2.A.1.b.	Describes the various ways in which the quality of water, soil or air affects living things

STRAND	**QC.2.**	**Earth and Space**
STANDARD	**2.E.**	**Techniques and instrumentation**
SUBSTRAND	**2.E.3.**	**Design and manufacture of measuring instruments and prototypes**
COMPETENCY	2.E.3.a.	Designs and manufactures measuring instruments and prototypes

STRAND	**QC.3.**	**Living Things**
STANDARD	**3.A.**	**Matter**
SUBSTRAND	**3.A.1.**	**Characteristics of living things**
COMPETENCY	3.A.1.a.	Explains the basic needs of the metabolism of living things (e.g. nutrition, respiration)

STRAND	**QC.3.**	**Living Things**
STANDARD	**3.F.**	**Appropriate language**
SUBSTRAND	**3.F.1.**	**Terminology related to an understanding of living things**
COMPETENCY	3.F.1.a.	Appropriately uses terminology related to an understanding of living things
COMPETENCY	3.F.1.b.	Distinguishes between the meaning of a term used in a scientific or technological context and its meaning in everyday language (e.g. habitat, metamorphosis)

Québec Education Program Progression of Learning

Science

Grade **7** - Adopted: **2009**

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.B.**	**Mechanical engineering**
SUBSTRAND	**4.B.1.**	**Forces and motion**
COMPETENCY	**4.B.1.a.**	**Types of motion**
OBJECTIVE	4.B.1.a.i.	Identifies parts that move in a specific way in a technical object (rectilinear translation, rotation, helical)

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.B.**	**Mechanical engineering**
SUBSTRAND	**4.B.2.**	**Technological systems**
COMPETENCY	**4.B.2.a.**	**System**
OBJECTIVE	4.B.2.a.i.	Identifies a system (set of connected elements that interact with each other) in a technical object or technological application
OBJECTIVE	4.B.2.a.ii.	Describes the overall function of a technological system
OBJECTIVE	4.B.2.a.iii.	Names the inputs and outputs of a technological system
OBJECTIVE	4.B.2.a.iv.	Names the processes and control elements of a technological system

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.B.**	**Mechanical engineering**
SUBSTRAND	**4.B.2.**	**Technological systems**
COMPETENCY	**4.B.2.b.**	**Components of a system**
OBJECTIVE	4.B.2.b.i.	Describes the role of the components of a technological system (e.g. explains the role of the parts of a lighting system)

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.B.**	**Mechanical engineering**
SUBSTRAND	**4.B.2.**	**Technological systems**
COMPETENCY	**4.B.2.c.**	**Energy transformations**
OBJECTIVE	4.B.2.c.ii.	Defines energy transformations
OBJECTIVE	4.B.2.c.iii.	Identifies energy transformations in a technical object or technological system

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.B.**	**Mechanical engineering**
SUBSTRAND	**4.B.3.**	**Engineering**

COMPETENCY	**4.B.3.a.**	**Basic mechanical functions (links, guiding control)**
OBJECTIVE	4.B.3.a.i.	Describes the role of links and guiding controls in a technical object
OBJECTIVE	4.B.3.a.ii.	Identifies a guiding control in a technical object, as well as the related links (e.g. a pizza wheel is guided by a pivot, which links it to the handle)

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.B.**	**Mechanical engineering**
SUBSTRAND	**4.B.3.**	**Engineering**
COMPETENCY	**4.B.3.h.**	**Motion transmission systems**
OBJECTIVE	4.B.3.h.i.	Identifies motion transmission systems in technical objects

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.B.**	**Mechanical engineering**
SUBSTRAND	**4.B.3.**	**Engineering**
COMPETENCY	**4.B.3.k.**	**Motion transformation systems**
OBJECTIVE	4.B.3.k.i.	Identifies motion transformation systems in technical objects

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.D.**	**Materials**
SUBSTRAND	**4.D.1.**	**Material resources**
COMPETENCY	**4.D.1.c.**	**Equipment**
OBJECTIVE	4.D.1.c.i.	Defines tools and equipment as the elements needed to manufacture an object (machining, control, assembly)

