

Agriculture in Education:
Exploring Critical Issues

Urbanization & Agriculture: Past Development, Future Tensions

*To what extent has urbanization influenced
ways of life in Canada's west?*

A Teaching
and Learning
Resource for
Grade 7
Social Studies
2nd Edition



Urbanization & Agriculture: Past Development, Future Tensions

2nd Edition

The roots of most Canadian rural communities are in agriculture. Today, Canada is no longer an agrarian nation. And in this change, we are losing the connection to the food we eat – where it comes from, what is required to provide our 'daily bread,' and the independence that comes with being able to grow enough to feed ourselves.

But more importantly, we are losing the resources that allow Canada to produce its food – namely the high value soils and the land that allows Albertans to grow the food that we all need to survive.

These resources are meant to 'reconnect' a population pulled to the city starting from the industrial revolution, with the appreciation for the resources that agriculture needs, if Canadian 'local' food is to continue to be a reality.

May this resource begin the dialogue.

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INTRODUCTION & OVERVIEW

Agricultural communities have changed dramatically in the past century. This resource explores changes in western Canadian agriculture, beginning with the establishment of farms and continuing with the role of immigration and technology, in the context of issues related to urbanization, land use and future trends. As farming communities disappear and technology changes the direction of the industry, questions about the future of farming arise. Students are asked to complete their research by drawing their own conclusions about decisions that they think may influence the future of farming in western Canada.

A Critical Issues Approach

Issues that are relevant and meaningful to students support a constructivist, inquiry-based approach to learning. Critical issues frame learning around key questions that pose problems that intrigue and interest students, and set a focus for motivated learning. Posed effectively, critical issues ask students to develop and apply critical thinking skills and look at multiple perspectives, consider alternatives and recognize that challenges can often involve many different solutions.

This teaching and learning resource is developed around a critical issues approach and promotes inquiry-based learning and critical thinking. The exploration of issues is framed around inquiry questions that are relevant and meaningful to students, engage them in deliberative research and promote social participation skills.

Curriculum Support

This resource supports Alberta's **Grade 7 Social Studies** program of study. It addresses selected values and attitudes as well as knowledge and understanding outcomes. This resource also develops processes and skills, including critical thinking and creative thinking, historical thinking, decision making and problem solving, research and information inquiry, oral, written and visual literacy. A curriculum correlation chart follows. Specific charts are provided with each of the four lesson sequences in this resource, indicating curricular outcomes for each. These lesson sequences include activities that may take **two to five 50-minute class periods, depending on activities selected.**

Urbanization & Agriculture: Past Development, Future Tensions

Grade 7 Social Studies Curriculum Connections Summary

Critical Issue & Inquiries

To what extent has urbanization influenced ways of life in Canada's west?

Importance of Agriculture

To what extent is agriculture important to ways of life in Alberta and in the Canadian west?
(Lesson Sequence One)

History in Review

How has agriculture influenced ways of life and communities in the past?
(Lesson Sequence Two)

Urbanization & Change

What does urbanization have to do with agriculture?
(Lesson Sequence Three)

Impact of Technology

To what extent has technology changed agricultural practices and ways of life?
(Lesson Sequence Four)

Values & Attitudes Outcomes

7.2.3 appreciate the challenges that individuals and communities face when confronted with rapid change (I, CC, LPP)

Knowledge & Understanding Outcomes

7.2.5 evaluate the impact of Confederation and subsequent immigration on Canada from 1867 to World War I 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 critically assess the impact of urbanization and technology on individual and collective identities in Canada by exploring and reflecting upon the following questions and issues:

- What impact has increased urbanization had on rural communities in Canada? (LPP, CC)
- In what ways did technological advances contribute to the development of Canada (e.g., aviation, farming equipment, radio transmissions, electronics, multimedia)? (ER, PADM)

Skills & Processes Outcomes

7.5.1 develop skills of critical thinking and creative thinking:

- critically evaluate ideas, information and positions from multiple perspectives
- demonstrate the ability to analyze local and current affairs
- re-evaluate personal opinions to broaden understanding of a topic or an issue
- generate creative ideas and strategies in individual and group activities

7.5.2 develop skills of historical thinking:

- analyze historical issues in order to form or support an opinion
- use historical and community resources to organize the sequence of historical events
- distinguish cause, effect, sequence and correlation in historical events, including the long and short-term causal relations of events

7.5.4 demonstrate skills of decision making and problem solving:

- predict outcomes of decision making and problem-solving scenarios from multiple perspectives
- propose and apply new ideas and strategies to contribute to problem solving and decision making, supported with facts and reasons

7.5.6 develop age-appropriate behaviour for social involvement as responsible citizens contributing to their community, such as:

- support and participate in activities and projects that promote the well-being and meet the particular needs of their community

Skill & Process Outcomes

7.S.7 apply the research process:

- develop a position supported by information gathered through research
- draw conclusions based upon research and evidence
- organize and synthesize researched information
- formulate new questions as research progresses
- integrate and synthesize concepts to provide an informed point of view on a research question or an issue

7.S.8 demonstrate skills of oral, written and visual literacy:

- communicate information in a clear, persuasive and engaging manner, through written and oral means
- use skills of informal debate to persuasively express differing viewpoints regarding an issue

7.S.9 develop skills of media literacy:

- analyze the impact of television, the Internet, radio and print media on a particular current affairs issue
- examine the values, lifestyles and points of view represented in a media message

THE CRITICAL ISSUE & INQUIRY PROCESS

To what extent has urbanization influenced ways of life in Canada's west?

Related Inquiries

To what extent is agriculture important to ways of life in Alberta and in the Canadian west? (Lesson Sequence One)

In Lesson Sequence One, students explore Alberta's and Canada's connections to agriculture. Students brainstorm and discuss the role of agriculture in ways of life in Alberta and western Canada.

How has agriculture influenced ways of life and communities in the past? (Lesson Sequence Two)

In Lesson Sequence Two, students examine some of the important events in the settlement of the west that connect to agriculture. Students explore examples that illustrate how agriculture influenced the railway, immigration and population growth in the Canadian west to develop an appreciation of the importance of agriculture to the growth of western Canada, both past and present.

What does urbanization have to do with agriculture? (Lesson Sequence Three)

In Lesson Sequence Three, students explore how urbanization in Alberta and western Canada has changed the balance between rural and urban societies and ways of life. Students build understandings of the impact that urbanization has had on rural communities in Canada. They consider multiple perspectives that involve agricultural decisions, production and technologies.

To what extent has technology changed agricultural practices and ways of life? (Lesson Sequence Four)

In Lesson Sequence Four, students examine the relationship between technological advancements and the agricultural industry. They compare the role of pesticides and herbicides, various fertilizers, genetic breakthroughs in plant and animal production, developments in seed research and improved harvesting techniques.

In their inquiry into this critical issue, students explore agricultural growth and change in historical as well as contemporary contexts. They examine ways that agriculture has drawn people to western Canada and affected the growth of rural communities. They also explore the factors that influenced this growth, such as the railway and technology. Students apply this historical context to current issues in agriculture, including urbanization and changes to small farms.

This Critical Issues Guide can be integrated with the Critical Issues Guide on Sustainability & Agriculture for Grade 7 Science. Discuss the possibility of teaching an integrated unit with the Science teacher in your school.

The Process

This resource is structured around inquiry questions that form the basis for exploring the critical issue. Each inquiry question provides a focus for a lesson sequence and for deliberative research. Each lesson sequence also contains “I can...” statements that set a context for research and inquiry, provide criteria for assessment and help students focus their learning. These statements can be shared with students at the beginning of each lesson sequence.

Each of the lesson sequences in this resource is structured around the following features:

- Each lesson sequence provides activities that introduce and explore topics in **two to five 50-minute** class periods, depending on activities selected. Choices can be made by both the teacher and students about the scope and extent of research and assignments associated with the lesson sequence. Depending on the time available, modify the number of class periods for the lesson sequence.
- Additional activity suggestions provide opportunities to extend the lesson sequence and further develop research and inquiry skills.
- An overview of instructional strategies is provided with each activity.
- Rubrics can be used to assess many of the products that students create in the lesson sequences. Sample rubrics and criteria statements are provided at the end of this section of the resource, as well as a template for creating customized rubrics.
- Student products may be displayed and shared with other classrooms and students, the school, parents and the community. If appropriate, discuss ways that projects may be completed in cross-curricular contexts with other subject area teachers.

