STAGE 3: BECOMING PLANT EXPERTS

In this stage, students will become plant experts! Students will have the opportunity to discuss where their food comes from (food origins), learn plant characteristics, basic needs, how they get energy from the sun, and environmental conditions affecting them. Planting seeds, tracking their growth and accounting for plants needs will give them an opportunity for real-life application!

Lesson 1 - Where Does Our Food Come From?
Lesson 2 - Parts of a Plant
Lesson 3 - What a Plant Needs to Grow
Lesson 4 - Planting Your Seeds (CORE LESSON)

Lesson 1: Where Does our Food Come From?

Overview:

This lesson teaches students about food origins by helping them connect plants to the foods they see in the grocery store or in their lunch boxes.

The lesson kicks off with a holistic conversation about foods in general and narrows to grains, which make up the main ingredients in the students' granola bars. It is important that students understand there is a connection between their granola bar businesses and the study of plants–that foods begin in the field and end on the plate.

Learning Goals

- Discuss types of food and where it comes from.
- Identify the types of grains grown in Ontario.
- Explore the roles of plants in our lives.

Materials Needed

- Drawing material for students to illustrate how food gets from field to plate

Time Frame: 40min

Curriculum Expectations

Science & Technology Curriculum
Strand B Life Systems

- B1.1 Assess ways in which plants are important to humans and other living things, taking different perspectives into consideration
- B2.3 Describe changes that different plants undergo in their life cycles
- B2.8 Describe ways in which plants and animals, including humans, depend on each other

Health and Physical Education Curriculum
Strand D Healthy Living

- D1.1 Demonstrate an understanding of how the origins of food (e.g., where the food is grown, harvested, trapped, fished, or hunted; whether and how it is processed or prepared) affect its nutritional value and how those factors and others (e.g., the way we consume and dispose of food) can affect the environment
- D3.1 Explain how local foods and foods from various cultures can be used to expand the range of healthy eating choices

Agricultural Learning

- ·Understanding where food comes from

Media Links (embedded in the slides)

- Read-aloud: Right This Very Minute - https://www.youtube.com/watch?v=YbTz7TaQEIU
- Combine Harvester - https://www.youtube.com/watch?v=VIHjM6jgnqg&t=21s (combine harvester starts at 6:04)

STEMterprise Teaching Notes

Slide 6: Minds ON!	**One is Different** Share the three photos of food (milk, oatmeal, and tomatoes). Have students talk in pairs and explain which is different from the others. Take feedback and explain that there are many possible answers. It could be milk is the different one because it comes from a cow, whereas the other foods are grown as plants.
Slide 7: Read Aloud	This is one of many read-aloud books available https://www.youtube.com/watch?v=YbTz7TaQEIU
Slide 8: Where Does Food Come From?	Who here likes food?! Have you ever thought about where the food you ate today came from? Maybe you've helped with grocery shopping and would say food comes from a store. But where did it come from before that? Our food comes from fields, including under the ground, as well as trees and animals. Did you ever think about what animals eat? Farm animals eat plants and seeds, so in a sense, when we eat meat, we're also eating vegetables! Did you know that humans have the widest ranging diet of any animal? It's true! Humans are omnivores; we eat food from both animals and plants. We are going to investigate 4 different places that our food comes from.

Slide 9: Animals	Explain to students - Animals provide us directly with food, like meat and milk. They also provide the ingredients for food—we use milk from cows and goats to make products like yogurt, cheese, and ice cream. Eggs are good to eat and to use as an ingredient in foods like cakes and cookies.
Slide 10: Trees	Explain to students - Many of the foods we eat grow on trees like fruits and nuts. Who here has picked fruit from a tree? The trees take a long time to grow, 5-6 years for an apple tree. In other parts of the world, there are many other types of fruit and nuts that grow on trees. In tropical areas, coffee beans grow on trees. And in Africa, you can find cacao trees. Cacao is used to make chocolate.
Slide 11: Underground	Root vegetables grow underground. They are planted as seeds, just like other plants. And, they are typically rich in carbohydrates vitamins and minerals. What are some examples of root vegetables?