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.E.**	**Manufacturing**
SUBSTRAND	**4.E.a.**	**Specifications**
COMPETENCY	4.E.a.ii.	Evaluates a prototype or technical object based on the environments described in the specifications (human, technical, industrial, economic, physical, environmental)

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.E.**	**Manufacturing**
SUBSTRAND	**4.E.b.**	**Manufacturing process sheet**
COMPETENCY	4.E.b.i.	Defines a manufacturing process sheet as a set of steps to follow to machine the parts that make up a technical object
COMPETENCY	4.E.b.ii.	Follows a process and assembly sheet to construct an object consisting of few components or to construct part of that object

STRAND	**QC.5.**	**General Education Path: Techniques**

STANDARD	**5.A.**	**Technology**
SUBSTRAND	**5.A.2.**	**Manufacturing**
COMPETENCY	**5.A.2.a.**	**Safely using machines and tools**
OBJECTIVE	5.A.2.a.i.	Uses tools safely (e.g. retractable utility knife, hammer, screwdriver, pliers)

STRAND	**QC.5.**	**General Education Path: Techniques**
STANDARD	**5.A.**	**Technology**
SUBSTRAND	**5.A.2.**	**Manufacturing**
COMPETENCY	**5.A.2.b.**	**Measuring and laying out**
OBJECTIVE	5.A.2.b.iii.	Adopts the appropriate position for reading an instrument
OBJECTIVE	5.A.2.b.iv.	Marks the materials to be shaped using a pencil or punch

STRAND	**QC.5.**	**General Education Path: Techniques**
STANDARD	**5.A.**	**Technology**
SUBSTRAND	**5.A.2.**	**Manufacturing**
COMPETENCY	**5.A.2.c.**	**Machining and forming**
OBJECTIVE	5.A.2.c.i.	Chooses the appropriate materials, tools, techniques and processes
OBJECTIVE	5.A.2.c.iii.	Immobilizes the part to be formed
OBJECTIVE	5.A.2.c.iv.	Forms the part in accordance with the steps in the following machining processes: sawing, drilling, sanding, filing

STRAND	**QC.5.**	**General Education Path: Techniques**
STANDARD	**5.A.**	**Technology**
SUBSTRAND	**5.A.2.**	**Manufacturing**
COMPETENCY	**5.A.2.d.**	**Finishing**
OBJECTIVE	5.A.2.d.i.	Sands the sides or deburrs the edges of each part after forming
OBJECTIVE	5.A.2.d.ii.	Uses the appropriate finish (stain, paint)

STRAND	**QC.5.**	**General Education Path: Techniques**
STANDARD	**5.A.**	**Technology**
SUBSTRAND	**5.A.2.**	**Manufacturing**
COMPETENCY	**5.A.2.e.**	**Assembling**
OBJECTIVE	5.A.2.e.ii.	Immobilizes parts during gluing
OBJECTIVE	5.A.2.e.iii.	Drills to the diameter of the screws, nails or rivets used

OBJECTIVE	5.A.2.e.iv.	Countersinks the openings for countersunk screws
STRAND	**QC.5.**	**General Education Path: Techniques**
STANDARD	**5.A.**	**Technology**
SUBSTRAND	**5.A.2.**	**Manufacturing**
COMPETENCY	**5.A.2.f.**	**Assembling and disassembling**
OBJECTIVE	5.A.2.f.i.	Identifies and gathers the parts and hardware
OBJECTIVE	5.A.2.f.ii.	Chooses the appropriate tools
OBJECTIVE	5.A.2.f.iii.	For disassembly, numbers and records the location of the parts
STRAND	**QC.5.**	**General Education Path: Techniques**
STANDARD	**5.B.**	**Science**
SUBSTRAND	**5.B.d.**	**Using measuring instruments**
COMPETENCY	5.B.d.i.	Adopts the appropriate position for reading an instrument
STRAND	**QC.5.**	**General Education Path: Techniques**
STANDARD	**5.B.**	**Science**
SUBSTRAND	**5.B.e.**	**Using observational instruments**
COMPETENCY	5.B.e.i.	Uses observational instruments appropriately (e.g. magnifying glass, stereomicroscope, binoculars, microscope)
STRAND	**QC.6.**	**General Education Path: Strategies**
STANDARD	**6.A.**	**Exploration strategies**
SUBSTRAND	6.A.1.	Studying a problem or a phenomenon from different points of view (e.g. social, environmental, historical, economic)
SUBSTRAND	6.A.2.	Distinguishing between the different types of information useful for solving the problem
SUBSTRAND	6.A.8.	Exploring various ways of solving the problem
SUBSTRAND	6.A.11.	Taking into account the constraints involved in solving a problem or making an object (e.g. specifications, available resources, time allotted)
SUBSTRAND	6.A.13.	Using different types of reasoning (e.g. induction, deduction, inference, comparison, classification)
SUBSTRAND	6.A.14.	Using empirical approaches (e.g. trial and error, analysis, exploration using one's senses)
STRAND	**QC.6.**	**General Education Path: Strategies**
STANDARD	**6.B.**	**Instrumentation strategies**
SUBSTRAND	6.B.3.	Using technical design to illustrate a solution (e.g. diagrams, sketches, technical drawings)