Each of the lesson sequences is self-contained and provides the instructional process, activity ideas, Briefing Notes and other handouts. **Therefore, teachers should select those activities in the lesson sequences that they believe will be most effective in supporting their students’ learning in the Grade 7 Social Studies program.**

Briefing Notes

Each of the lesson sequences centres on a topic introduced through Briefing Notes. Each Briefing Notes handout opens with *Predict* questions that emphasize critical thinking and connect to students’ prior knowledge, understandings, attitudes and assumptions.

The Briefing Notes also provide questions, activities and internet website links that encourage research and the exploration of multiple viewpoints and opinions on issues relating to agriculture, urbanization and impact on quality of life.

The Briefing Notes format provides an opportunity for students to take on a variety of research roles. Each lesson sequence contributes to research that students gather to explore the critical issue. Students should be encouraged to revisit, discuss and reflect on the critical issue when the lesson sequences have been completed.

At a Glance

The following chart provides an overview of each lesson sequence, inquiry focus, instructional strategies, curriculum connections and assessment focus in this resource.

Lesson Sequence One

Importance of Agriculture

In Lesson Sequence One, students explore Alberta's and Canada's connections to agriculture. Students brainstorm and discuss the role of agriculture in ways of life in Alberta and western Canada.

Inquiry Focus and Key Concepts

To what extent is agriculture important to ways of life in Alberta and in the Canadian west?

- Agriculture
- Industry
- Production
- Economy
- Exports
- Agri-food
- Commodities

Curriculum Connections

7.5.1 develop skills of critical thinking and creative thinking:

- critically evaluate ideas, information and positions from multiple perspectives
- demonstrate the ability to analyze local and current affairs
- generate creative ideas and strategies in individual and group activities

7.5.4. demonstrate skills of decision making and problem solving:

- predict outcomes of decision making and problem-solving scenarios from multiple perspectives

7.5.9 develop skills of media literacy:

- examine the values, lifestyles and points of view represented in a media message

Instructional Strategies

- Board Share
- Concept Web
- KWHL Chart
- Collage

Assessment Focus (I Can... Statements)

- **I can** discuss how agricultural activities affect ways of life today.
- **I can** identify and discuss current and local issues and media messages related to agricultural practices and ways of life.

Students should understand agriculture's important role in developing Alberta's society and economy, today as well as in the past.

Lesson Sequence Two

History in Review

In Lesson Sequence Two, students examine some of the important events in the settlement of the west that connect to agriculture. Students explore examples that illustrate how agriculture influenced the railway, immigration and population growth in the Canadian west to develop an appreciation of the importance of agriculture to the growth of western Canada, both past and present.

Inquiry Focus and Key Concepts

How has agriculture influenced ways of life and communities in the past?

- Immigration
- Advertising
- Urban growth
- Quality of life

Curriculum Connections

7.2.5 evaluate the impact of Confederation and subsequent immigration on Canada from 1867 to World War I 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)

7.5.1 develop skills of critical thinking and creative thinking:

- generate creative ideas and strategies in individual and group activities

Instructional Strategies

- Brainstorm
- File Folder Research
- Carousel
- Poster Advertisement

Curriculum Connections (Lesson Sequence Two)

7.5.2 develop skills of historical thinking:

- analyze historical issues in order to form or support an opinion
- use historical and community resources to organize the sequence of historical events
- distinguish cause, effect, sequence and correlation in historical events, including the long and short-term causal relations of events

7.5.4. demonstrate skills of decision making and problem solving:

- predict outcomes of decision-making and problem-solving scenarios from multiple perspectives
- propose and apply new ideas and strategies to contribute to problem solving and decision making, supported with facts and reasons

7.5.7 apply the research process:

formulate new questions as research progresses

Assessment Focus (I Can... Statements)

- **I can** identify and describe ways that agricultural activities were used to bring new immigrants to Canada.
- **I can** evaluate the causes and effects of media messages of the time on new immigrants.
- **I can** assess the contributions and changes that new immigrants brought to Canadian agricultural practices and ways of life.

Students should understand the significant role that agriculture played in the settlement of western Canada.

Lesson Sequence Three

Urbanization & Change

In Lesson Sequence Three, students explore how urbanization in Alberta and western Canada has changed the balance between rural and urban societies and ways of life. Students build understandings of the impact that urbanization has had on rural communities in Canada. They consider multiple perspectives that involve agricultural decisions, production and technologies.

Inquiry Focus and Key Concepts

What does urbanization have to do with agriculture?

- Urbanization
- Urban
- Rural
- Change

Instructional Strategies

- Statistical Analysis
- Retrieval Chart
- Futures Wheel
- Community Participation

Curriculum Connections

7.2.3 appreciate the challenges that individuals and communities face when confronted with rapid change (I, CC, LPP)

7.2.7 critically assess the impact of urbanization and technology on individual and collective identities in Canada by exploring and reflecting upon the following questions and issues:

- What impact has increased urbanization had on rural communities in Canada? (LPP, CC)

7.5.1 develop skills of critical thinking and creative thinking:

- critically evaluate ideas, information and positions from multiple perspectives

7.5.4. demonstrate skills of decision making and problem solving:

- predict outcomes of decision-making and problem-solving scenarios from multiple perspectives

7.5.6 develop age-appropriate behaviour for social involvement as responsible citizens contributing to their community, such as:

- support and participate in activities and projects that promote the well-being and meet the particular needs of their community

Curriculum Connections (Lesson Sequence Three)

7.S.7 apply the research process:

- draw conclusions based upon research and evidence
- organize and synthesize researched information
- formulate new questions as research progresses

7.S.8 demonstrate skills of oral, written and visual literacy:

- communicate information in a clear, persuasive and engaging manner, through written and oral means

Assessment Focus (I Can... Statements)

- **I can** identify and describe the causes and effects of urbanization.
- **I can** compare the causes and effects of urbanization with changes that agricultural communities and industries have experienced.
- **I can** draw conclusions about the impact of urbanization.

Students should understand that movement of people to cities and towns in western Canada has affected agricultural decisions, production and technology as well as individuals and families in rural communities.

Lesson Sequence Four

Technology

In Lesson Sequence Four, students examine the relationship between technological advancements and the agricultural industry. They compare the role of pesticides and herbicides, various fertilizers, genetic breakthroughs in plant and animal production, developments in seed research and improved harvesting techniques.

Inquiry Focus and Key Concepts

To what extent has technology changed agricultural practices and ways of life?

- Technology
- Quality of life
- Biotechnology
- Genetic engineering
- Contributions
- Impact

Curriculum Connections

7.2.7 critically assess the impact of urbanization and 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)

7.S.1 develop skills of critical thinking and creative thinking:

- critically evaluate ideas, information and positions from multiple perspectives
- re-evaluate personal opinions to broaden understanding of a topic or an issue

7.S.4. demonstrate skills of decision making and problem solving:

- predict outcomes of decision-making and problem-solving scenarios from multiple perspectives
- propose and apply new ideas and strategies to contribute to problem solving and decision making, supported with facts and reasons

7.S.7 apply the research process:

- develop a position supported by information gathered through research
- draw conclusions based upon research and evidence
- organize and synthesize researched information
- integrate and synthesize concepts to provide an informed point of view on a research question or an issue

Instructional Strategies

- Shared Writing
- Research Strategy
- Class Contribution Chart
- Visual Timeline

Curriculum Connections (Lesson Sequence Four)

7.5.8 demonstrate skills of oral, written and visual literacy:

- communicate information in a clear, persuasive and engaging manner, through written and oral means
- use skills of informal debate to persuasively express differing viewpoints regarding an issue

Assessment Focus (I Can... Statements)

- **I can** evaluate different perspectives on the impact of technology on agriculture.
- **I can** identify the changes that agricultural practices and ways of life have gone through as a result of technology.
- **I can** summarize the ways that changes in technology have contributed to Canadian ways of life and identities.

Students should understand how technology has brought about change in agricultural practices and ways of life.

ASSESSMENT TOOLS

The assessment criteria statements that follow can be developed into rubrics and applied to many of the products that students develop in the activities in this resource. The criteria statements should be discussed, adapted and developed with students. A template is provided for the creation of customized rubrics.

