

Agriculture Innovation Match-Up Game

TEACHER GUIDE (K - Grade 2)

GOAL

Students will explore how agriculture has changed over time and is always innovating to find new ways to produce food sustainably and efficiently.

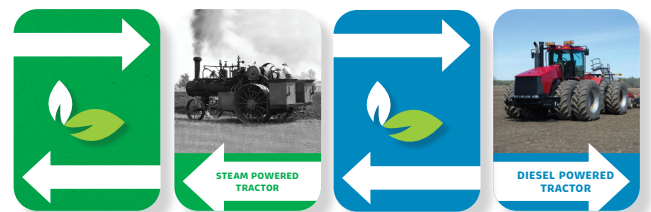
BACKGROUND INFORMATION

Humans have been practicing agriculture for over 10 000 years. Constant agricultural innovation has occurred throughout history, which has made it possible for us to feed ourselves even as our world population continues to grow.

Canadian farms of the past look very different from Canadian farms today. Agriculture scientists, such as animal and plant researchers, computer programmers, artificial intelligence and robotics designers, engineers, ecologists, and chemists, together with farmers, have introduced many new innovations to produce food, feed, fibre and energy in the most sustainable way.

MATERIALS NEEDED

- **Agriculture Innovation Match-Up Game Kit**
Kit contains 4 card sets of 20 cards/set with historical and present agricultural images
- Table or floor space large enough for each group to lay out 20 cards



Learn more about today's farms using the 1-page **snapAG sheets**: <https://aitc-canada.ca/en-ca/learn-about-agriculture>

CURRICULUM CONNECTIONS

K - Grade 2 Science Global Learning Outcomes	
B1	Describe scientific and technological developments, past and present, and appreciate their impact on individuals, societies, and the environment, both locally and globally.
B2	Recognize that scientific and technological endeavours have been, and continue to be, influenced by human needs and the societal context of the time.
Kindergarten Social Studies - Cluster 2	
K-VH-004	Demonstrate interest in stories of the past.

K - Grade 1 Social Studies - Skills	
S-100	Cooperate and collaborate with others. Examples: take turns, share space and classroom resources....
S-101	Consider others' needs when working and playing together
S-102	Interact fairly and respectfully with others.
S-201	Sort information using selected criteria.
Grade 2 Social Studies - Cluster 2	
2-KH-026	Identify ways in which life in Canadian communities has changed over time.

Agriculture Innovation Match-Up Game

Lesson Plan



➔ Activate

Have a class discussion about any of the following:

- **Transportation present and past**

- » Ask students, “How did you get to school today?”

Student answers could include: various modes of transport like walking, bicycling, and driving.

- » Then ask, “If you drove to school in a car, truck or bus, how do you think you would have come to school before they were invented?”

Student answers could include: walking, cycling, riding horses, or in horse-drawn wagons.

- **Communication methods present and past**

- » Ask students, “How many of your parents have cell phones?”

- » We use cell phones today to talk or text with other people. Ask students, “What did people use to communicate with each other before cell phones were invented?”

Student answers could include: in-person visits, letters, landline phones, telegrams.

- **Laundry methods present and past**

- » Ask students, “What does your family use to wash their clothes?”

Student answers could include: a washing machine.

- » Before washing machines were invented, how do you think families washed their clothes?

Student answers could include: handwashing, washing boards.

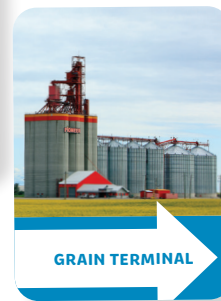
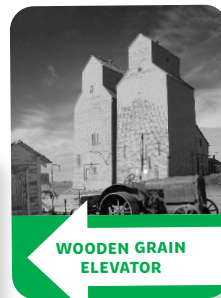
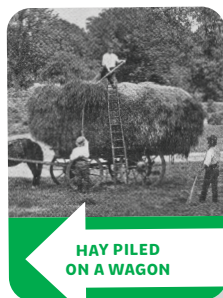
Cars, buses, cell phones and washing machines are all **innovations**.

An **innovation** is a new method, idea or product that is used to help solve a problem or improve how well a task is done.

Innovations are an important part of **agriculture**. Innovations have led to:

- Increases in food production
- People being able to pursue careers other than farming
- Increases in food safety
- Better animal housing and care
- Better farmer safety and health

Agriculture is the growing, processing, and distributing of food, feed, fibre and energy.



➔ Acquire

Have students play the **Agriculture Innovation Match-up Game**.

Object of the game: To match agricultural photos from the past and present.

Game Instructions:

OPTION 1

- Divide the students into 4 groups. (Each group will need floor or table space to play the game on.)
- Give each group one card set from the game box.
- Have the students shuffle the blue and green cards and spread them out on the playing area, photo side up.
- Pick a blue card with a modern agricultural photo on it. Then find the matching green card of how agriculture was in the past.
- Continue until all cards are matched.

OPTION 2

- Divide the students into 4 groups. (Each group will need floor or table space to play the game on.)
- Give each group one card set from the game box.
- Have students spread all the green cards out on the playing area, photo side up.
- Put all the blue cards in one pile.
- Pick a blue card from the pile. Match its modern agricultural photo with the green card showing how agriculture was in the past.
- Continue until all cards are matched.

Alternate game idea: Memory Matching Game

- Divide the students into 4 groups. (Each group will need floor or table space to play the game on.)
- Give each group one card set from the game box.
- Place the cards photo side down in 4 rows of 5 cards.
- Each student in turn, flips over 1 green card and 1 blue card. If the past and present innovation match, then they remove the pair from the game. If they do not match, then they turn them photo side down again.
- Play resumes until all the cards have been matched and removed.