SUBSTRAND	6.B.4.	Using different tools for recording information (e.g. diagrams, notes, graphs, procedures, logbook)
SUBSTRAND	6.B.5.	Using a variety of observational techniques and tools
SUBSTRAND	6.B.6.	Selecting suitable techniques or tools for observation
STRAND	**QC.6.**	**General Education Path: Strategies**
STANDARD	**6.C.**	**Analytical strategies**
SUBSTRAND	6.C.1.	Identifying the constraints and important elements related to the problem-solving situation
SUBSTRAND	6.C.2.	Dividing a complex problem into simpler subproblems
SUBSTRAND	6.C.3.	Using different types of reasoning (e.g. inductive and deductive reasoning, comparison, classification, prioritization) in order to process information
STRAND	**QC.6.**	**General Education Path: Strategies**
STANDARD	**6.D.**	**Communication strategies**
SUBSTRAND	6.D.1.	Using different means of communication to propose explanations or solutions (e.g. oral presentation, written presentation, procedure)
SUBSTRAND	6.D.3.	Exchanging information
SUBSTRAND	6.D.5.	Using tools to display information in various formats (e.g. data tables, graphs, diagrams)

Québec Education Program Progression of Learning

Science

Grade **8** - Adopted: **2009**

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.B.**	**Mechanical engineering**
SUBSTRAND	**4.B.1.**	**Forces and motion**
COMPETENCY	**4.B.1.a.**	**Types of motion**
OBJECTIVE	4.B.1.a.i.	Identifies parts that move in a specific way in a technical object (rectilinear translation, rotation, helical)
STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.B.**	**Mechanical engineering**
SUBSTRAND	**4.B.2.**	**Technological systems**
COMPETENCY	**4.B.2.a.**	**System**
OBJECTIVE	4.B.2.a.i.	Identifies a system (set of connected elements that interact with each other) in a technical object or technological application
OBJECTIVE	4.B.2.a.ii.	Describes the overall function of a technological system

OBJECTIVE	4.B.2.a.iii.	Names the inputs and outputs of a technological system
OBJECTIVE	4.B.2.a.iv.	Names the processes and control elements of a technological system

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.B.**	**Mechanical engineering**
SUBSTRAND	**4.B.2.**	**Technological systems**
COMPETENCY	**4.B.2.b.**	**Components of a system**
OBJECTIVE	4.B.2.b.i.	Describes the role of the components of a technological system (e.g. explains the role of the parts of a lighting system)

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.B.**	**Mechanical engineering**
SUBSTRAND	**4.B.2.**	**Technological systems**
COMPETENCY	**4.B.2.c.**	**Energy transformations**
OBJECTIVE	4.B.2.c.ii.	Defines energy transformations
OBJECTIVE	4.B.2.c.iii.	Identifies energy transformations in a technical object or technological system

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.B.**	**Mechanical engineering**
SUBSTRAND	**4.B.3.**	**Engineering**
COMPETENCY	**4.B.3.a.**	**Basic mechanical functions (links, guiding control)**
OBJECTIVE	4.B.3.a.i.	Describes the role of links and guiding controls in a technical object
OBJECTIVE	4.B.3.a.ii.	Identifies a guiding control in a technical object, as well as the related links (e.g. a pizza wheel is guided by a pivot, which links it to the handle)