VISUAL ORGANIZERS

Excellent 4	<ul style="list-style-type: none">• Demonstrates a thorough understanding of the topic, its relationships and related concepts and ideas• Provides descriptive labels and organizers; provides information that reflects the topic• Makes appropriate links• Uses the visual organizer to make connections and draw relationships
Proficient 3	<ul style="list-style-type: none">• Demonstrates an adequate understanding of the topic and concepts• Provides appropriate labels and organizers• Provides information that relates to the topic• Attempts to make links• Uses the visual organizer appropriately for topic and concepts
Acceptable 2	<ul style="list-style-type: none">• Identifies concepts and ideas that relate to the topic• Provides labels and organizers• Includes information that relates to the topic• Uses the format of the visual organizer
Limited 1	<ul style="list-style-type: none">• Provides limited information related to the topic• Uses parts of the visual organizer to present information

RESEARCH

Excellent 4	<ul style="list-style-type: none"> • Develops a strategy for conducting research • Develops and identifies research and inquiry questions • Analyzes and assesses sources of information selected for the research task • Records information using an appropriate format • Applies research to inquiry question • Makes effective use of research time
Proficient 3	<ul style="list-style-type: none"> • Identifies a strategy for conducting research • Identifies research and inquiry questions • Selects and assesses sources of information • Records information using an appropriate format • Identifies links between research collected and inquiry question • Makes effective use of research time
Acceptable 2	<ul style="list-style-type: none"> • Uses a previously identified strategy for conducting research • Records research and inquiry questions • Selects and reads sources of information • Records information using an appropriate format • Uses information from sources to answer inquiry questions
Limited 1	<ul style="list-style-type: none"> • Selects and reads sources of information • Records identified research and inquiry questions • Records information using an identified format • Identifies information from sources that relates to inquiry questions

GROUP ACTIVITIES

Excellent 4	<ul style="list-style-type: none"> • Demonstrates clear understanding of the group task and their individual contribution to the group • Listens to group members • Expresses original opinions and ideas • Contributes meaningful information and research • Works with the group to fulfill group responsibilities
Proficient 3	<ul style="list-style-type: none"> • Articulates understanding of the group task and the role they play within the group • Listens to group members • Contributes ideas and information • Fulfills individual responsibilities for the group
Acceptable 2	<ul style="list-style-type: none"> • Describes the group task • Describes individual role within the group setting • Listens to group members • Contributes information to group task
Limited 1	<ul style="list-style-type: none"> • Describes individual role within the group setting • Listens to others in the group • Contributes limited ideas

TIMELINES

Excellent 4	<ul style="list-style-type: none"> • Accurately labels and summarizes events in correct chronological sequence • Includes information, examples and details that are appropriate to time period and purpose of timeline • Makes insightful connections between dates and topics, events, people or concepts • Uses visuals to enhance and expand information
Proficient 3	<ul style="list-style-type: none"> • Identifies events in chronological sequence • Includes information and details appropriate to the time period and purpose of the timeline • Makes clear connections between dates and topics, events, people or concepts • Uses visuals to illustrate information
Acceptable 2	<ul style="list-style-type: none"> • Labels dates on timeline in chronological order • Labels main events on the timeline • Includes topics, events, people or concepts with dates on timeline • Uses visuals that support information
Limited 1	<ul style="list-style-type: none"> • Labels dates on timeline • Records information on the timeline

PROJECTS

Excellent 4	<ul style="list-style-type: none"> • Develops a project planning strategy and process • Identifies goals and purpose of project • Demonstrates understanding of topics and concepts represented in the project • Selects an appropriate method of constructing and creating project • Uses research and information gathered appropriately and effectively in the project • Demonstrates ability to summarize and synthesize information within the project • Displays learning with pride in final presentation of project
Proficient 3	<ul style="list-style-type: none"> • Identifies a project planning strategy and process • Identifies purpose of project • Selects information relating to topics and concepts under study for the project • Selects an appropriate method of constructing and creating the project • Uses research and information gathered appropriately and effectively in the project • Demonstrates ability to summarize information within the project • Displays learning appropriately in final presentation of project
Acceptable 2	<ul style="list-style-type: none"> • Uses a previously identified project planning strategy and process • Selects information relating to topics and concepts under study for the project • Selects a method for constructing and creating the project • Uses research and information gathered throughout the project • Displays learning adequately in final presentation of project
Limited 1	<ul style="list-style-type: none"> • Selects information relating to topics and concepts under study for the project • Constructs and creates the project using an identified approach • Uses information gathered for the project

RUBRIC

Excellent 4	
Proficient 3	
Acceptable 2	
Limited 1	
No work completed 0	

LESSON SEQUENCE ONE: IMPORTANCE OF AGRICULTURE

Overview

In Lesson Sequence One, students explore Alberta's and Canada's connections to agriculture. Students brainstorm and discuss the role of agriculture in ways of life in Alberta and western Canada.

Rationale

Students should understand agriculture's important role in developing Alberta's society and economy, today as well as in the past.

Presenting students with "I can..." statements can help focus their learning and provide a context for assessment with this lesson sequence's activities.

Inquiry

To what extent is agriculture important to ways of life in Alberta and in the Canadian west?

Key Concepts

Agriculture **Industry** **Production** **Economy** **Exports**
Agri-food **Commodities**

Preparation

Suggested Time: 1 to 2 50-minute class periods

The following handouts, materials and resources are used in this lesson sequence:

- Handouts
 - Briefing Notes 1A: Importance of Agriculture
 - Student Resource 1B: KWHL Chart
- Chart paper
- Local media sources: newspapers and magazines (*Ask students to bring copies of current newspapers from home or access online media sources to establish a classroom collection.*)
- Internet access and interactive whiteboard to display and share website links

"I CAN"

Lesson Sequence One encourages students to demonstrate their learning by developing understandings such as the following:

- **I can** discuss how agricultural activities affect ways of life today.
- **I can** identify and discuss current and local issues and media messages related to agricultural practices and ways of life.

Lesson Sequence One

Grade 7 Social Studies Curriculum Connections

Inquiry

Importance of Agriculture

To what extent is agriculture important to ways of life in Alberta and in the Canadian west? (Lesson Sequence One)

Skills & Processes Outcomes

7.5.1 develop skills of critical thinking and creative thinking:

- critically evaluate ideas, information and positions from multiple perspectives
- demonstrate the ability to analyze local and current affairs
- generate creative ideas and strategies in individual and group activities

7.5.4. demonstrate skills of decision making and problem solving:

- predict outcomes of decision-making and problem-solving scenarios from multiple perspectives

7.5.9 develop skills of media literacy:

- examine the values, lifestyles and points of view represented in a media message



Lesson Sequence One Teaching and Learning Strategies

To what extent is agriculture important to ways of life in Alberta and in the Canadian west?

Introductory Activity

Students begin with a brainstorming session in which they think about and discuss what they know and understand about agriculture in Alberta and the Canadian west.

Instructional Strategy: Board Share

The board share activity asks students to work in small groups and brainstorm responses to a question. While the group brainstorms, an appointed recorder records the group's ideas on the board for the whole class. The recorder is responsible for ensuring that all of the group's ideas are recorded.

PROCESS

1. Ask students what they know about agriculture's importance to our ways of life in Alberta and Canada.
2. Have students work with small groups to brainstorm their ideas. Remind students to appoint a recorder for their small group.
3. Have each small group record and share brainstormed ideas in the form of a brainstorming web on the board.



Briefing Notes Activity

Students read and discuss the Briefing Notes with a partner. They focus on connections between agriculture and ways of life in Alberta and the Canadian west.

Instructional Strategy: Concept Web

Reading for meaning and summarizing main points by using a visual organizer, such as the concept web used in this activity, requires students to synthesize information, critically evaluate relationships and make connections to their prior knowledge and understandings. Clustering related ideas and concepts encourages students to organize information and conclusions.



