

Healthy Foods from Healthy Farms (HFHF)

TEACHER GUIDE (Gr 1-3)

GOAL:

To make connections between the food we eat and the people in our community who grow it and process it.

OBJECT OF THE ACTIVITY:

To create a healthy snack using Canada's new Food Guide while learning about the farmers who grow the food and the people who process the food.

TIME:

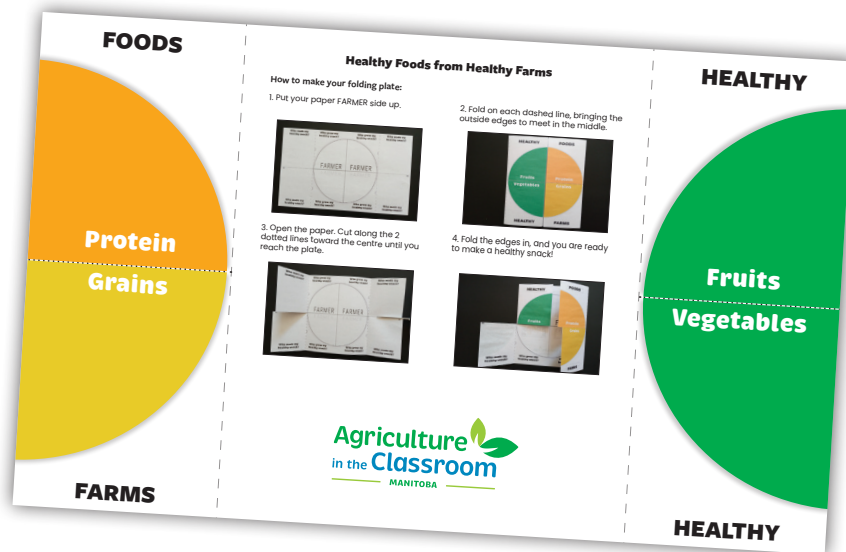
40- 60 minutes; Video-18 min, Activity-10 min,
Discussion-10-15 min

MATERIALS:

- Folding Plate Activity sheets – 1 sheet/student
- Sticker or cut-out sheets – 1 sheet/student
- Healthy Foods from Healthy Farms 3-Part Video (wheat, dairy, carrot); see AITC-M YouTube channel.
- Canada's new Food Guide mini poster
- Needed: 1 pair of scissors/student

PREPARATION:

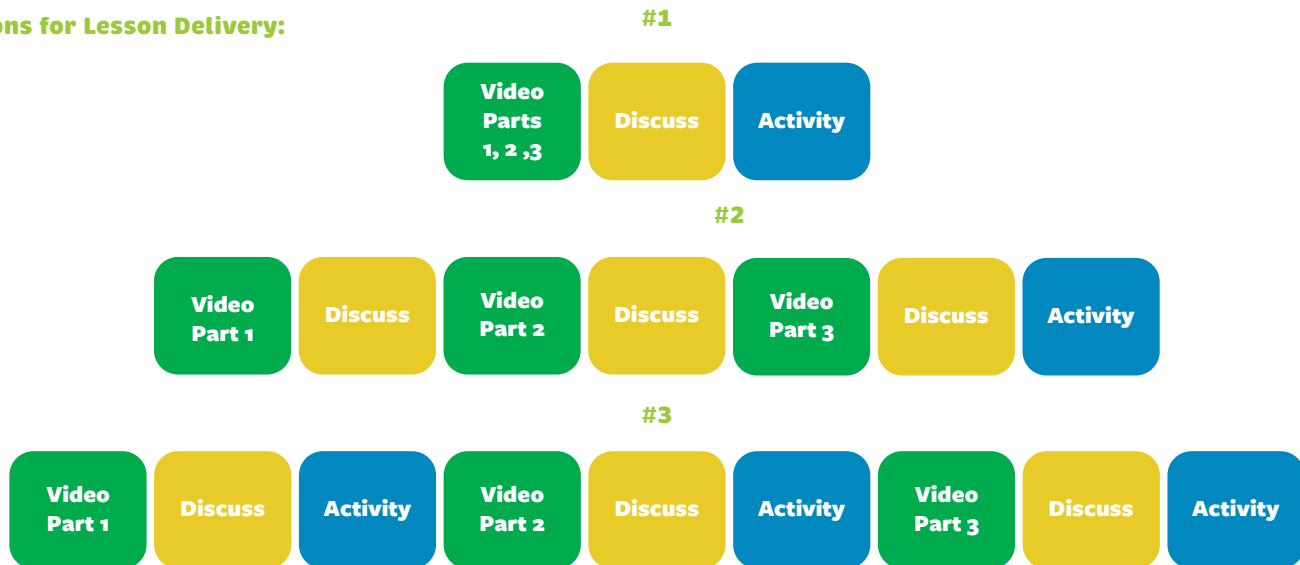
1. Confirm ability to show Healthy Foods from Healthy Farms YouTube video in class.
2. Choose how you want to deliver the lesson. See options below or make up your own!
3. Optional: Encourage students to bring a snack with crackers, cheese and carrots on the celebration day, or dietary restriction equivalents. (The video highlights wheat, dairy and vegetable farmers and processors). The snack can be eaten before, in between video sections or at the end of the video.