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.B.**	**Mechanical engineering**
SUBSTRAND	**4.B.3.**	**Engineering**
COMPETENCY	**4.B.3.h.**	**Motion transmission systems**
OBJECTIVE	4.B.3.h.i.	Identifies motion transmission systems in technical objects

STRAND	**QC.4.**	**General Education Path: The Technological World**
STANDARD	**4.B.**	**Mechanical engineering**
SUBSTRAND	**4.B.3.**	**Engineering**
COMPETENCY	**4.B.3.k.**	**Motion transformation systems**
OBJECTIVE	4.B.3.k.i.	Identifies motion transformation systems in technical objects

STRAND	QC.4.	General Education Path: The Technological World
STANDARD	4.D.	Materials
SUBSTRAND	4.D.1.	Material resources
COMPETENCY	4.D.1.c.	Equipment
OBJECTIVE	4.D.1.c.i.	Defines tools and equipment as the elements needed to manufacture an object (machining, control, assembly)

STRAND	QC.4.	General Education Path: The Technological World
STANDARD	4.E.	Manufacturing
SUBSTRAND	4.E.a.	Specifications
COMPETENCY	4.E.a.ii.	Evaluates a prototype or technical object based on the environments described in the specifications (human, technical, industrial, economic, physical, environmental)

STRAND	QC.4.	General Education Path: The Technological World
STANDARD	4.E.	Manufacturing
SUBSTRAND	4.E.b.	Manufacturing process sheet
COMPETENCY	4.E.b.i.	Defines a manufacturing process sheet as a set of steps to follow to machine the parts that make up a technical object
COMPETENCY	4.E.b.ii.	Follows a process and assembly sheet to construct an object consisting of few components or to construct part of that object

STRAND	QC.5.	General Education Path: Techniques
STANDARD	5.A.	Technology
SUBSTRAND	5.A.2.	Manufacturing
COMPETENCY	5.A.2.a.	Safely using machines and tools
OBJECTIVE	5.A.2.a.i.	Uses tools safely (e.g. retractable utility knife, hammer, screwdriver, pliers)

STRAND	QC.5.	General Education Path: Techniques
STANDARD	5.A.	Technology
SUBSTRAND	5.A.2.	Manufacturing
COMPETENCY	5.A.2.b.	Measuring and laying out
OBJECTIVE	5.A.2.b.iii.	Adopts the appropriate position for reading an instrument
OBJECTIVE	5.A.2.b.iv.	Marks the materials to be shaped using a pencil or punch

STRAND	QC.5.	General Education Path: Techniques
STANDARD	5.A.	Technology
SUBSTRAND	5.A.2.	Manufacturing
COMPETENCY	5.A.2.c.	Machining and forming

OBJECTIVE	5.A.2.c.i.	Chooses the appropriate materials, tools, techniques and processes
OBJECTIVE	5.A.2.c.iii.	Immobilizes the part to be formed
OBJECTIVE	5.A.2.c.iv.	Forms the part in accordance with the steps in the following machining processes: sawing, drilling, sanding, filing

STRAND	**QC.5.**	**General Education Path: Techniques**
STANDARD	**5.A.**	**Technology**
SUBSTRAND	**5.A.2.**	**Manufacturing**
COMPETENCY	**5.A.2.d.**	**Finishing**
OBJECTIVE	5.A.2.d.i.	Sands the sides or deburrs the edges of each part after forming
OBJECTIVE	5.A.2.d.ii.	Uses the appropriate finish (stain, paint)

STRAND	**QC.5.**	**General Education Path: Techniques**
STANDARD	**5.A.**	**Technology**
SUBSTRAND	**5.A.2.**	**Manufacturing**
COMPETENCY	**5.A.2.e.**	**Assembling**
OBJECTIVE	5.A.2.e.ii.	Immobilizes parts during gluing
OBJECTIVE	5.A.2.e.iii.	Drills to the diameter of the screws, nails or rivets used
OBJECTIVE	5.A.2.e.iv.	Countersinks the openings for countersunk screws

