

# Secondary Programs

(Grades 7-12)

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# Ag Zone: Exploring Agricultural Science, Technology and Careers



Grade 7 students will visit a Nova Scotia post-secondary campus for an interactive agriculture and science program. Students will see the connection between science, agriculture and agricultural careers.

The Ag Zone program will demonstrate the science behind agriculture and potential careers in agriculture. The program makes connections to Grade 7 Science curriculum.

Ag Zone takes place at the Dalhousie Agriculture Campus in Bible Hill, NS. Schools in close proximity are welcome to apply.

## Teachers should take into consideration:

- This is a full-day program
- There is a limited number of classes accepted based on the capacity of the campus
- Teachers will have to arrange transport for the students to/from the University
- Please ensure medical, accessibility, or allergy concerns are noted upon registration
- A snack is provided but students must bring their own lunch
- Busing costs can be subsidized

This program takes place in late May/early June each year.

Unfortunately this program isn't available in French.

## Eligibility

Grade 7 teachers at Nova Scotia public schools are eligible to apply.



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# Digging Deeper Soils Resource



The Nova Scotia Department of Agriculture has a resource for Grade 7 and 8 Science teachers exploring the properties of soil and the effects of agricultural practices on the environment and climate. Classrooms will receive a lesson plan with curriculum connections, student-facing inquiry guides, inquiry materials and soil defenders video series.

Learners will engage in a series of guided inquiries to analyze several properties of soil and how these soil properties impact and are impacted by agricultural practices. Soil is the foundation of food production around the world but can negatively impact the environment through erosion. Under different management practices, soil can be a source of greenhouse gas emissions, or it can capture carbon, removing it from the atmosphere. Learners will consider the concept of Netukulimk as they examine the ecological role of soil and how human activities impact soil's ecological functions.

Background information on soil and the impact of farming practices is provided as well as detailed instructions for leading learners in the guided inquiries. Soil samples will be provided by Agriculture in the Classroom, and students will take measurements using PASCO CO<sub>2</sub>, conductivity, and temperature probes.

## Digging Deeper Program provides:

- Lesson plan with curriculum connections to Grade 7 and 8 Science, background information, guiding questions and a list of online resources
- Student-facing inquiry guides
- Inquiry materials: soil samples, pH litmus paper, and cover crop seeds
- Soil Defenders video series developed by Agriculture in the Classroom – Nova Scotia, featuring interviews with soil conservation experts in the province, highlighting potential careers
- Staff support to answer questions
- Agriculture in the Classroom – Nova Scotia will provide participating teachers with soil samples

## Teachers should take into consideration:

- The inquiries will require the use of PASCO CO<sub>2</sub>, conductivity and temperature probes
- Some of the experiment materials are not provided (however they are low cost)

This resource is available anytime throughout the year as long as supplies last.

Teachers are encouraged to register in the Fall. This resource is available in French.

## Eligibility

Grade 7 and 8 Science teachers in Nova Scotia public schools are eligible to apply.



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# Pkwiman Wild Blueberry Resource



The Nova Scotia Department of Agriculture has a resource for Grade 7 Science and Grade 8 Social Studies teachers to support curriculum outcomes related to the ecological and cultural significance of wild blueberries in Mi'kmaki and Wabanaki. Classrooms will receive a lesson plan with curriculum connections to Grade 7 science and Grade 8 social studies. The lesson plan includes background information, guiding questions and a list of online resource. Also provided are student-facing inquiry guides, video series featuring interviews with a wild blueberry farmer, an engineer, and two Mi'kmaw elders, as well as access to the documentary Voices from the Barrens.

Classroom resources (videos and student inquiries) to support curriculum outcomes related to ecological adaptation and Netukulimk (Grade 7 Science) and how changes in markets and technology in the 20th century have impacted wild blueberry farmers, including Mi'kmaw wild blueberry farmers and harvesters (Grade 8 Social Studies). Grade 7 learners explore the ecological factors that make Nova Scotia an ideal location for wild blueberry production, why wild blueberries are suitable for commercial production compared to other native berry species, compare modern wild blueberry farming practices with traditional Mi'kmaw practices in the context of Netukulimk, and test different methods for wild blueberry preservation. Grade 8 learners explore the impacts of societal changes on the availability of farm labour for wild blueberry harvesting, homegrown innovation and entrepreneurship in the wild blueberry sector, the impacts of refrigeration technology on wild blueberry exports, and the social and economic impacts of technological changes on the Mi'kmaw in the context of Netukulimk.