LESSON PLAN:

ACTIVATE:

1. Show students a visual of the new Canada Food Guide (poster, smart board...) and ask them to identify the three sections on the plate.
2. Ask students if they know anyone who is a farmer (and what they grow/raise) or a food processor (and what foods they help make).
3. Tell students they are going to go on a journey behind the scenes of their food to meet some of the people who grow and process their food.

AQUIRE:**Options for Lesson Delivery:****SUGGESTED DISCUSSION QUESTIONS:**

(Teacher discussion points)

1. How do farmers look after their land, water and animals?

- Soil – conservation techniques to build organic matter in the soil (limit tillage/plowing; rotate crops), put nutrients (fertilizer/manure) when it is needed and only the amount needed by the crops.
- Water – conservation techniques to limit erosion (limit tillage/plowing); protect areas near rivers, streams and ditches.
- Animals – safety from predators (fences, barns), protection from bad weather (barns, straw for bedding), nutritious food.

2. What machinery or technology do farmers use to grow healthy crops and raise healthy animals?

- GPS (Global Positioning System) + software – identifies and provides detailed field maps for nutrient (fertilizer/manure) application, pest control application, and yield.
- Electronic transponder (Cow “FitBit”) - tracks the health and milk production of individual cows.
- Irrigation machine - overhead watering of carrots using a programmable rolling sprinkler system.

3. What machinery or technology do processors use to ensure food is safe and healthy?

- Pasteurization – Removes harmful bacteria in milk.
- Light meter (Near infrared) - Measures protein, fat and sugar (lactose) in milk.
- Metal detector - Removes any metal that might have gotten mixed in with the vegetables at the farm.
- Colour sorter – Identifies and removes discoloured grains.
- Robotic packer - picks up bags of vegetables and stacks them gently on pallets.



Canada ranks in the top 10 countries in the world for food quality and safety¹. The Canadian Food Inspection Agency regulates how food is produced and processed to ensure it is safe for us to eat and safe for the animals, plants and environment.

¹Global Food Security Index (2019)

4. Where does each food from the video belong on the Canada Food Guide eat well plate?

If doing Lesson Delivery #2 or #3, this can be asked after each video segment, as to what part of the plate the farmer and processor are part of?

- Cracker/Bread (Wheat) – Whole Grain
- Cheese (Dairy)– Protein
- Carrots – Fruit and Vegetables

5. What is nutritious about the food product?

- Cracker/bread (Wheat) – carbohydrates, fibre, vitamins (Bs - niacin, thiamin, pantothenic) and minerals (manganese).
- Cheese (Dairy) – protein, vitamins (D) and minerals (calcium, potassium).
- Carrots – vitamins (A – beta-carotene, B6 – pyridoxine, K), fibre.