STRAND	**QC.5.**	**General Education Path: Techniques**
STANDARD	**5.A.**	**Technology**
SUBSTRAND	**5.A.2.**	**Manufacturing**
COMPETENCY	**5.A.2.f.**	**Assembling and disassembling**
OBJECTIVE	5.A.2.f.i.	Identifies and gathers the parts and hardware
OBJECTIVE	5.A.2.f.ii.	Chooses the appropriate tools
OBJECTIVE	5.A.2.f.iii.	For disassembly, numbers and records the location of the parts

STRAND	**QC.5.**	**General Education Path: Techniques**
STANDARD	**5.B.**	**Science**
SUBSTRAND	**5.B.d.**	**Using measuring instruments**
COMPETENCY	5.B.d.i.	Adopts the appropriate position for reading an instrument

STRAND	**QC.5.**	**General Education Path: Techniques**

STANDARD	**5.B.**	**Science**
SUBSTRAND	**5.B.e.**	**Using observational instruments**
COMPETENCY	5.B.e.i.	Uses observational instruments appropriately (e.g. magnifying glass, stereomicroscope, binoculars, microscope)
STRAND	**QC.6.**	**General Education Path: Strategies**
STANDARD	**6.A.**	**Exploration strategies**
SUBSTRAND	6.A.1.	Studying a problem or a phenomenon from different points of view (e.g. social, environmental, historical, economic)
SUBSTRAND	6.A.2.	Distinguishing between the different types of information useful for solving the problem
SUBSTRAND	6.A.8.	Exploring various ways of solving the problem
SUBSTRAND	6.A.11.	Taking into account the constraints involved in solving a problem or making an object (e.g. specifications, available resources, time allotted)
SUBSTRAND	6.A.13.	Using different types of reasoning (e.g. induction, deduction, inference, comparison, classification)
SUBSTRAND	6.A.14.	Using empirical approaches (e.g. trial and error, analysis, exploration using one's senses)
STRAND	**QC.6.**	**General Education Path: Strategies**
STANDARD	**6.B.**	**Instrumentation strategies**
SUBSTRAND	6.B.3.	Using technical design to illustrate a solution (e.g. diagrams, sketches, technical drawings)
SUBSTRAND	6.B.4.	Using different tools for recording information (e.g. diagrams, notes, graphs, procedures, logbook)
SUBSTRAND	6.B.5.	Using a variety of observational techniques and tools
SUBSTRAND	6.B.6.	Selecting suitable techniques or tools for observation
STRAND	**QC.6.**	**General Education Path: Strategies**
STANDARD	**6.C.**	**Analytical strategies**
SUBSTRAND	6.C.1.	Identifying the constraints and important elements related to the problem-solving situation
SUBSTRAND	6.C.2.	Dividing a complex problem into simpler subproblems
STRAND	**QC.6.**	**General Education Path: Strategies**
STANDARD	**6.D.**	**Communication strategies**
SUBSTRAND	6.D.1.	Using different means of communication to propose explanations or solutions (e.g. oral presentation, written presentation, procedure)
SUBSTRAND	6.D.3.	Exchanging information

SUBSTRAND	6.D.5.	Using tools to display information in various formats (e.g. data tables, graphs, diagrams)

Saskatchewan Curriculum

Mathematics

Grade **5** - Adopted: **2008**

OUTCOME / COURSE	**SK.SS5.**	**Shape and Space Strand**
FOCUS	**SS5.3.**	**Demonstrate an understanding of volume by: selecting and justifying referents for cm^3 or m^3 units, estimating volume by using referents for cm^3 or m^3, measuring and recording volume (cm^3 or m^3), constructing rectangular prisms for a given volume. [C, CN, ME, PS, R, V]**
OUTCOME	SS5.3.b.	Describe strategies developed for selecting and using referents to determine approximate volume measurements in situations relevant to self, family, or community.
OUTCOME	SS5.3.c.	Estimate the volume of 3-D objects using personal referents.
OUTCOME	SS5.3.e.	Determine the volume of a 3-D object using manipulatives, describe the strategy used, and explain whether the volume is exact or an estimate.

OUTCOME / COURSE	**SK.SS5.**	**Shape and Space Strand**
FOCUS	**SS5.4.**	**Demonstrate understanding of capacity by: describing the relationship between mL and L, selecting and justifying referents for mL or L units, estimating capacity by using referents for mL or L, measuring and recording capacity (mL or L). [C, CN, ME, PS, R, V]**
OUTCOME	SS5.4.c.	Describe strategies for selecting and using referents to determine approximate capacity measurements in situations relevant to self, family, or community.
OUTCOME	SS5.4.e.	Estimate the capacity of a container using personal referents.