ANSWER KEY

Tractor – Steam powered / Diesel powered

Planting – Sowing seeds by hand / Air seeder planting seeds

Haying – Hay piled on a wagon / Hay wrapped in a bale

Harvesting – Cradle scythe / Combine

Storage – Wooden grain elevator / Grain Terminal

Dairy – Hand milking / Robotic milking

Eggs – Collecting eggs in a basket / Automatic egg collection

Pigs – Bucket feeding / Automatic feeder

Farm – Settler farm / Modern farm

Transportation – Horse-drawn wagon / Transport Truck

CLASSROOM DISCUSSION

Here are some suggestions for engaging students in thinking about how agriculture is always changing and innovating.

What are some differences that you see in the matched cards from the past to the present? How has agriculture changed? For younger students you can prompt them with questions like – what are wagons / grain elevators / scythes made of? How many people do you see in the photos? How large a building would you need to store farm equipment?

- » **Materials – Industrial** – Steel/concrete (larger equipment) vs wood.
- » **Animal housing – Indoor** – Indoor (protection from predators, disease, weather) vs outdoor.
- » **Equipment – Mechanization** – Machine vs hand labour; tractors vs horses.
- » **Farmers – Fewer farmers** – Fewer people engaged in farming than in the past (Optional: chart below); More people are now living in cities.
- » **Size of farm – Increased** – Large machinery vs hand/horse tools; Large acreage vs small acreage (Optional: chart below); Fewer farmers.

Agriculture in Canada					
Date	Farms	Farmers	Farmers as % of CDN Population	Average Farm Size	How Many Hockey Rinks is the Average Farm?
1871	387,862	–	–	98 acres	39
1941	732,832	3,200,000	28%	237 acres	95
2021	189,874	262,470	0.7%	809 acres	324
2021 MB	14,543	19,470	1.5% (MB pop)	1,117 acres	447

Source: Statistics Canada Agriculture Census

Large numbers and the concept of percentages are hard for young students to imagine.

- Instead of talking about acres, talk about the number of **hockey rinks** the farm would cover.
- Instead of talking about percentages, use the number of students in the classroom and what fraction of the students would represent **farmers**. i.e. if a class has 20 students then 6 of the students would be farmers in 1941 ($20 \times 0.28 = 5.6$); and $\frac{1}{8}$ of a student (from the knee down) would be a farmer in 2021 ($20 \times 0.007 = 0.14$). In MB in 2021, $\frac{1}{3}$ of a student (both legs) would represent the farmers ($20 \times 0.015 = 0.3$).

➔ Assess

1. Have students pick one of the blue cards. Tell them that they are to pretend they are a farmer from the past who has time travelled to the present to see the innovation on their blue card. Have them write a story describing what they used to use in the past and how the innovation on their blue card has improved farming.
2. Give each student 1 pair of matching blue and green cards. Then ask the students any of the following questions:
 - a. Does your blue innovation keep the farmer safer while he/she is working? Tell me how.
Possible answers:
 - Cabs on tractors and trucks keep farmers safe from injury.
 - Hand milking cows or collecting the eggs could lead to injury from cows kicking, or hens pecking the farmer.
 - b. Does your blue innovation help the farmer produce more food? Tell me how.
Possible answers:
 - Machines can collect and transport more food more quickly using less people.
 - c. Does your blue innovation need fewer people to get the job done? Tell me why.
Possible answers:
 - Machines do many jobs that used to be done more slowly by hand and by many people, such as sowing seeds, harvesting grain, milking cows, collecting eggs, and feeding pigs.
 - d. Does your blue innovation make the job physically easier for the farmer to do? Tell me how.
Possible answers:
 - Modern farmers do not need to carry heavy buckets of animal feed, walk miles to sow seeds in a field, or have strong hands and arms for milking or cutting grain or piling hay on a wagon. Now machines do the lifting, milking, cutting, and the farmer rides in a tractor instead of walking across the field.
 - e. Does your blue innovation get the job done more quickly? Tell me why.
Possible answers:
 - Machines can carry larger and heavier loads than people. Machines also move at greater speeds, don't get tired, or need breaks to eat lunch. So, machines can do more work in one day than humans can, so the job gets done more quickly.
 - f. Does your blue innovation provide better care for the animals? Tell me why.
Possible answers:
 - Robotic milking machines allow the cow to be milked when she chooses instead of at a set time. Automatic feeders allow animals to feed when they are hungry. Every animal, even the smallest, gets their turn and their fair share of food. Automatic feeders can also deliver a personalized diet best suited for each animal.

Extension Activities

SUGGESTED BOOKS

- John Deere, That's Who!** (2017) – Tracey Nelson Maurer; 40 pgs; ISBN 978-1-62779-129-8
- The Kid Who Changed the World** (2014) – Andy Andrews; 40 pgs; ISBN 978-1-4003-2433-0
- The Girl Who Thought in Pictures** (2019) – Julia Finley Mosca; 40 pgs; ISBN 978-1-943147618
- In the Garden with Dr Carver** (2019) – Nicole Tadgell; 32 pgs; ISBN 978-0-807536308
- George Washington Carver for Kids** (2019) – Peggy Thomas; 144 pgs; ISBN 978-0-915864003
- Farmer Will Allen and the Growing Table** (2016) – Jacqueline Briggs Martin; 32 pages; ISBN 978-0-983661580