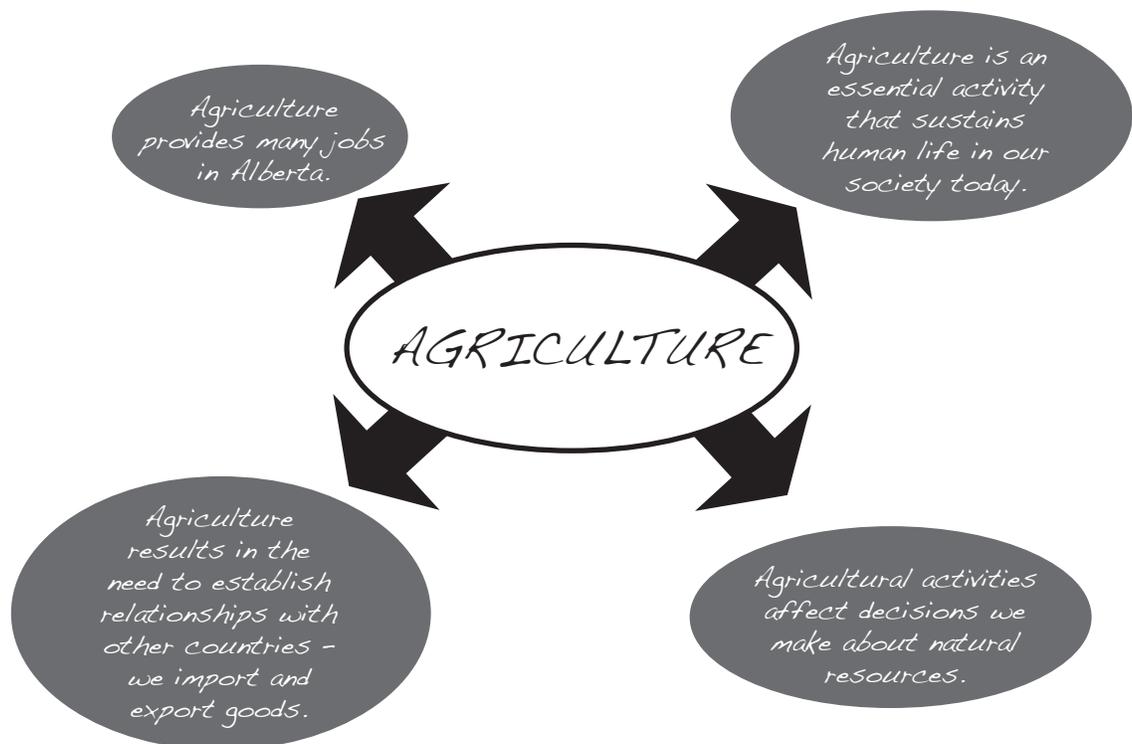
DIFFERENTIATE

Structure the Briefing Notes discussion and questions as a class activity or by organizing students to work with a small group or partner.

If students need additional support, create the concept web as a class on the board or an interactive whiteboard.

PROCESS

1. Provide each student with a copy of **Briefing Notes 1A: Importance of Agriculture**. Ask students to discuss or respond in writing to the *Predict* questions at the beginning of the handout.
2. Have students read the Briefing Notes and respond in writing to the questions at the end of the handout.
 - Why do you think the agricultural industry is so important to Alberta?
 - Why do you think the proportion of people in Alberta that are employed in the agricultural industry is changing?
 - What are the top five agri-food exports from Alberta? Why do you think these products are important to Alberta's economy?
3. Have students create a concept web similar to the one below, to summarize the key points that relate to the importance of agriculture to ways of life in Alberta and western Canada. Some examples of key points that students may identify are provided in the sample concept web below.





Closing Activity

Students complete a KWHL chart that introduces and focuses on the concept and issue of urbanization.

Instructional Strategy: KWHL Chart

Group discussion, analysis and synthesis of information encourage students to draw conclusions and ask questions that lead to further research. Using a visual organizer such as a KWHL chart, students link their prior knowledge and understandings to ideas for further research.

PROCESS

1. Introduce the critical issue to students by writing it on the board: *To what extent has urbanization influenced ways of life in Canada's west?*
2. Have each student complete **Student Resource 1B: KWHL Chart**. Trade the chart with another student and discuss ideas that are similar and different.
3. Have students in small groups discuss and record their responses to the question.
4. Ask small groups to share their perspectives, responses and ideas with the whole class.



Extension Activity

Students work with a small group to create a collage.

Instructional Strategy: Collage

Visual representations and compilations of student research provide an opportunity to explore various viewpoints and opinions about a particular topic. A collage provides an alternate method of collecting and organizing research. A collage should be created around a particular topic or research question. Students should not only collect and organize information in their collages, but should also examine and analyze the collage. Ask them to identify what they see in their collage, what patterns they recognize, what opposing or conflicting views are represented, and where the biases may exist in the information they have included.

PROCESS

1. Have each small group do a media search, using local newspapers and magazines to find articles, advertisements, images and stories that relate to agriculture.
2. Ask each group to create a collage of their results.
3. Have each group analyze the articles, advertisements, images and stories they have used in their collages and discuss what they see.
4. Ask groups to develop summary statements about their collage. Remind students to look for patterns or recurring ideas or information, opposing or conflicting viewpoints or opinions that may be represented, and what biases may exist in the articles, advertisements or stories they have included.

Importance of Agriculture

Predict

Where do you think most of the agricultural products you use are made? Investigate the agricultural products you have in your home. Find both food and non-food products that come from agriculture. How many are made in Alberta? How many are made in Canada?

How does agriculture affect your daily life? Why do you think agriculture is so important to ways of life in western Canada?

Agriculture in Alberta is big business

Alberta's agriculture and food industry is important to everyone's ways of life, whether they live in rural or urban communities. Alberta has the third largest **agri-food industry** (the production of food and beverages) in Canada.

Farming, ranching, food processing, food retail stores, food service and restaurants make up this industry, and it is equally important to people who live in cities as to those who raise animals and grow crops on farms.

"The agriculture and food industry is a big part of most major urban areas. There are food processing plants, research farms, companies devoted to using food products for non-food uses, agribusiness company offices, associations and more – all located in the heart of the city."

Source:

Agriculture is everywhere:
Green Hectares website. <http://greenhectaresonline.com/2012/02/agriculture-is-everywhere/>

Alberta farm facts

- In 2012, Alberta farm cash receipts* totalled \$10.5 billion.
- According to the 2006 Census, there are 49 431 farms in Alberta, producing a total of about 21 percent of Canada’s farm cash receipts.
- The average farm size is about 420 hectares.
- In 2011, the top five agricultural **commodities**, the raw materials used to create products, were cattle and calves, canola, wheat, dairy products and hogs.
- Agriculture is Alberta’s largest renewable resource based industry.
- In 2011, Alberta’s food and beverage processing industries were the third largest of all manufacturing in the province. These industries made up 17 percent of all manufactured goods.
- Canola was the number one crop for farm cash receipts in Canada in 2010. Saskatchewan is the largest producer of canola in Canada.

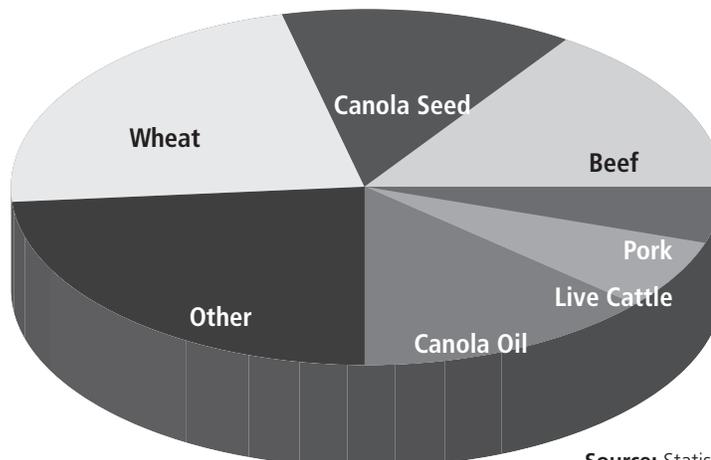
***So, what is a farm cash receipt anyway?**

Farm cash receipts measure the total revenue (the total amount of money made from sales) of farm business in current dollars. Revenues are figured out from the sale of crops, livestock, and livestock products.

The export situation

- Alberta’s agriculture and food industry exports to more than 120 countries around the world.
- Alberta produces and manufactures almost 20 percent of Canada’s total agri-food exports. The value of these exports was \$40.6 billion in 2011.
- Alberta is the country’s third largest exporter of agricultural products, after Saskatchewan and Ontario.
- The United States continues to be Alberta’s largest importer. In 2009, nearly 36 percent of Alberta’s agri-food exports – valued at \$2.7 billion – were exported to the United States.

