LEARNING EXPERIENCE FIVE

Guiding Question: How has innovation shaped the food system?

This **Learning Source** and accompanying **Build Competencies** activities focus on the significance and impact of innovation in agriculture and the food system, including some examples of farm mechanization as well as Canadian innovations in crop biotechnologies – Marquis Wheat and the Canadian invention of canola. Students also use examples of innovation during the Depression years to consider how changes in farming practices continue to have an impact on farms and the food system today.

This **Learning Source** provides starting points and information to investigate: • Crop innovations • The wheat economy • A made in Canada innovation – canola • Innovation during the Depression • Back to the food system Ask students to discuss and identify the types of primary sources they would expect to find in museums or archives that would provide evidence of innovation and inventions in agriculture. Have students use the Learning Source to identify and describe examples of innovations and inventions that led to changes in agricultural practices. How did the Depression motivate farmers to innovate? What is driving the need to continue innovating today?	**Build Competencies: Farm Innovations** Students consult primary sources examples to identify impact of technologies before and during the Depression years; make comparisons to climate change challenges today, create a mind map. This handout includes activities that support competencies, literacy and numeracy, and weblinks to online resources that can support student learning. 	Assess Look for evidence of understanding of the following concepts: • Innovation • Inventions • Technological advances • Great Depression • Food system For a formative assessment, use the **mind maps** that students create in the Build Competencies activities to look for evidence of understanding of the contributions of agricultural technologies and innovations to Canada's development.

Additional Research or Background Sources

Consult teacher or student background sources such as the examples that follow to further explore, enrich or expand activities for this guiding question. Student research sources are also provided in **Build Competencies** handouts.

Farms.com provides a timeline of events connected to the history of agriculture, including examples of mechanization, technology and crop innovation at www.farms.com/reflections-on-farm-and-food-history/history-of-canadian-agriculture.

Small Farm Canada provides the article **150 years of Canadian agriculture: What's changed, what hasn't and what trends will shape farming in the future**, at www.smallfarmcanada.ca/features/150-years-of-canadian-agriculture-what%E2%80%99s-changed-what-hasn%E2%80%99t/. Examples of mechanization and crop technology can be shared with students. An overview of "the game-changers" can be found at the bottom of this article's webpage. This concept could be used with students to have

Additional information and discussion questions are provided in the carousel slide for this guiding question in the agriculture HISTORIES section of the LEARN webpage.

Click on the carousel slide to open and explore the following content.

- Innovating to produce more food
- Innovation, change and the food system

them think critically about those innovations that they think have had the most impact at different periods of time throughout history.

Canola Council provides a website with an interactive timeline as well as a story collection at www.canolacouncil.org/canola-history/.

Find a fact sheet on **Grain Farm Technology Today** on the Agriculture in the Classroom Canada website at https://aitc-canada.ca/en-ca/learn-about-agriculture/category/growing-crops/grain-farm-technology. Students can be asked to make comparisons between technology in the past and the technology that grain farmers use today.

Although this teacher background source focuses on urbanization, it also provides an overview of the role that farm mechanization played. Find **Rural Canada in an Urban Century** on Open Text BC at https://opentextbc.ca/postconfederation/chapter/9-14-rural-canada-in-an-urban-century/.

Find information on biotechnology and the origins of canola on the Alberta Learn Canola website at https://learncanola.com/home/lets-talk-biotech/. Encourage students to consider how innovation does not just occur through mechanization and computer technologies, but has also involved scientific innovation.

Find a timeline about western Canada's agricultural history from Grains West at https://grainswest.com/wp-content/uploads/2017/06/grain-history-timeline.jpg.

Find a news article published in 1965 about **The Application of Computers to Agriculture** at www.farms.com/reflections-on-farm-and-food-history/historical-articles-archive/the-application-of-computers-to-agriculture.

Find **Social Studies 7** learning outcomes supported by this learning experience on the following page.

Use this activity to focus on examples of technological advances in farming equipment and practices that continued to contribute to Canada's food system. Encourage students to explore how responses to events and conditions led to innovation, as well as connections between innovation, urbanization and change.

Look on the **MEET A FARMER** webpage for video interviews focused on the use of agricultural innovation and technologies with Alberta farmers. As students watch the videos, ask them to identify perspectives shared by farmers.

> ACCOMMODATE AND/OR EXTEND LEARNING

Challenge students to work in small groups to create a **class timeline slideshow** of agricultural innovations. Groups can each be assigned a particular time period and create a slide that reflects the innovations and/or inventions that occurred. Put the timeline slides together into a slideshow.

Groups can also be asked to rank and justify their rankings regarding the innovations that had the most impact on farming practices in western Canada.

This learning experience and innovation mind map activity in the **Build Competencies** handout can also be implemented as a cross-curricular makerspace, Science and Social Studies project, exploring physical and technological innovation.

project AGRICULTURE Activity	GRADE 7 SOCIAL STUDIES	
	CONCEPTUAL KNOWLEDGE	**PROCEDURAL KNOWLEDGE**
LEARNING SOURCE How has innovation shaped the food system? **BUILD COMPETENCIES** Farm Innovations 	**7.2 Following Confederation: Canadian Expansions** 7.2.3 appreciate the challenges that individuals and communities face when confronted with rapid change (I, CC, LPP) 7.2.5 evaluate the impact of Confederation and of subsequent immigration on Canada from 1867 to the First World War by exploring and reflecting upon the following questions and issues: • To what extent was agricultural activity a key factor in the population growth of western Canada? (TCC, LPP, ER) 7.2.7 assess, critically, the impact of urbanization and of technology on individual and collective identities in Canada by exploring and reflecting upon the following questions and issues: • In what ways did technological advances contribute to the development of Canada (e.g., aviation, farming equipment, radio transmissions, electronics, multimedia)? (ER, PADM)	**Skills and Processes for Grade 7** 7.S.1 develop skills of critical thinking and creative thinking: • evaluate, critically, ideas, information and positions from multiple perspectives • demonstrate the ability to analyze local and current affairs 7.S.2 develop skills of historical thinking: • explain the historical contexts of key events of a given time period • distinguish cause, effect, sequence and correlation in historical events, including the long and short-term causal relations of events 7.S.7 apply the research process: • draw conclusions based upon research and evidence • organize and synthesize researched information • plan and conduct a search, using a wide variety of electronic sources 7.S.8 demonstrate skills of oral, written and visual literacy: • listen to others in order to understand their perspectives