SUGGESTED QUESTIONS FOR FURTHER INQUIRY:



1. What surprised you about how your snack was grown or processed (and tell us too!)?

- Students can think about how they previously thought certain foods came to be on their plates and what they learned from the videos.

2. How do you think technology and safe food are connected?

- Students might be able to come up with examples of ways in which technology has and is improving food safety (refrigerators, canning, flash freezing, best before date stamps, electronic traceability of food...). Students might even have their own ideas on something that could be invented to make food safer.



3. Why do farmers look after their land, water and animals?

- Students can think about whether farmers look after their land, water and animals because they want to (enjoy their work), need to (to ensure their business is productive and profitable) and have to (regulations).
- Some students might have direct connections to farms or to the land and be able to reflect on the nature of that relationship. Farms are often shared and passed down within families. How might this impact why farmers look after their land, water and animals?

4. Why do processors care if their food is safe?

- Students can think about processors from the videos or people they know in processing. Processors want to produce safe food (pride in their work), need to (to ensure they stay in business) and have to (regulations). Do processors eat the food they process? What might happen if food from their processing facility made someone sick?

5. What is the difference between safe and healthy food?

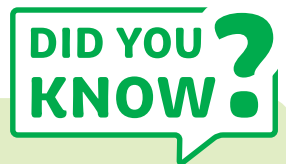
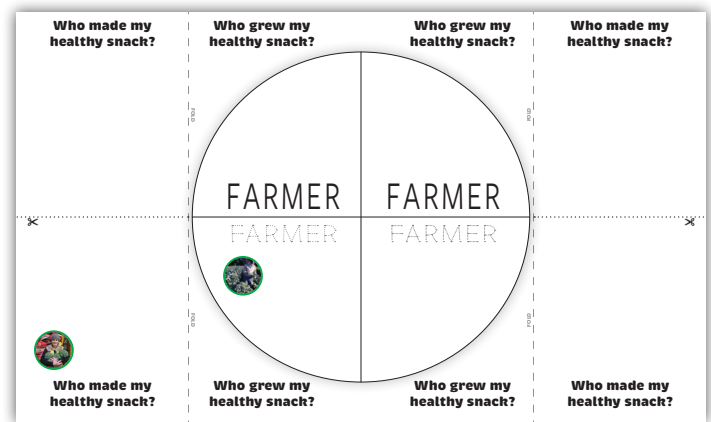
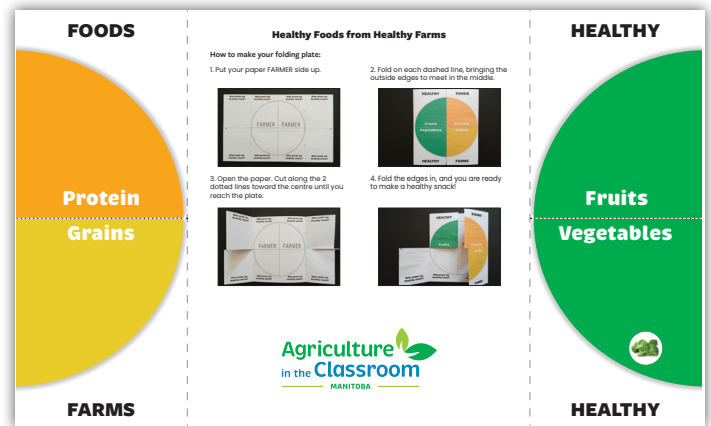
- Safe food is free from pathogens and chemical substances that can make one sick. Healthy food, along with being safe, is also nutritious and is a combination of fruits and vegetables, whole grains and proteins. What food examples can students think of that are safe but not necessarily healthy?