Saskatchewan Curriculum

Mathematics

Grade **6** - Adopted: **2009**

OUTCOME / COURSE	**SK.SS6.**	**Shape and Space**
FOCUS	SS6.2.	Extend and apply understanding of perimeter of polygons, area of rectangles, and volume of right rectangular prisms (concretely, pictorially, and symbolically) including: relating area to volume; comparing perimeter and area; comparing area and volume; generalizing strategies and formulae; analyzing the effect of orientation; solving situational questions. [CN, PS, R, V]

Saskatchewan Curriculum

Mathematics

Grade **8** - Adopted: **2008**

OUTCOME / COURSE	**SK.SS8.**	**Shape and Space**
FOCUS	SS8.3.	Students will demonstrate understanding of volume limited to right prisms and cylinders (concretely, pictorially, or symbolically) by: relating area to volume; generalizing strategies and formulae; analyzing the effect of orientation; solving problems. [CN, PS, R, V]

Saskatchewan Curriculum

Science

Grade **5** - Adopted: **2011**

OUTCOME / COURSE	**SK.WE.**	**Earth and Space Science: Weather (WE)**
FOCUS	**WE5.1.**	**Measure and represent local weather, including temperature, wind speed and direction, amount of sunlight, precipitation, relative humidity, and cloud cover. [CP, SI, TPS]**
OUTCOME	WE5.1.l.	Pose new questions about local weather conditions based on what was learned.

Saskatchewan Curriculum

Science

Grade **6** - Adopted: **2009**

OUTCOME / COURSE	**SK.DL.**	**Life Science: Diversity of Living Things (DL)**
FOCUS	**DL6.5.**	**Assess effects of micro-organisms on past and present society, and contributions of science and technology to human understanding of micro-organisms. [CP, DM, SI]**
OUTCOME	DL6.5.b.	Observe and represent, using words and diagrams, characteristics of micro-organisms obtained from student- or teacher-collected water samples (e.g., bottled water, tap water, rain barrel, pond, creek, slough, and river water).
OUTCOME	DL6.5.e.	Compare cultural (including First Nations and Métis), historical, and scientific understandings and explanations of disease, including the contributions of scientists such as John Snow and Louis Pasteur to the germ theory.
OUTCOME	DL6.5.g.	Discuss positive and negative impacts of micro-organisms for humans (e.g., food production and spoilage, fermentation, pasteurization, water and sewage treatment, human digestion, composting, disease spread and prevention, and biological warfare).

Saskatchewan Curriculum

Science

Grade **8** - Adopted: **2009**

OUTCOME / COURSE	**SK.WS.**	**Earth and Space Science: Water Systems on Earth (WS)**
FOCUS	**WS8.1.**	**Analyze the impact of natural and human-induced changes to the characteristics and distribution of water in local, regional, and national ecosystems. [CP, DM]**
OUTCOME	WS8.1.f.	Identify possible personal, societal, economic, and environmental consequences of natural changes and human practices and technologies that pose threats to surface and/or ground water systems in Saskatchewan (e.g., vegetation removal, water and sewage treatment plants, timber harvesting, over-application of fertilizers, agricultural and urban irrigation, impervious ground cover, land alterations, mining, introduction of invasive species, shoreline erosion, fluctuating lake levels, flooding, draining and/or channelling of surface water features, and damming of rivers).
OUTCOME	WS8.1.g.	Research a specific human practice or technology that may pose a threat to surface and/or groundwater systems in Saskatchewan and explain how different groups in society (e.g., landowner, consumer, business owner, recreational user, fisherman, government official, and farmer) may have conflicting needs and desires in relation to the practice or technology and how those decisions or actions of different stakeholders may or may not be addressed by scientific or technological knowledge.
OUTCOME	WS8.1.h.	Evaluate individual and group processes used in planning, problem solving, decision making, and completing a task related to studying threats to water systems, such as accepting various roles in a group, sharing responsibility for carrying out decisions, and seeking consensus before making decisions.