Alberta Agriculture and Agri-food Exports to the World in 2010 (in value)



Source: Statistics Canada 2010

On the job front

- Alberta's agriculture and food industry impacts 1 out of every 7 jobs in the province.
- In 2011, there were about 305 000 persons employed in primary agriculture across Canada, of which 51 800 were employed in Alberta.
- The whole agri-food industry in Alberta, which includes food and beverage manufacturing as well as primary agriculture, employed 73 200 persons in 2011.
- In 2011, Alberta's food and beverage manufacturing industries made up the third largest manufacturing sector in the province.

EXPLORE

Why do you think the agricultural industry is so important to Alberta?

Why do you think the proportion of people in Alberta that are employed in the agricultural industry is changing?

What are the top five agri-food exports from Alberta? Why do you think these products are important to Alberta's economy?

KWHL Chart

To what extent has urbanization influenced ways of life in Canada's west?

Agricultural communities have changed dramatically over the past century. Many of western Canada's communities were established as rural settlements and farms. As some communities grew over time into urban centres, they have spread onto farm land. This trend towards **urbanization** has affected ways of life in both urban and rural communities.

DEFINING TERMS

Write your definition for each term:

Urbanization

Immigration

Trends

Industry

What I Know	
What I Want to Know More About	
How I Will Find This Out	
What I Learned	

LESSON SEQUENCE TWO: HISTORY IN REVIEW

Overview

In Lesson Sequence Two, students examine some of the important events in the settlement of the west that connect to agriculture. Students explore examples that illustrate how agriculture influenced the railway, immigration and population growth in the Canadian west to develop an appreciation of the importance of agriculture to the growth of western Canada, both past and present.

Rationale

Students should understand the significant role that agriculture played in the settlement of western Canada.

Presenting students with “I can...” statements can help focus their learning and provide a context for assessment with this lesson sequence’s activities.

Inquiry

How has agriculture influenced ways of life and communities in the past?

Key Concepts

Immigration **Advertising** **Urban growth** **Quality of life**

Preparation

Suggested Time: 2 to 3 50-minute class periods

The following handouts, materials and resources are used in this lesson sequence:

- Handouts
 - Briefing Notes 2A: Agricultural History in Review
 - Student Resource 2B: Research Sources Chart
- Internet, library, classroom and textbook resources, with information on agriculture and immigration in the late 1800s and early 1900s
- File folders
- Poster paper
- Internet access and interactive whiteboard to display and share website links

“I CAN”

Lesson Two encourages students to demonstrate their learning by developing understandings such as the following:

- **I can** identify and describe ways that agricultural activities were used to bring new immigrants to Canada.
- **I can** evaluate the causes and effects of media messages of the time on new immigrants.
- **I can** assess the contributions and changes that new immigrants brought to Canadian agricultural practices and ways of life.

Lesson Sequence Two

Grade 7 Social Studies Curriculum Connections

Inquiry

History in Review

To what extent is agriculture important to ways of life in Alberta and in the Canadian west? (Lesson Sequence Two)

Values & Attitudes Outcomes

7.2.3 appreciate the challenges that individuals and communities face when confronted with rapid change (I, CC, LPP)

Knowledge & Understanding Outcomes

7.2.5 evaluate the impact of Confederation and subsequent immigration on Canada from 1867 to World War I 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)

Skills & Processes Outcomes

7.5.1 develop skills of critical thinking and creative thinking:

- generate creative ideas and strategies in individual and group activities

7.5.2 develop skills of historical thinking:

- analyze historical issues in order to form or support an opinion
- use historical and community resources to organize the sequence of historical events
- distinguish cause, effect, sequence and correlation in historical events, including the long and short-term causal relations of events

7.5.4. demonstrate skills of decision making and problem solving:

- predict outcomes of decision-making and problem-solving scenarios from multiple perspectives
- propose and apply new ideas and strategies to contribute to problem solving and decision making, supported with facts and reasons

7.5.7 apply the research process:

- formulate new questions as research progresses



Lesson Sequence Two Teaching and Learning Strategies

How has agriculture influenced ways of life and communities in the past?



Introductory Activity

Students begin by sharing questions they have about the history of agriculture in Alberta and Canada. Student-generated questions set the foundation for applying processes of research and inquiry.

Instructional Strategy: Brainstorming Questions

Brainstorming and recording questions on a topic emphasizes the importance of questioning to the inquiry process. Brainstorming questions also provides an opportunity for students to consider what they already know and understand, and what they would like to know more about. This allows students to re-examine prior understandings and revise opinions once they have completed their research.

PROCESS

1. Introduce the inquiry question for this learning sequence to students:
How has agriculture influenced ways of life and communities in the past?
2. Have students continue to work in small groups to brainstorm and record questions that relate to this inquiry question. Encourage them to consider how events of the past influence ways of life today and how agriculture became a foundation of many activities in western Canada. To what extent do they think agriculture was an important factor in bringing people to western Canada?

PROCESS

1. Provide each student with a copy of **Briefing Notes 2A: Agricultural History in Review**. Ask students to discuss or respond in writing to the *Predict* questions at the beginning of the handout.
2. Provide each group with a blank file folder and **Student Resource 2B: Research Sources Organizer**. Assign one of the questions in the Briefing Notes, or a research question developed by students, to each group. Structure time to complete research using classroom sources, such as textbooks, library resources or the internet. Each group should consult three different sources and record their research results on the chart.
3. **Extend:** Students may be provided with a class period of library research to find sources that relate to their research. This class period could be used to focus on library or internet research skill development.
4. Each group may also be asked to record or cut-and-paste additional research, excerpts from sources, examples from media sources and visuals directly in their file folders. Have each group maintain a bibliography of the resources they have used as research sources.
5. Invite each group to discuss and identify current issues associated with their research. (*Students can be encouraged to identify issues such as those connected with changes in farming, urban growth, the impact of agriculture on the environment and new technologies.*)

Alberta Agriculture and Rural Development provides A Historical Series of Agricultural Statistics for Alberta – Selected Statistics from the Census of Agriculture at [www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex74](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex74).

Canada: A People's History provides information, visuals and video links in the Taking the West link at www.cbc.ca/history/EPISHOMEEP10LE.html.



DIFFERENTIATE

Select one research question and model the research process with students by exploring the question, finding and selecting research sources and using the file folder to organize research together as a class.



Closing Activity

Students share their research with others in the class.

Instructional Strategy: Carousel

A carousel allows students to share research and learning with other students or groups in the class. Each group organizes a display of their research results on their group table. Place a comment sheet on each group table. Groups rotate through the displays at timed intervals. One group member can remain with their displays to present group research and ask visiting groups to record questions or comments. Alternatively, groups can stay together and be asked to record their comments or questions on the comment sheet on each table. The carousel strategy encourages students to develop presentation and communication skills in a small group setting instead of in front of the entire class.

PROCESS

1. Have each group organize and display their research in their file folders.
2. Share research results with the class using the carousel sharing strategy.



Extension Activity

Students create a poster advertisement related to a current issue in agricultural ways of life.

Instructional Strategy: Poster Advertisement

Creating a poster advertisement is a strategy that demonstrates students' creative thinking skills. Students can apply what they learn about historical contexts to a contemporary topic or issue.

PROCESS

1. With the class, discuss how posters were used to advertise land to potential immigrants in the later part of the 1800s and early 1900s. You may choose to spend some time with classroom resources or the internet, looking at examples of advertising that encouraged immigrants to come to Canada's west to farm.
2. Ask students to identify perspectives and bias in these poster advertisements, including examples such as:
 - Misleading and incomplete information
 - Visuals that implied a certain quality of life
 - Advertising targeted at particular groups of people
 - Stereotypes or cultural myths that encouraged a narrow view of agricultural ways of life. *(For example, farmers always wore coveralls or decorated their farms with old pieces of farm machinery; women looked after the household chores while men worked in the fields; all farmers were profitable; the weather was always good.)*
3. Have students work with a partner or small group to create a poster that would advertise Canada today. How would their poster have to be different from posters of the past? What biases must be avoided in a poster used today?

Agricultural History in Review

Predict

How important do you think agriculture was to attract new immigrants to Canada's west? To whom do you think it was most important? Why?

Opening the west

When the Canadian government decided to open up the lands of the west for settlement, it set the stage for a way of life based on agriculture. As settlers began to move onto the land made available by the government, small towns and villages started to spring up all over the prairies. A number of factors affected the establishment of agriculturally based communities in western Canada.

The railway

In 1855, the last remaining land in Canada West (what is now Ontario) was sold to the government for settlement. This made politicians think about the land that was available for settlement in the west. They also started to consider how to move settlers to the prairies.