Folding Plate Activity (Gr 1-3)

INSTRUCTIONS:

- Tell students that they are going to make a healthy snack on their folded plate with one fruit, one vegetable, one whole grain and one protein.
- Hand out one Folding Plate sheet to each student.
- Follow the instructions on the back of the 8.5x14 paper to create a 4-flap, folded sheet with the food guide plate on top.
- Hand out one Sticker or Cut-out Sheet to each student.
- As a class,
 - identify what kinds of food are on the **green** or **dashed border** (fruit/vegetable), **yellow** or **double border** (whole grain), and **orange** or **solid border** (protein) stickers or cut-out squares.
 - then identify the sequence of the stickers/cut-out squares (Food, Processor, Farmer).
- Ask the students to pick a Fruit food sticker/cut-out and put or glue it on top of the food guide plate in the Fruit quadrant.
- Ask the students to identify the adjacent Processor sticker/cut-out square and put or glue it on the inside flap of the folding plate. Then have the students put or glue the Farmer sticker/cut-out square on the inside plate.
- Tell students to repeat this process with the other three quadrants to complete their healthy snack. Optional: Repeat the process with more snack foods.
- Encourage the students to trace the word Farmer on the inside plate.



Farmers and processors in this lesson are largely from MB and SK and include those highlighted in the video.

(see farmer and processor thank you on page 8)

Video Glossary

Bran - The outer protective layer of a kernel of grain. Bran is rich in fibre, iron and vitamin Bs. Whole wheat flour contains the whole grain (endosperm, bran and germ).

Combine - A farm machine that harvests a variety of crops. It cuts the stem of the plant and feeds the plants into a threshing mechanism that separates the seed from the rest of the plant. The seeds are kept in the tank of the combine and the rest of the plant material is chopped up ejected from the back of the combine and spread out over the soil.

Cow “Fitbit”- An electronic activity monitoring necklace or bracelet that cows wear to help farmers monitor their health and milk production. Farmers can track each cow individually to know how often she is going to eat, how often she is up walking, and how much milk she is producing. If a cow is not feeling well (not eating or walking as much as she normally does), an alert is sent to the farmer so they can go check on her. The “Fitbit” also helps farmers know when the cow is going to ovulate so she can be bred (which is much more accurate than traditional visual guessing).

Endosperm - The inside of a kernel of grain. The grain is mostly comprised of endosperm and is largely carbohydrates. White flour only contains the endosperm. Whole wheat flour contains the whole grain (endosperm, bran and germ).

Forage - Plants that are cut (harvested), while they are actively growing, and fed to livestock. These can be grasses (timothy, ryegrasses, orchard), legumes (alfalfa, clovers, trefoil) and silage crops (corn, alfalfa, oats)

Germ - The embryo inside a kernel of grain. Germ is rich in polyunsaturated fats. Products with germ have a shorter self life on account of the oil from the germ which can go rancid. Whole wheat flour contains the whole grain (endosperm, bran and germ).

Global Positioning System (GPS) - A navigation system that uses satellites to determine location. Combined with mapping technology, GPS allows farmers to implement site-specific/precision farming. ie) Field maps can be created by combining soil nutrient tests (nitrogen, phosphorus, potassium...) and crop yields to show variability in a field. The farmer uses this map and information to be able to apply variable rates of nutrients (fertilizer/manure) to the field. The nutrients can be applied at the right time, in the right place and in the right amount.

Legume - A type of plant that can be used for human consumption (seeds – pulses like beans, peas, soybeans) or

livestock feed (green plant material - forage). Most legumes are able to make their own nitrogen through a symbiotic relationship with soil bacteria. The bacteria are able to take nitrogen out of the air and turn it into a plant available form.

Minimum tillage - A soil conservation system that minimizes the cultivation of soil. Plant residue is left on the soil surface from harvest, and seeding is done into the plant stubble. Minimum tillage reduces wind and water erosion and helps build soil organic matter.

Near-infrared spectroscopy (NIR) (dairy) - A low-cost, rapid method for measuring the fat, protein and sugar content of milk. Near-infrared light (long wavelengths that the human eye cannot see) is passed through the milk to determine its composition. NIR spectroscopy is widely used in other sectors in agriculture.

