Forward Education

Harnessing the Sun's Energy with Solar Panels

Ontario Curriculum
Mathematics
Grade **7** - Adopted: **2020**

STRAND / COURSE		Ontario Mathematics Curriculum Expectations – Grade 7
STRAND / OVERALL EXPECTATION	**B.**	**NUMBER**
STAGE / SKILLS	**B2.**	**use knowledge of numbers and operations to solve mathematical problems encountered in everyday life**
SUB-ORGANIZER / SPECIFIC EXPECTATION		**Properties and Relationships**
EXPECTATION	B2.1.	use the properties and order of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and percents, including those requiring multiple steps or multiple operations

Ontario Curriculum
Mathematics
Grade **8** - Adopted: **2020**

STRAND / COURSE		Ontario Mathematics Curriculum Expectations – Grade 8
STRAND / OVERALL EXPECTATION	**B.**	**NUMBER**
STAGE / SKILLS	**B2.**	**use knowledge of numbers and operations to solve mathematical problems encountered in everyday life**
SUB-ORGANIZER / SPECIFIC EXPECTATION		**Properties and Relationships**
EXPECTATION	B2.1.	use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

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

STRAND / COURSE		Science and Technology Grade 7
STRAND / OVERALL EXPECTATION	STRAND B:	Life Systems - Interactions in the Environment By the end of Grade 7, students will:
STAGE / SKILLS	B1.	Relating Science and Technology to Our Changing World: assess the impact of human activities and technologies on the environment, and analyse ways to mitigate negative impacts and contribute to environmental sustainability
SUB-ORGANIZER / SPECIFIC EXPECTATION	B1.1.	assess the impact of various technologies on the environment

SUB-ORGANIZER / SPECIFIC EXPECTATION	B1.2.	assess the effectiveness of various ways of mitigating the negative and enhancing the positive impact of human activities on the environment
SUB-ORGANIZER / SPECIFIC EXPECTATION	B1.3.	analyse how diverse First Nations, Métis, and Inuit practices and perspectives contribute to environmental sustainability, including by using approaches such as Two-Eyed Seeing

STRAND / COURSE		Science and Technology Grade 7
STRAND / OVERALL EXPECTATION	STRAND B:	Life Systems - Interactions in the Environment By the end of Grade 7, students will:
STAGE / SKILLS	B2.	Exploring and Understanding Concepts: demonstrate an understanding of interactions between and among biotic and abiotic components in the environment
SUB-ORGANIZER / SPECIFIC EXPECTATION	B2.8.	describe how different approaches to agriculture and to harvesting food from the natural environment can impact an ecosystem, and identify strategies that can be used to maintain and/or restore balance to ecosystems

STRAND / COURSE		Science and Technology Grade 7
STRAND / OVERALL EXPECTATION	STRAND E:	Earth and Space Systems - Heat in the Environment By the end of Grade 7, students will:
STAGE / SKILLS	E1.	Relating Science and Technology to Our Changing World: assess the benefits of technologies that reduce heat loss, and analyse various social and environmental impacts of the use of energy from renewable and non-renewable sources
SUB-ORGANIZER / SPECIFIC EXPECTATION	E1.2.	analyse various social, economic, and environmental impacts, including impacts related to climate change, of using non-renewable and renewable sources of energy

STRAND / COURSE		Science and Technology Grade 7
STRAND / OVERALL EXPECTATION	STRAND E:	Earth and Space Systems - Heat in the Environment By the end of Grade 7, students will:
STAGE / SKILLS	E2.	Exploring and Understanding Concepts: demonstrate an understanding of heat as a form of energy that is associated with the movement of particles and is essential for many natural processes within Earth's systems
SUB-ORGANIZER / SPECIFIC EXPECTATION	E2.2.	demonstrate an understanding of various ways in which heat is generated
SUB-ORGANIZER / SPECIFIC EXPECTATION	E2.7.	describe the role of radiation in heating and cooling Earth, and explain how greenhouse gases affect the transmission of radiated heat through the atmosphere

SUB-ORGANIZER / SPECIFIC EXPECTATION	E2.8.	identify common sources of greenhouse gases, including sources resulting from human activity, and describe how humans can reduce emissions of these gases

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 C:	Matter and Energy - Fluids - By the end of Grade 8, students will:
STAGE / SKILLS	C1.	**Relating Science and Technology to Our Changing World: analyse uses of various technologies that rely on the properties of fluids, and assess the impact of these technologies on society and the environment**

SUB-ORGANIZER / SPECIFIC EXPECTATION	C1.2.	assess the environmental and social impacts of fluid spills, including impacts on First Nations, Métis, and Inuit communities, and including the cost and technical challenges related to cleanup and remediation efforts