OUTCOME / COURSE	**SK.WS.**	**Earth and Space Science: Water Systems on Earth (WS)**
FOCUS	**WS8.3.**	**Analyze natural factors and human practices that affect productivity and species distribution in marine and fresh water environments. [CP, DM, SI]**

OUTCOME	WS8.3.e.	Measure factors that provide indicators of water quality, such as temperature, turbidity, dissolved oxygen content, presence of nitrates or phosphates, and macroinvertebrates, from a variety of samples of water.
OUTCOME	WS8.3.f.	Interpret patterns and trends in water quality data, and infer and explain relationships among the variables.
OUTCOME	WS8.3.g.	Identify strengths and weaknesses of different methods of collecting and displaying data about water quality.
OUTCOME	WS8.3.h.	Describe examples of technologies used to assess water quality and how those technologies have changed over time.

The Ontario Curriculum

Mathematics

Grade **7** - Adopted: **2020**

STRAND / COURSE		**Ontario Mathematics Curriculum Expectations – Grade 7**
STRAND / OVERALL EXPECTATION	**E.**	**SPATIAL SENSE**
STAGE / SKILLS	**E2.**	**compare, estimate, and determine measurements in various contexts**
SUB-ORGANIZER / SPECIFIC EXPECTATION		**Volume and Surface Area**
EXPECTATION	E2.7.	show that the volume of a prism or cylinder can be determined by multiplying the area of its base by its height, and apply this relationship to find the area of the base, volume, and height of prisms and cylinders when given two of the three measurements

The Ontario Curriculum

Science

Grade **5** - Adopted: **2022**

STRAND / COURSE		**Science and Technology Grade 5**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 5, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**
STAGE / SKILLS	**A1.**	**STEM Investigation and Communication Skills: use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures**
SUB-ORGANIZER / SPECIFIC EXPECTATION	A1.3.	use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems
SUB-ORGANIZER / SPECIFIC EXPECTATION	A1.5.	communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes

STRAND / COURSE		**Science and Technology Grade 5**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 5, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**

STAGE / SKILLS	**A2.**	**Coding and Emerging Technologies: use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields**
SUB-ORGANIZER / SPECIFIC EXPECTATION	A2.1.	write and execute code in investigations and when modelling concepts, with a focus on using different methods to store and process data for a variety of purposes
SUB-ORGANIZER / SPECIFIC EXPECTATION	A2.2.	identify and describe impacts of coding and of emerging technologies on everyday life, including skilled trades

STRAND / COURSE		**Science and Technology Grade 5**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 5, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**
STAGE / SKILLS	**A3.**	**Applications, Connections, and Contributions: demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences**
SUB-ORGANIZER / SPECIFIC EXPECTATION	A3.2.	investigate how science and technology can be used with other subject areas to address real-world problems

The Ontario Curriculum

Science

Grade **6** - Adopted: **2022**

STRAND / COURSE		**Science and Technology Grade 6**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 6, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**
STAGE / SKILLS	**A1.**	**STEM Investigation and Communication Skills: use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures**
SUB-ORGANIZER / SPECIFIC EXPECTATION	A1.3.	use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems
SUB-ORGANIZER / SPECIFIC EXPECTATION	A1.5.	communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes

STRAND / COURSE		**Science and Technology Grade 6**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 6, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**
STAGE / SKILLS	**A2.**	**Coding and Emerging Technologies: use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields**

SUB-ORGANIZER / SPECIFIC EXPECTATION	A2.1.	write and execute code in investigations and when modelling concepts, with a focus on obtaining input in different ways for a variety of purposes
SUB-ORGANIZER / SPECIFIC EXPECTATION	A2.2.	identify and describe impacts of coding and of emerging technologies on everyday life, including skilled trades

STRAND / COURSE		**Science and Technology Grade 6**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 6, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**
STAGE / SKILLS	**A3.**	**Applications, Connections, and Contributions: demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences**
SUB-ORGANIZER / SPECIFIC EXPECTATION	A3.2.	investigate how science and technology can be used with other subject areas to address realworld problems