Palletize - To put goods on a pallet for transport. Pallets allow for bulk, safe manoeuvring of goods on a stable structure. The majority of agricultural produce is transported on pallets.

Pasteurization (dairy) - A process in which food (milk from the farm) is heated up to kill certain bacteria and deactivate certain enzymes that can cause the food to spoil. Pasteurization also extends the shelf life of food.

Retention Pond - A water holding pond that is created on a farm to reduce water loss from the land and protect natural waterways from farmland erosion.

Silage - Preserved grasses and legumes that are fed to livestock. The plants are cut in the summer and tightly packed into upright or concrete bunker silos, or baled and wrapped in plastic to eliminate oxygen. The fermented greens are fed to livestock during winter months.

Total Mixed Ration (TMR) - A system for feeding dairy cattle based on their nutritional needs. The ration, or diet, is made up of a mixture of forages, grains, protein supplements, vitamins, and minerals. Cows are grouped according to their nutritional needs (ie not-pregnant, pregnant, lactating).

Curriculum Connections (Gr 1-3)

GRADE 1 OUTCOMES

Science	
Cluster 1: Characteristics and Needs of Living Things	
1-1-07	Recognize that plants, animals, and humans, as living things, have particular needs.
1-1-08	Describe what is needed to care for a pet, a farm animal, or an indoor plant.
1-1-10	Describe how humans and other living things depend on their environment to meet their needs.
1-1-12	Identify hobbies and jobs that require knowledge of the needs of living things.
Social Studies	
Cluster 2: My Environment	
KC-001	Identify Manitoba as their province and Canada as their country.
KL-012	Recognize that people depend on the environment for survival.
Cluster 3: Connecting with Others	
KC-006	Describe various ways in which people depend upon and help one another.
KE-029	Describe ways in which work may be shared in families, schools, and communities.
Health	
Strand C: Nutrition	
K.5.K.C.1a	Recognize the food guide rainbow and a variety of foods in Canada's Food Guide to Healthy Eating.
K.5.K.C.1b	Recognize that you need food to grow and feel good.

ADDITIONAL RECOMMENDED LESSONS AND ACTIVITIES FOR GRADE 1: Go to www.aitc.mb.ca/

- **GOT MILK? EXPLORING MANITOBA'S DAIRY INDUSTRY** – GRADE 1 Teacher Guide
- **FOOD GRATITUDE** - Activity sheet

GRADE 2 OUTCOMES

Science	
2-1-01	Use appropriate vocabulary related to their investigations of growth and changes in animals. Include: food groups, Canada's Food Guide to Healthy Eating, offspring, adult, behaviour, life cycle, stage, life processes, as well as terms relating to life cycles studied.
2-1-04	Recognize that food is a form of energy and that healthy eating is essential for growth and development.
2-1-05	Identify the four food groups of Canada's Food Guide to Healthy Eating and give examples of foods from each group.
2-1-06	Plan a menu for one day based on the four food groups outlined in Canada's Food Guide to Healthy Eating.
2-1-07	Recognize that foods humans eat come from plants and animals and classify foods accordingly.
Social Studies	
KL-022	Explain the importance of conserving or restoring natural resources
KE-036	Give examples of goods produced in Canadian communities
KE-037	Describe different types of work in Canadian communities studied.
VE-013	Appreciate that their quality of life is enhanced by the work and products of other Canadian communities.