## **Pkwiman: Wild Blueberries in Mi'kma'ki and Wabanahkik Program provides:**

- Lesson plan with curriculum connections to Grade 7 Science and Grade 8 Social Studies, background information, guiding questions and a list of online resources
- Student-facing inquiry guides
- Video series developed by Agriculture in the Classroom – Nova Scotia, featuring interviews with a wild blueberry farmer, an engineer, and two Mi'kmaw elders, as well as access to the documentary Voices from the Barrens.
- Staff support to answer questions

## **Teachers should take into consideration:**

- The experiment materials are not provided (however they are low cost)
- Teachers wishing to conduct the inquiry on methods for preserving wild blueberries should be prepared to do this in early to mid-September as fresh wild blueberries to use in the inquiry will not be available later in the year

This program is available anytime throughout the year. This program is also available in French.

### **Eligibility**

Grade 7 Science and Grade 8 Social Studies teachers in Nova Scotia public schools are eligible to apply.



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# Looking for Local A Resource to Support Grade 8 Food and Nutrition



A learning experience exploring food insecurity and buying local for Grade 8 Food and Nutrition classrooms.

Learners will engage in a scenario to explore food security in Nova Scotia and what affect buying local might have on food security. Learners can consider food availability, access, utilization and stability. Background information is provided with topics such as global food insecurity, food insecurity Nationally and Provincially, Indigenous food sovereignty, nutrition labels and reducing food waste as well as detailed instructions to guide the student inquiry.

## Looking for Local resource provides:

- Lesson plan with curriculum connection to Grade 8 Food and Nutrition, background information, guiding questions and a list of online resources
- Student-facing inquiry guide
- Looking for Local video developed by Agriculture in the Classroom – Nova Scotia, outlining how to purchase local in a grocery store
- Staff support to answer questions

This resource is available anytime throughout the year.

This resource is also available in French.

## Eligibility

Grade 8 Food and Nutrition teachers in Nova Scotia public schools are eligible to apply.



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# Math on the Farm



Grade 8 classrooms can use this fun resource to support Math 8 curriculum including using percentages and ratios. Students use their math skills to help Sam, the dairy farmer, complete tasks throughout a busy day on a dairy and crop farm.

The challenge: how can you help the farmer increase their crop yield, keep the cows happy and healthy, and run the farm smoothly? There are 5 math tasks to be completed by students. As the students complete the tasks, they learn just how much math happens every day on the farm; from making milk replacer for the calves to determining how many hectares of soybeans need to be planted in order to harvest enough for the winter. This fun resource includes a lesson plan with curriculum connections as well as a student facing PowerPoint to help guide the classroom activity.

## **Math on the Farm Resource provides:**

- Lesson plan with curriculum connection to Grade 8 Math, background information, guiding questions, student task answers and a list of online resources and video links
- Student-facing inquiry guide (PowerPoint) with tasks to complete in small groups
- Staff support to answer questions

This resource is available anytime throughout the year.

This resource is also available in French.

## **Eligibility**

Grade 8 Math teachers in Nova Scotia public schools are eligible to apply.



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# The Quest for the Perfect Strawberry: An Adventure in Plant Reproduction



Compare sexual and asexual reproduction in strawberries with a hands-on activity while learning about crop breeding and strawberry production for Grade 9 Science teachers, using strawberries as an example.

Teachers can apply to receive a SucSeed hydroponic classroom growing system which includes strawberry seeds and small bare root plants so students can compare growth in real time. An accompanying video series will take students on a visit to Nova Scotia strawberry farms and nurseries in the province and investigate the strawberry breeding program at Agriculture and Agri-Food Canada's Kentville Research and Development Centre.

## **The Quest for the Perfect Strawberry: An Adventure in Plant Reproduction provides:**

- SucSeed hydroponic growing system with all necessary supplies (and instructions for set up and use)
- Strawberry seeds and bare root strawberry plants
- Video series on the Nova Scotia strawberry industry and strawberry breeding research
- Lesson plan with curriculum connections, background information, guiding questions and a list of online resources
- Staff support to answer questions

## **Teachers should take into consideration:**

- The strawberry seeds will take several months to grow
- The program will have two intake periods, Fall and Spring each year

**There are a limited number of SucSeed systems available. If more classrooms apply than can be supported by the program, the Department of Agriculture will prioritize applicants based on the following criteria:**

- Geographic location
- New applicant to the program

This program is also available in French.

### **Eligibility**

Grade 9 science teachers in public schools are eligible to apply.



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# Career Case Game



The Career Case game shows students in Grades 8-11 the diversity, variety and importance of careers in agriculture. It helps students understand how their skills and interests can fit into food and agriculture careers.

Career Case is a game where students work together to solve problems and learn about different careers in agriculture.

