

**Main Criteria:** Forward Education  
**Secondary Criteria:** Ontario Curriculum  
**Subjects:** Mathematics, Science, Technology Education  
**Grades:** 3, 4, Key Stage 1, Key Stage 2

## Forward Education

### Protecting Pollinators with a Bee Counter

**Ontario Curriculum**  
**Science**  
 Grade 3 - Adopted: 2022

<b>STRAND / COURSE</b>		<b>Science and Technology Grade 3</b>
<b>STRAND / OVERALL EXPECTATION</b>	<b>STRAND A:</b>	<b>STEM Skills and Connections - Throughout Grade 3, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:</b>
<b>STAGE / SKILLS</b>	<b>A1.</b>	<b>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</b>

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
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SUB-ORGANIZER / SPECIFIC EXPECTATION	A1.5.	communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes
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<b>STRAND / COURSE</b>		<b>Science and Technology Grade 3</b>
<b>STRAND / OVERALL EXPECTATION</b>	<b>STRAND A:</b>	<b>STEM Skills and Connections - Throughout Grade 3, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:</b>
<b>STAGE / SKILLS</b>	<b>A2.</b>	<b>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</b>

SUB-ORGANIZER / SPECIFIC EXPECTATION	A2.1.	write and execute code in investigations and when modelling concepts, with a focus on testing, debugging, and refining programs
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SUB-ORGANIZER / SPECIFIC EXPECTATION	A2.2.	identify and describe impacts of coding and of emerging technologies on everyday life
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<b>STRAND / COURSE</b>		<b>Science and Technology Grade 3</b>
<b>STRAND / OVERALL EXPECTATION</b>	<b>STRAND A:</b>	<b>STEM Skills and Connections - Throughout Grade 3, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:</b>
<b>STAGE / SKILLS</b>	<b>A3.</b>	<b>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</b>

SUB-ORGANIZER / SPECIFIC EXPECTATION	A3.1.	describe practical applications of science and technology concepts in their home and community, and how these applications address real-world problems
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SUB-ORGANIZER / SPECIFIC EXPECTATION	A3.2.	investigate how science and technology can be used with other subject areas to address real-world problems
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<b>STRAND / COURSE</b>		<b>Science and Technology Grade 3</b>
<b>STRAND / OVERALL EXPECTATION</b>	<b>STRAND B:</b>	<b>Life Systems - Growth and Changes in Plants By the end of Grade 3, students will:</b>
<b>STAGE / SKILLS</b>	<b>B1.</b>	<b>Relating Science and Technology to Our Changing World: assess ways in which plants are beneficial to society and the environment, and ways in which human activity has an impact on plants and plant habitats</b>

SUB-ORGANIZER / SPECIFIC EXPECTATION	B1.1.	assess ways in which plants are important to humans and other living things, taking different perspectives into consideration, and identify ways in which humans can protect native plant species and their habitats
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SUB-ORGANIZER / SPECIFIC EXPECTATION	B1.2.	assess ways in which human activities have an impact on plants and plant habitats, and identify personal actions that they could take to minimize harmful effects and enhance positive ones
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SUB-ORGANIZER / SPECIFIC EXPECTATION	B1.3.	assess the benefits and limitations of locally grown food
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<b>STRAND / COURSE</b>		<b>Science and Technology Grade 3</b>
<b>STRAND / OVERALL EXPECTATION</b>	<b>STRAND B:</b>	<b>Life Systems - Growth and Changes in Plants By the end of Grade 3, students will:</b>
<b>STAGE / SKILLS</b>	<b>B2.</b>	<b>Exploring and Understanding Concepts: demonstrate an understanding of characteristics and uses of plants and of plants' responses to the natural environment</b>