This train is passing through a canola field in the Canadian west. How do you think this photograph captures elements of both the past and the present?

Politicians were also worried about events in the United States. In 1862, the United States approved construction of the Union Pacific railroad from the Missouri River to the west coast, and the Northern Pacific railway to run from Lake Superior to Puget Sound in the northwest. What do you think the Canadian politicians were worried about?

In 1870, the Canadian government purchased Rupert's Land from the Hudson's Bay Company. They wanted to move settlers west from eastern Canada, as well as encourage immigrants from other countries to come to Canada, to solidify their claim to this land as quickly as possible. A railway was seen as a solution. Additionally, the railway would encourage the people in British Columbia to join Confederation.

Changing legislation

At the time of Confederation, immigration was the responsibility of the Department of Agriculture. This continued until March of 1892. At that time, the government formed a department called the Department of the Interior. In 1917, the Department of the Interior joined with the Ministry of Labour.

The Dominion Lands Act

The Canadian government passed the *Dominion Lands Act* in 1872. This Act granted sections of free land to any settler who was 21 or older and the head of a household. The settler had to pay a ten-dollar registration fee, live on the section for three years, cultivate 21 hectares and build a permanent dwelling on the land. These conditions often prevented women from acquiring land independently.

The Act also set aside land for schools and the Hudson's Bay Company. Clifford Sifton, the Minister of the Interior in Sir Wilfrid Laurier's government, pressured the Canadian Pacific Railway to free up additional land for settlement.

If the settler didn't follow the conditions of the Act, the federal government could take back the land. From 1874 on, settlers were also encouraged to buy adjacent lands for as little as \$1 an acre from the government. This would allow settlers to expand their farms before others bought up the adjoining land.

Advertising "The Last Best West"

Canadian immigration policy changed in 1896. Clifford Sifton increased advertising efforts in Europe to attract farmers and farm labourers to the Canadian west. The slogan "Canada: The Last Best West" became a popular phrase used to attract settlers to the west.

"A torrent of pamphlets in several languages flooded Great Britain, Europe, and the United States. Canadian exhibits were mounted at fairs, exhibitions, and public displays, while 'editorial articles,' commissioned by his department, were inserted in foreign newspapers. Foreign journalists were wined and dined on guided tours across the West, and prosperous homesteaders were encouraged to revisit their homelands and those friends and relatives they had left behind, since it was Sifton's belief that the most effective advertising was done by individual contact."

Source:

Forging our Legacy: Canadian Citizenship and Immigration 1900-1977: Citizenship and Immigration Canada.
www.cic.gc.ca/english/resources/publications/legacy/chap-2.asp

Posters were used extensively in Canada's aggressive campaign to attract European settlers to the West. Many posters sent to European countries in the 1890s used the slogan "Canada: 160 acres of free land for every settler."

Explore the role of advertising and the settlement of the west by searching for images using search terms such as "advertising Canada west." Images of posters can also be found on the following websites:

The Last Best West:
Advertising for Immigrants
www.civilization.ca/cmcl/exhibitions/hist/advertis/ads1-01e.shtml

The Canadian West (Archived)
www.collectionscanada.gc.ca/05/0529/052902/05290203_e.html

Thanks to these measures and an economy that was generally booming, more than three million people came to Canada between 1896 and 1914.

With the economic depression of the 1870s and 1880s starting to lift, Sifton decided it was time to increase immigration to the prairies from Britain, other western European countries and the United States. It was felt that people from these areas were best suited to agricultural life on the prairies.

While many of the claims of the Canadian government emphasized how attractive the land was for settlement, many settlers often found that conditions weren't quite what they had imagined when they arrived. Posters advertised free land, but settlers still had to pay the registration fee of \$10, equivalent to roughly \$150 in today's money. They had to buy their own equipment and animals for the land, and find materials to build their own shelters. Many settlers built sod houses because they couldn't afford to buy lumber.

Agricultural traditions

Many of the settlers who came to Canada in search of free land and a better life were European farmers who had a long tradition of agricultural knowledge and practices. However, in Canada they encountered different, and often difficult, conditions. Shorter growing seasons, a changing and challenging climate, unfamiliar soil types, the need to clear land for new farms and many other challenges meant a difficult life for many farmers.

An innovation that helped increase the number of people settling in the Canadian west was the invention of a hardier strain of wheat called Marquis Wheat, in 1903. This wheat was able to extend the growing season on Canada's prairies, and made farming there a more prosperous occupation. This wheat was commercialized and sold starting in 1911.

Rapeseed was another European crop that was brought to Canada. In 1936, an immigrant farmer from Poland started growing a small amount of rapeseed in his garden in Shellbrook, Saskatchewan. The Canadian government had already started to grow rapeseed on experimental farms established in the early 1900s. However, there was no established demand for rapeseed in Canada and little knowledge of how rapeseed could be used. The experimental farms had proven that rapeseed could be grown successfully in both eastern and western Canada. The Saskatchewan farmer knew, however, that rapeseed had been used in Europe for hundreds of years and that oil made from rapeseed was a very good lubricant for steam powered machinery.

When World War II broke out, there was a critical shortage of rapeseed oil. The oil was urgently needed as a lubricant for the increasing number of steam engines in navy and merchant ships and on submarines. When the need for more rapeseed oil became known, the Saskatchewan farmer increased his seed supply and sold it to his neighbours. The seed became known as "Polish rapeseed" in Canada.

Briefing Notes 2A

It wasn't until the end of World War II, when rapeseed oil was no longer needed as a lubricant, that the possibility of using it as a Canadian food was explored. Over the next 20 years, traditional plant breeding modified the seed to reduce the levels of unhealthy fatty acids in the seed's oil, and of the glucosinolates in the remaining meal – making a healthier vegetable oil for human consumption and a "tastier" animal feed in the meal. With the new defining profile, this seed became known as canola. Canola is the only "made in Canada" crop.

EXPLORE

With a small group, research one of the following questions:

- Why did people come to western Canada and where did they come from?
- What practices did they bring with them?
- How did the environment affect agricultural activities?
- How did Canada's immigration policies in the late 1800s and early 1900s affect the establishment of agricultural communities?
- To what extent did advertising emphasize agricultural activities? Why do you think this focus was used in the advertising of the times?
- How did Canadian agricultural innovations affect people's quality of life?

What other research questions do you have? Write one or two examples below.

Find Information

Explore these websites to find additional information and research sources.

Forging Our Legacy: Canadian Citizenship and Immigration, 1900-1977 provides a lot of indepth information on immigration to Canada. You may find it helpful to read through some chapters with a partner. Start with the table of contents at www.cic.gc.ca/english/resources/publications/legacy/index.asp

Immigrant Voices provides an overview of immigration to Canada by time period. Use the *History* and *Perspective* links to find specific time periods and different perspectives. www.canadianhistory.ca/liv/main.html

The *Last Best West: Advertising for Immigrants*, at www.civilization.ca/cmce/exhibitions/hist/advertis/ads1-01e.shtml, is a virtual exhibition about the Canadian government's role in advertising free land in the Canadian west.

Canada in the Making, at www.canadiana.org/citm/themes/pioneers_e.html, provides primary sources and information on Canadian pioneers and immigrants.

Research Sources Organizer

Research Question

Source 1

Source 2

Source 3

What are some current issues that are connected to this research question?

LESSON SEQUENCE THREE: URBANIZATION & CHANGE

Overview

In Lesson Sequence Three, students explore how urbanization in Alberta and western Canada has changed the balance between rural and urban societies and ways of life. Students build understandings of the impact that urbanization has had on rural communities in Canada. They consider multiple perspectives that involve agricultural decisions, production and technologies.

Rationale

Students should understand that movement of people to cities and towns in western Canada has affected agricultural decisions, production and technology as well as individuals and families in rural communities.

Presenting students with “I can...” statements can help focus their learning and provide a context for assessment with this lesson sequence’s activities.

Inquiry

What does urbanization have to do with agriculture?

Key Concepts

Urbanization **Urban** **Rural** **Change**

Preparation

Suggested Time: 2 to 4 50-minute class periods

The following handouts, materials and resources are used in this lesson sequence:

- Handouts
 - Student Resource 3A: Population Change
 - Briefing Notes 3B: Urbanization & Change
 - Student Resource 3C: Wheel Chart
- Internet or other media sources, library or classroom resources on urbanization
- Internet access and interactive whiteboard to display and share website links

“I CAN”

Lesson Sequence Three encourages students to demonstrate their learning by developing understandings such as the following:

- **I can** identify and describe the causes and effects of urbanization.
- **I can** compare the causes and effects of urbanization with changes that agricultural communities and industries have experienced.
- **I can** draw conclusions about the impact of urbanization.