In the game, students are faced with a case (a situation or challenge). They work in groups to pick 4 or 5 careers that can solve the case. There are 30 different careers to choose from.

Career Case takes 60-90 minutes with a teacher or facilitator, but there's also a speed version that takes 15-20 minutes.

The game promotes the development of important skills and competencies like decision-making, leadership, listening, collaboration, teamwork, critical thinking, communicating, presenting, problem finding and solving, flexibility, creativity and negotiation. It connects to curriculum topics including career exploration, science, life transitions, health, science and social studies.

This program is also available in French.

This resource is available anytime throughout the year. Teachers can request a class presentation of Career Case by emailing [Ag.Education@novascotia.ca](mailto:Ag.Education@novascotia.ca)

## Eligibility

Grade 8-11 teachers in Nova Scotia public schools can apply to get a copy of the game.



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# High Performance Plant “Diets”: Optimizing Plant Nutrition for Plant Yield, Human Health and a Sustainable Environment



A hands-on learning experience for Grade 11 students, learners will determine which fertilizer treatment is the most advantageous for growing a crop like lettuce and radish.

Materials for an activity where learners can explore conditions affecting plant. Learners can explore differences in fertilizer type, rates and amounts while growing lettuce and radishes in the classroom.

## **Agriculture 11 learning experience resource provides:**

- Lesson plan with curriculum connections to Agriculture 11, background information, guiding questions and a list of online resources
- Supplies for growing lettuce and radishes
- Staff support to answer questions.

This resource is available anytime throughout the year.

Unfortunately this resource is limited to Agriculture 11 classes and is not available in French.

### **Eligibility**

High school Agriculture 11 teachers in Nova Scotia public schools can apply.



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# Working with the Sea

## Nova Scotia Dykelands and Climate Change



A learning resource for Grade 12 Global Geography classes about dykelands in Nova Scotia and globally.

Learners will examine the issues and benefits related to the dykelands of Nova Scotia, and consult various sources in a research project. Background information is provided on topics like global dyke systems, dykes and climate change, and agricultural marshlands. A video accompanies this resource along with a viewing guide.

### **The Working with the Sea resource includes:**

- A lesson plan with curriculum connections to Grade 12 Global Geography, background information, guiding questions and a list of online resources
- A student-facing inquiry guide
- A video documentary to accompany the student-facing guide
- Staff support to answer questions

This resource is available anytime throughout the year.

This resource is also available in French.

### **Eligibility**

Grade 12 Global Geography teachers in Nova Scotia public schools can apply.



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# How to Harness the Power of Enzymes to Make the Best Cheese



A learning experience exploring the biology of cheese making, for Biology 11 and 12 classrooms and Food Science 12.

This resource explores the biology of cheesemaking, how enzymes react to changes in temperature and pH, and how this interacts with bacterial cultures. Background information is provided with topics such as the history of cheesemaking, commercial cheese production, and enzymatic processes. A video accompanies this resource to allow learners to see how cheese is made in Nova Scotia.

## **Cheese Production learning experience resource provides:**

- Lesson plan with curriculum connections to Biology 11 and 12, Food Science 12, background information, guiding questions, and a list of online resources
- Supplies for making cheese, except for milk products
- Video showcasing the dairy and cheese industry in Nova Scotia
- Staff support to answer questions

## **Teachers should take into consideration:**

- Schools will need to purchase milk products for the making cheese activity
- Lab should be conducted in a food lab in order for the students to be able to taste the cheese

This resource is available anytime throughout the year.

This resource is also available in French.

## **Eligibility**

Grade 11 and 12 Biology and Food Science 12 teachers in Nova Scotia public schools can apply.



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# Using Acid-base Chemistry to Produce the Best Cheese



A learning resource for Grade 11 and 12 Chemistry about the use of acid-base chemistry in cheese production.

Using acid-base chemistry, learners will determine how to make the best cheese. Background information is provided on topics such as the history of cheesemaking, commercial cheese production and cheese chemistry. A video accompanies this resource to allow learners to see how cheese is made in Nova Scotia.

## The cheese production learning resource includes:

- A lesson plan with curriculum connections to Grade 11 and 12 chemistry, background information, guiding questions, and a list of online resources.
- Supplies for making cheese, except for milk products
- A video showcasing the dairy and cheese industry in Nova Scotia
- Staff support to answer questions

## Teachers should take into consideration:

- Schools will need to purchase milk products for the cheese making activity
- The lab should be conducted in a food lab in order for the students to be able to taste the cheese

This resource is available anytime throughout the year.

This resource is also available in French.

## Eligibility

Grade 11 and 12 Chemistry teachers in Nova Scotia public schools can apply.



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