SUB-ORGANIZER / SPECIFIC EXPECTATION	B2.1.	describe the basic needs of plants, including the need for air, water, light, heat, nutrients, and space, and identify environmental conditions that may threaten plant survival
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SUB-ORGANIZER / SPECIFIC EXPECTATION	B2.2.	identify different parts of plants, including the root, stem, flower, stamen, pistil, leaf, seed, cone, and fruit, and describe how each part contributes to plants' survival within their environment
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SUB-ORGANIZER / SPECIFIC EXPECTATION	B2.6.	describe ways in which people, including Indigenous peoples, from various cultures around the world use plants for food, shelter, medicine, and clothing
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SUB-ORGANIZER / SPECIFIC EXPECTATION	B2.7.	describe various plants used for food, including those grown by First Nations, Métis, and Inuit, and identify local settings where these plants are grown or found
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SUB-ORGANIZER / SPECIFIC EXPECTATION	B2.8.	describe ways in which plants and animals, including humans, depend on each other
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<b>STRAND / COURSE</b>		<b>Science and Technology Grade 3</b>
<b>STRAND / OVERALL EXPECTATION</b>	<b>STRAND E:</b>	<b>Earth and Space Systems - Soils in the Environment By the end of Grade 3, students will:</b>
<b>STAGE / SKILLS</b>	<b>E1.</b>	<b>Relating Science and Technology to Our Changing World: assess the importance of soils for society and the environment, and the impact of human activity on soils</b>

SUB-ORGANIZER / SPECIFIC EXPECTATION	E1.1.	assess the importance of soils for society and the environment
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SUB-ORGANIZER / SPECIFIC EXPECTATION	E1.2.	assess the impact of human activity on soils, and describe ways in which humans can improve the quality of soils and/or lessen or prevent harmful effects on soils
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<b>STRAND / COURSE</b>		<b>Science and Technology Grade 3</b>
<b>STRAND / OVERALL EXPECTATION</b>	<b>STRAND E:</b>	<b>Earth and Space Systems - Soils in the Environment By the end of Grade 3, students will:</b>
<b>STAGE / SKILLS</b>	<b>E2.</b>	<b>Exploring and Understanding Concepts: demonstrate an understanding of the composition of soils, of different types of soils, and of processes and practices that can affect the health of soil</b>

SUB-ORGANIZER / SPECIFIC EXPECTATION	E2.3.	examine different types of soils found in Ontario, and describe how different soils are suited to growing different types of food, including crops
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Ontario Curriculum  
Science  
Grade 4 - Adopted: 2022

<b>STRAND / COURSE</b>		<b>Science and Technology Grade 4</b>
<b>STRAND / OVERALL EXPECTATION</b>	<b>STRAND A:</b>	<b>STEM Skills and Connections - Throughout Grade 4, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:</b>
<b>STAGE / SKILLS</b>	<b>A1.</b>	<b>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</b>

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
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SUB-ORGANIZER / SPECIFIC EXPECTATION	A1.5.	communicate their findings, using science and technology vocabulary and formats that are appropriate for specific audiences and purposes
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<b>STRAND / COURSE</b>		<b>Science and Technology Grade 4</b>
<b>STRAND / OVERALL EXPECTATION</b>	<b>STRAND A:</b>	<b>STEM Skills and Connections - Throughout Grade 4, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:</b>
<b>STAGE / SKILLS</b>	<b>A2.</b>	<b>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</b>

SUB-ORGANIZER / SPECIFIC EXPECTATION	A2.1.	write and execute code in investigations and when modelling concepts, with a focus on producing different types of output for a variety of purposes
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SUB-ORGANIZER / SPECIFIC EXPECTATION	A2.2.	identify and describe impacts of coding and of emerging technologies on everyday life, including skilled trades
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<b>STRAND / COURSE</b>		<b>Science and Technology Grade 4</b>
<b>STRAND / OVERALL EXPECTATION</b>	<b>STRAND A:</b>	<b>STEM Skills and Connections - Throughout Grade 4, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:</b>
<b>STAGE / SKILLS</b>	<b>A3.</b>	<b>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</b>

SUB-ORGANIZER / SPECIFIC EXPECTATION	A3.2.	investigate how science and technology can be used with other subject areas to address real-world problems
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<b>STRAND / COURSE</b>		<b>Science and Technology Grade 4</b>
<b>STRAND / OVERALL EXPECTATION</b>	<b>STRAND B:</b>	<b>Life Systems - Habitats and Communities By the end of Grade 4, students will:</b>
<b>STAGE / SKILLS</b>	<b>B1.</b>	<b>Relating Science and Technology to Our Changing World: assess impacts of human activities on habitats and communities, and analyse actions for minimizing negative impacts and enhancing positive ones</b>

SUB-ORGANIZER / SPECIFIC EXPECTATION	B1.1.	assess positive and negative impacts of human activities on habitats and communities, while taking different perspectives into account
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SUB-ORGANIZER / SPECIFIC EXPECTATION	B1.2.	analyse the impact of the depletion or extinction of a species on its habitat and community, and describe possible actions to prevent such depletions or extinctions
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