Lesson Sequence Three

Grade 7 Social Studies Curriculum Connections

Inquiry

Urbanization & Change

What does urbanization have to do with agriculture? (Lesson Sequence Three)

Values & Attitudes Outcomes

7.2.3 appreciate the challenges that individuals and communities face when confronted with rapid change (I, CC, LPP)

Knowledge & Understanding Outcomes

7.2.5 evaluate the impact of Confederation and subsequent immigration on Canada from 1867 to World War I 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 critically assess the impact of urbanization and technology on individual and collective identities in Canada by exploring and reflecting upon the following questions and issues:

- What impact has increased urbanization had on rural communities in Canada? (LPP, CC)

Skills & Processes Outcomes

7.5.1 develop skills of critical thinking and creative thinking:

- critically evaluate ideas, information and positions from multiple perspectives
- generate creative ideas and strategies in individual and group activities

7.5.2 develop skills of historical thinking:

- analyze historical issues in order to form or support an opinion
- distinguish cause, effect, sequence and correlation in historical events, including the long and short-term causal relations of events

7.5.4. demonstrate skills of decision making and problem solving:

- predict outcomes of decision-making and problem-solving scenarios from multiple perspectives

7.5.7 apply the research process:

- draw conclusions based upon research and evidence
- organize and synthesize researched information
- formulate new questions as research progresses

7.5.8 demonstrate skills of oral, written and visual literacy:

- communicate information in a clear, persuasive and engaging manner, through written and oral means



Lesson Sequence Three Teaching and Learning Strategies

What does urbanization have to do with agriculture?



Introductory Activity

Students use raw population data to make generalizations on growth in selected rural and urban places in Canada.

Instructional Strategy: Statistical Analysis

Brainstorming and recording questions on a topic emphasizes the importance of questioning to the inquiry process. Brainstorming questions also provides an opportunity for students to consider what they already know and understand, and what they would like to know more about. This allows students to re-examine prior understandings and revise opinions once they have completed their research.

PROCESS

1. As a class, review the definitions of urbanization that students developed for their KWHL Charts in Lesson Sequence One. Provide students with **Student Resource 3A: Population Change**. Invite students to use the population growth and change chart to find evidence that indicates how urban growth in Canada, Alberta and in Saskatchewan has surpassed rural growth since the 1980s. Encourage students to consider how this urban growth can be connected to the concept of urbanization.

Source:

From urban areas to population centres.:
Statistics Canada. www.statcan.gc.ca/subjects/sujets/standard-norme/sgc-cgt/urban-urbain-eng.htm

2. Discuss, either in small groups or as a class, what rural and urban mean and how each type of area can be defined.

(Statistics Canada defines and discusses rural as areas where population is not concentrated but is dispersed at a low density. Statistics Canada has traditionally defined an urban area as having a population of at least 1 000 and a density of 400 or more people per square kilometre. All territory outside an urban area was defined as rural area. This definition has been changed in two ways. First, the term population centre replaces the term urban area. A population centre will be defined as an area with a population of at least 1 000 and a density of 400 or more people per square kilometre. All areas outside population centres will continue to be defined as rural area. Secondly, population centres will be divided into three groups based on the size of their population to reflect the existence of an urban-rural continuum:

- *Small population centres, with a population of between 1 000 and 29 999*
- *Medium population centres, with a population of between 30 000 and 99 999*
- *Large urban population centres, consisting of a population of 100 000 and over.)*

**DIFFERENTIATE**

Class discussions can be structured to provide all students with the opportunity to participate. Have students work in small groups to discuss questions. Have group members share their responses with the whole class.

3. Continue to review the information in this student resource together and discuss the questions at the end of the handout.
 - What was the difference in population between 1851 and 2006 in predominantly urban regions and predominantly rural regions in Canada, Alberta, Saskatchewan and Manitoba?
 - What conclusions do you think it is possible to make about rural and urban growth in Canada?
 - What questions about rural and urban growth would need to be answered using further research and other sources? Find out more about demographic characteristics such as the average age and gender of farmers.
4. Share the following information with students: Approximately 98 percent of all Canadian farms are family owned and operated. But the number of farms and the population in rural areas is declining. Farm families have a great deal invested in their farms – time, money and traditions.
5. Ask students to consider and discuss the following questions:
 - How do you think these family farms have been affected by the trend toward urbanization?
 - What other changes do you think have affected ways of life on family farms?



Briefing Notes Activity

Students read and discuss the Briefing Notes with a small group. They focus on trends and issues associated with urbanization and plan to teach a lesson that focuses on a topic that interests them.

Instructional Strategy: Retrieval Chart

Retrieval charts are an effective way for students to develop research skills in both collecting and organizing research data. Retrieval charts can encourage the collection of information from multiple sources and the consideration of multiple perspectives.

PROCESS

1. Provide each student with a copy of the **Briefing Notes 3B: Urbanization & Change**. Ask students to discuss or respond in writing to the *Predict* question at the beginning of the handout.
2. Organize students in groups to read and discuss the information in the Briefing Notes and respond to the questions. The questions ask students to identify examples of advantages and challenges associated with urbanization, using information from the Briefing Notes, one other source and their own opinions. Students should use the retrieval chart in the handout to organize this information.
3. As a class, share examples of issues that are associated with urbanization, using the information collected in the retrieval chart. Have each group describe how these issues affect their community. How might other communities in Alberta (both urban and rural) be affected by these issues?

Additional sources related to urbanization and the changing nature of agriculture in the Canadian west can be accessed on the following sites:

The Alberta Grain Elevator Society provides Grain Elevators: A Brief History of a Prairie Icon at www.grainelevatorsalberta.ca, under the Articles link.

The EcoKids website provides information and activities related to agriculture, urban sprawl and greenbelts as part of The Land We Love topic at www.ecokids.ca/pub/eco_info/topics/landuse/index.cfm.



Closing Activity

Students consider different perspectives on urbanization and the future of agriculture.

Instructional Strategy: Futures Wheel

Visual organizers provide an opportunity for students to synthesize their research and use it to make predictions based on evidence and facts. A “futures” wheel chart can be used to develop a conclusion and base a prediction on evidence gathered through research. The prediction can be placed in the centre of the wheel, with evidence that supports the viability of the prediction placed in the spokes of the wheel.

PROCESS

1. Provide each student with **Student Resource 3C: Wheel Chart**.
2. Have each student create a “futures” wheel chart that describes a prediction about the future impact of agriculture and/or increasing urbanization in Canada. Ask them to record their prediction in the centre of the wheel.
3. Encourage students to use evidence found and shared by classmates to add reasons for their predictions in the spokes of the futures wheel.



Extension Activity

Students explore how “urban farming” can contribute to quality of life in communities today.

Instructional Strategy: Community Participation

Community participation provides an opportunity for students to engage as citizens in and contribute to their communities. Developing a plan to become involved in some way in the community extends the inquiry process into social participation and develops values and attitudes associated with active and responsible citizenship.

PROCESS

1. Ask students to consider how urban areas can support agriculture in their regions. Make a class list of these ideas.
2. The terms “farmer” and “urban” are often not associated with each other, but many people in urban areas use their backyards, balconies or vacant lots to grow things. Have students identify some examples of urban farming in their community or in an urban area close to where they live. Then have them suggest the advantages of urban farming for the city environment.
3. Ask students to work with a small group to design and complete a community project where they would look for evidence of “urban farming” and report on their findings. Their reports can include how many gardens, compost piles, balcony flowers, and even rooftop beehives as well as the use of vacant lots for gardening they can observe within a defined area.
4. Have students create a list of actions that they think their community could take to encourage more urban farming.

Population Change

This chart shows how population distribution in Canada has changed between 1851 and 2006. What would this information look like in a graph format?