The Ontario Curriculum

Science

Grade **7** - Adopted: **2022**

STRAND / COURSE		**Science and Technology Grade 7**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 7, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**
STAGE / SKILLS	**A1.**	**STEM Investigation and Communication Skills: use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures**
SUB-ORGANIZER / SPECIFIC EXPECTATION	A1.3.	use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems
SUB-ORGANIZER / SPECIFIC EXPECTATION	A1.5.	communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes

STRAND / COURSE		**Science and Technology Grade 7**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 7, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**
STAGE / SKILLS	**A2.**	**Coding and Emerging Technologies: use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields**

SUB-ORGANIZER / SPECIFIC EXPECTATION	A2.1.	write and execute code in investigations and when modelling concepts, with a focus on planning and designing programs
SUB-ORGANIZER / SPECIFIC EXPECTATION	A2.2.	identify and describe impacts of coding and of emerging technologies, such as artificial intelligence systems, on everyday life, including skilled trades

STRAND / COURSE		**Science and Technology Grade 7**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 7, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**
STAGE / SKILLS	**A3.**	**Applications, Connections, and Contributions: demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences**
SUB-ORGANIZER / SPECIFIC EXPECTATION	A3.2.	investigate how science and technology can be used with other subject areas to address real-world problems

The Ontario Curriculum

Science

Grade **8** - Adopted: **2022**

STRAND / COURSE		**Science and Technology Grade 8**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 8, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**
STAGE / SKILLS	**A1.**	**STEM Investigation and Communication Skills: use a scientific research process, a scientific experimentation process, and an engineering design process to conduct investigations, following appropriate health and safety procedures**
SUB-ORGANIZER / SPECIFIC EXPECTATION	A1.3.	use an engineering design process and associated skills to design, build, and test devices, models, structures, and/or systems
SUB-ORGANIZER / SPECIFIC EXPECTATION	A1.5.	communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes

STRAND / COURSE		**Science and Technology Grade 8**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 8, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**
STAGE / SKILLS	**A2.**	**Coding and Emerging Technologies: use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields**

SUB-ORGANIZER / SPECIFIC EXPECTATION	A2.1.	write and execute code in investigations and when modelling concepts, with a focus on automating large systems in action
SUB-ORGANIZER / SPECIFIC EXPECTATION	A2.2.	identify and describe impacts of coding and of emerging technologies, such as artificial intelligence systems, on everyday life, including skilled trades

STRAND / COURSE		**Science and Technology Grade 8**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 8, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**
STAGE / SKILLS	**A3.**	**Applications, Connections, and Contributions: demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences**
SUB-ORGANIZER / SPECIFIC EXPECTATION	A3.2.	investigate how science and technology can be used with other subject areas to address real-world problems

STRAND / COURSE		**Science and Technology Grade 8**
STRAND / OVERALL EXPECTATION	**STRAND E:**	**Earth and Space Systems - Water Systems - By the end of Grade 8, students will:**
STAGE / SKILLS	**E1.**	**Relating Science and Technology to Our Changing World: assess the impact of human activities and technologies on the sustainability of water resources**
SUB-ORGANIZER / SPECIFIC EXPECTATION	E1.1.	assess the social and environmental impact of the scarcity of fresh water, and propose a plan of action to help address fresh water sustainability issues
SUB-ORGANIZER / SPECIFIC EXPECTATION	E1.2.	demonstrate an understanding of First Nations, Métis, and Inuit knowledges and values about water, connections to water, and ways of managing water resources sustainably
SUB-ORGANIZER / SPECIFIC EXPECTATION	E1.3.	assess the impact of scientific discoveries and technological innovations on local and global water systems

STRAND / COURSE		**Science and Technology Grade 8**
STRAND / OVERALL EXPECTATION	**STRAND E:**	**Earth and Space Systems - Water Systems - By the end of Grade 8, students will:**
STAGE / SKILLS	**E2.**	**Exploring and Understanding Concepts: demonstrate an understanding of the characteristics of Earth's water systems and of factors that affect these systems**

SUB-ORGANIZER / SPECIFIC EXPECTATION	E2.6.	describe various indicators of water quality, and explain the impact of human activity on those indicators
SUB-ORGANIZER / SPECIFIC EXPECTATION	E2.7.	explain how municipalities process water and manage water usage