ADDITIONAL RECOMMENDED LESSONS AND ACTIVITIES FOR GRADE 2: GO TO: www.aitc.mb.ca/

- **GOT MILK? EXPLORING MANITOBA'S DAIRY INDUSTRY** – GRADE 2 Teacher Guide
- **CROSSWORD** - Baby Animals
- **FOOD GRATITUDE** - Activity sheet

GRADE 3 OUTCOMES

Science	
3-1-14	Describe ways plants are important to the environment. Examples: improve soil, air, and water quality; reduce erosion
3-1-15	Identify and describe hobbies and jobs involving plants.
3-1-18	Explain how humans replenish the plants they use and the consequences if plants are not replenished. Examples: after loggers harvest trees, new ones should be planted to ensure a future lumber supply
3-4-08	Explain the importance of understanding the characteristics of different soils. Examples: enables farmers to determine which crops can be grown in a particular area, enables gardeners to improve plant growth, enables engineers to know what types of foundations to set for structures
3-4-10	Describe ways to return organic matter to the soil. Examples: composting, spreading manure on fields
Social Studies	
KL-018	Give examples of the use of natural resources in communities studied.
KE-035	Give examples of work, goods, and technologies in communities studied.
KE-036	Give examples of how the natural environment influences work, goods, technologies, and trade in communities studied.
KE-037	Describe diverse ways in which communities meet their members' needs.
VE-012	Value the contributions individuals make to their communities

ADDITIONAL RECOMMENDED LESSONS AND ACTIVITIES FOR GRADE 3: GO TO: www.aitc.mb.ca/

- **MANITOBA SOIL EXPLORATION: Digging deep into how soil is formed** – a series of worksheets
- **POTATO POWER! EXPLORING THE WORLD OF POTATOES** – GRADE 3 Teacher Guide
- **FARM HELP WANTED** – Free on Teachers Pay Teachers (created by MB teacher)

Thank You!!!

A special thanks to our farmers and processors for welcoming us to their farms and businesses to bring you their story of Healthy Foods from Healthy Farms with videos, and photos for your stickers/cut-out squares.

Vegetables	Carrots	<p>Connery's Riverdale Farm Portage la Prairie, MB</p> <p>Peak of the Market Winnipeg, MB (Carrots and Broccoli)</p> <p>https://www.peakmarket.com/ (click on Crops for nutritional information on vegetables)</p>
	Broccoli	Robertson Valley Farm Saskatoon, SK
	Cucumbers	Schriemer's Family Farm Otterburne, MB
	Tomatoes	Robertson Valley Farm Saskatoon, SK (Cucumbers and Tomatoes)
Fruits	Strawberries	<p>Connery's Riverdale Berry Farm Portage la Prairie, MB</p> <p>Hodgson Farms Melfort, SK</p>
	Saskatoons	<p>Prairie Berries Keeler, SK</p> <p>https://vimeo.com/prairieberries (videos on growing and processing at their farm)</p>
	Cherries	Creekside Orchard Melfort, SK
	Apples	<p>Dorenberg Orchards Ltd Lake Country, BC</p> <p>https://youtu.be/6_ebhwoKtYg (Madeleine's orchard)</p> <p>BC Tree Fruits Cooperative Winfield, BC</p>
Grains	Wheat	<p>Ellis Seeds Wawanesa, MB</p> <p>Cereals Canada / CIGI Winnipeg, MB</p>
	Oats	<p>Grain Millers Yorkton, SK</p> <p>Lindgren Farms Norquay, SK</p>
	Wild Rice	<p>Northern Lights Food La Ronge, SK</p> <p>https://youtu.be/pnRY3oDs9nE (video of harvest)</p> <p>La Ronge Wild Rice Processing Plant La Ronge, SK</p> <p>https://education.usask.ca/ccstu/units/wildriceappendixb/hosound/intro.htm</p>
	Popcorn	Uncle Bob's Walsingham, ON
Proteins	Hummus	<p>Three Farmers Midale, SK</p> <p>Summer Fresh Toronto, ON</p>
	Cheese	<p>Rosser Holsteins Rosser, MB</p> <p>Saputo Brandon, MB</p>
	Eggs	<p>Siemens Farms Rosenort, MB</p> <p>Star Egg Saskatoon, SK</p> <p>https://staregg.ca/egg-grading/ (mini videos of each processing step)</p>
	Beef Jerky	<p>Tee Two Land and Cattle Kelliher, SK</p> <p>Harvest Meats Yorkton, SK</p>