Slide 12: **Fields**	Explain to students – Humans have been growing grains for more than 10,000 years. Grains and cereals are grown in fields. Grain crops grown right here in Ontario are barley, corn, oats, soybeans, and wheat. The difference between grains and cereals: • Grains are the edible seeds of cereals or legumes; we grind the seeds of many plants into flour, such as wheat; we eat legumes, such as soybeans, in many ways • Cereals are plants in the grass family that produce seeds that we eat
Slide 13: **Grains**	Explain: During this project, we are learning about grain, a special type of plant we use for food. Grains are ingredients in many foods. Oatmeal is made from oats, a kind of grain. Farmers plant oat seeds in soil, and once the plants are grown and ready to be harvested, they harvest them with a large machine called a combine harvester (or "combine"). Ask students to think of other foods made with oats, such as granola bars.
Slide 14: **This is a Combine Harvester**	The machine is called a combine harvester, or just combine, because it combines two jobs. It cuts grain and threshes it. Threshing means separating the seeds from the stalks. Footage of the combine harvester begins at 6:04 with soybean harvest. https://www.youtube.com/watch?v=VIHjM6jgnqg&t=21s

Slide 15/16: Grains	Ask students to name as many types of grain as they can. Share the full list of grains grown in Ontario in the PowerPoint presentation. Give each business group a type of grain to become experts in and allot five minutes to research food products that contain their grain. Allow another five minutes to research the health benefits of eating grains. Give each group one minute to summarize their findings for the rest of the class.
Slide 17: Barley	Farmers grow grains by planting seeds in soil. These seeds are also the same grains we use to make food. One of the grains grown in Ontario is barley.
Slide 18: Corn	Farmers also grow corn. The seeds are the kernels on the cob. There are different types of corn that can be used in different ways- popcorn, sweet corn (corn on the cob) and grain corn. In Ontario, majority of the corn you see in the fields is grain corn. Grain corn is used to make taco shells, corn flakes or feed farm animals. Farmers plant and grow different seed depending on what they want to use them for.

Slide 19: Oats	Oats are grown across Ontario to make things to like oatmeal, pancakes and granola bars! They can also be used to feed farm animals and the stems of the plant is used as bedding for animals (straw).
Slide 20: Soybeans	Farmers plant soybean seeds in the soil. The seeds are the beans found in the pod. When they change from green to brown and drop their leaves onto the ground (much like trees!) they are fully grown plants. Then the farmer harvests the soybeans with a combine.
Slide 21: Wheat	Farmers plant wheat seeds in the soil and then look after the plants for almost a whole year before the wheat can be harvested. The flour can be used to make lots of foods such as bread, pasta, and cookies. Parts of the wheat plant are used as straw for animal bedding. Discussion Idea - What foods do you eat that are made with flour?
Slide 22: Video: Farm to Table—OATS!	Oatmeal is made from oats, a kind of grain. Farmers plant oat seeds in soil, and once the plants are grown and ready to be harvested, they harvest them with a combine. Ask students to think of other foods made with oats, such as granola bars. Note: This video is excellent at helping students make the connection from the seed to the oats they will use in their bars. It was produced by Tesco in the United Kingdom. There are slight differences about how oats are grown and harvested in Ontario. https://www.youtube.com/watch?v=D_hI5LEBIms

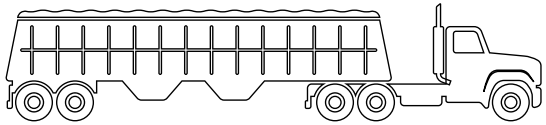
Slide 23: **Consolidation: Farm to Table**	It's time to doodle! Using the word bank below, draw how you think food travels from farm to table. Word Bank: • Consumption • Distribution/Retail • Farming and Harvesting • Preparation • Transportation • Transformation *Bonus! Show where your granola bar business is on your work.* *Answer key is found in the speaking notes*
Slide 24: **Farm to Table - Oats!**	TIP! You can choose whether or not you use this slide. Some classes may want to start with this diagram, others may use it as a wrap up.
Slide 25: **What surprised me today was....**	Encourage class discussion.
Slide 26: **What's Next**	Lesson 2: Parts of a Plant You will learn the basics of plants and how they grow. Students have given the vertical relay game top ratings!

Assessment Resources. Coming soon!
Please check the STEMterprise webpage at https://goodineverygrain.ca/ontario-farming-stemterprise/

Farm to Table – Oats!

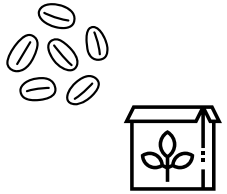
Farming and Harvesting

Seeds are planted, cared for and collected (harvested) when they are ready.



Transportation

The oats are then loaded onto a truck and transported to the processing facility.



Transformation

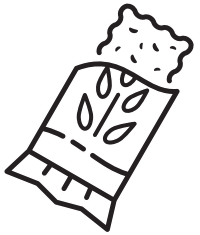
The oats are transformed through processing into oat flakes and then put into packages

Distribution/Retail

The oats are sent to grocery stores for people to buy.

Preparation

Once products are purchased, families, businesses and restaurants will use them to prepare products and meals. We will use them to make granola bars!



Consumption

And this is when we get to eat them!