Year	Canada		Alberta		Saskatchewan		Manitoba	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
1851	318 079	2 118 218						
1871	722 343	3 014 914					1 058	24 170
1911	3 276 812	3 944 850	137 662	236 633	131 395	361 037	200 365	261 029
1951	8 628 253	5 381 176	449 675	489 826	252 470	579 258	439 580	336 961
1981	18 435 923	5 907 254	1 727 545	510 179	563 166	405 147	730 659	295 582
1991	20 906 872	6 389 984	2 030 893	514 660	623 397	365 531	787 175	304 767
2001	23 908 211	6 098 883	2 405 160	569 647	629 036	349 897	805 321	314 262
2006	25 350 743	6 262 154	2 699 851	590 499	628 913	339 244	820 922	327 479

Source:

Census of Population: Statistics Canada. www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/demo62a-eng.htm

The rural population numbers refer to persons living outside centres with a population of 1 000 and outside areas with 400 persons per square kilometre. Pervious to 1981, the definitions differed slightly but did refer to population outside centres of 1 000 population.

EXPLORE

What was the difference in population between 1851 and 2006 in predominantly urban regions and predominantly rural regions in Canada, Alberta, Saskatchewan and Manitoba? Record each difference in the chart below.

Canada	
Alberta	
Saskatchewan	
Manitoba	

What conclusions do you think it is possible to make about rural and urban growth in Canada?



DID YOU KNOW?

The average age of farmers in 2011 was 54 years of age, according to Canada's Census of Agriculture.



What other questions about rural and urban growth would need to be answered using further research and other sources? Find out more about demographic characteristics such as the average age and gender of farmers.

Find Information

Find more statistics for population of urban and rural areas of Canada and its provinces and territories on this Statistics Canada source at www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/demo62a-eng.htm.



Urbanization & Change

Predict

How do you think communities are most affected when population increases?

Source:

Census 2011: The cities leading Canada's population boom:
National Post.
<http://news.nationalpost.com/2012/02/08/canada-census-2011-see-which-cities-and-towns-have-grown-the-most/>

Population and Urban Growth

As Canada grew, more and more of its increasing population settled in cities and towns. This trend toward urbanization is one that has continued today. Between 2006 to 2011, the population grew from 31.6 million to 33.5 million. This meant that Canada has a population growth rate of 5.9 percent. Of all provinces and territories, Alberta has the highest growth rate of about 10.8 percent. For the first time, Canada has a higher proportion of people living west of Ontario than to the east.

The share of people living in cities has also grown at a faster rate than in previous time periods. Between 2006 and 2011, cities in Canada have grown at a rate of 7.4 percent.

The growing population of Canada's cities has resulted in more need for land, particularly around the outer edges of city centres. This growth of **suburbs**, or outlying residential areas of cities, is often called "**urban sprawl**."

Urban sprawl often takes over and uses up surrounding land at a very fast rate. In many areas of Canada, some or most of this growth occurred on agricultural land. Urban sprawl is even more of an issue for many people because most of the best farmland in the country is near urban centres. This is because, in the past, people settled on the most productive land first.



How does the growth rate of Canadian cities compare to the overall growth rate of the country?

Agriculture in urban areas

Some people believe that the productive agricultural land that surrounds many urban centres should be protected against urban sprawl. There are advantages to operating farms close to an urban area:

- City residents provide a ready market for farm products.
- Perishable products are a short drive from the markets.
- Good transportation networks and processing facilities are more common in developed areas.
- Access to natural gas lines, electrical lines and communication networks provides an advantage for most types of farms.

Nurseries and greenhouses, as well as mushroom, dairy, poultry and fruit and vegetable farms, for example, are often located in or near urban areas.

Loss of farmland

The loss of farmland to residential, commercial and industrial uses is generally considered irreversible. Paving land, constructing houses and other buildings and installing sewage systems destroys the soil structure and makes reclaiming the land for farming too expensive.

Existing agricultural land is often divided into smaller sections, with developments such as acreages in between. Once this land is divided, returning it to farmland is even more difficult because there is not enough land to start a larger farming operation that can use big machinery and produce enough crops for farmers to make a good living. Other land uses associated with urban areas also change farmland. Gravel pits, public parks and recreational areas can use up farmland.

What are the benefits of protecting existing farmland? One of the most obvious benefits is the agricultural products provided. Farmland also provides important green space and open scenery. It protects natural wildlife habitats and wetlands, and is important for the conversion of carbon dioxide. The loss of farmland to urban development not only takes land from agriculture, but can also prevent it from providing these benefits.

In Alberta, concern is increasing over the loss of agricultural land caused by residential developments in the area between Calgary and Edmonton. This growth raises the price of farmland over what farmers can afford. This increases the chance that the land will be sold to people who want to develop it rather than use it for agricultural purposes.

Farmland close to urban areas generally cost more. This is partly because of the higher cost of services close to urban areas. It is also because there is more competition for uses of the land. As the cost of land rises, it becomes more difficult for farmers who wish to expand or for newcomers who hope to begin farming to purchase the land they need. Higher prices can also encourage existing farmers to sell their land and move to places where the land is cheaper.

In comparison, some rural communities that grew and prospered because of high surrounding farm populations and a vibrant agricultural industry are now struggling. They face challenges like fewer employment opportunities, school and hospital closings and an aging population. This has an effect on the community's ability to provide things that contribute to a good quality of life.

Changing family farms

Canadians who work in agriculture and produce Canada's food supply live mainly in Canada's rural communities. These communities, and the farms that surround them, are changing.

- The number of farms decreased 10.3 percent between 2006 and 2011. In 2011, Canada had 205 730 farms, a decline of 23 643 farms.
- There were 113 950 family farms in Canada in 2009.
- The total land for farms has also decreased 4.1 percent since 2006.
- The average size of a Canadian farm has increased from 728 acres to 778 acres.
- Farmers are older. Farmers aged 55 and over accounted for 48.3 percent of all farmers. This age group accounted for 32.1 percent of all farmers in 1991.

Source:

The financial picture of farms in Canada: Statistics Canada. www.statcan.gc.ca/ca-ra2006/articles/finpicture-portrait-eng.htm



DID YOU KNOW?

Between 1931 and 2006 – less than a lifetime – Canada has moved from one in three Canadians living on a farm to one in 46 Canadians living on a farm.

Source:

Tavia Grant. "Canadian farmers have never been older: census data" (May 10, 2011): *The Globe and Mail*. www.theglobeandmail.com/report-on-business/economy/economy-lab/canadian-farmers-have-never-been-older-census-data/article4106100/

There are other changes that family farms have experienced.

- Farming is shifting to more crop farms and fewer livestock farms.
- For every dollar that Canadian farmers make from their crops or herds, they have an average of 83 cents in expenses.
- Canola production has increased, beating spring wheat as Canada's number one field crop.
- In 2011, organic farms made up 1.8 percent of all farms in Canada. This is an increase from 1.5 percent in 2006 and .9 percent in 2001.

As the number of farms decreases and the amount of land farmed stays the same, farms are actually getting bigger and moving away from the traditional family farm.

- Some people believe that an increasing number of large incorporated farms (farms that operate as a company) have contributed to the decline in small family farms.
- Some believe that the decline in family farming is a result of technology. The largest decrease in farm numbers happened when tractors and electricity became available. Machinery replaced horses as the main source of power.
- According to the 2006 Census of Agriculture and Statistics Canada, the number of "million-dollar farms" is increasing.
- Canada has 5 902 farms with \$1 million or over in their total farm receipts, or money received from their products.
- Of all million-dollar farms, however, 62.5 percent were family corporations. These family-owned corporations have increased since 2001.
- Some people believe that fewer family farms also means decreased availability of fresh, locally grown food choices.

Source:

The financial picture of farms in Canada: Statistics Canada. www.statcan.gc.ca/ca-ra2006/articles/finpicture-portrait-eng.htm

EXPLORE

Examine a population map of Alberta, Saskatchewan or Manitoba. Where is the population concentrated? Why do you think these urban centres developed? Respond to these questions in the T-Chart below.

Population Centres in Canada's West	Why I Think these Population Centres Grew

How have farms changed since the early 1900s? What change in family farming do you think has had the biggest impact on where people in Canada live today?

What are the advantages and challenges associated with urbanization? Use the retrieval chart that follows to compare advantages and challenges. Identify two sources that you will use to help you answer each question in the chart.

Briefing Notes 3B

	What this source says: _____	What another source says: _____	What I think
What are the opportunities provided by population growth in urban centres?			
What challenges are caused by urbanization?			
Where will our food come from if this trend continues?			

What are two examples of issues associated with urbanization? How do these issues affect your community?

Find Information

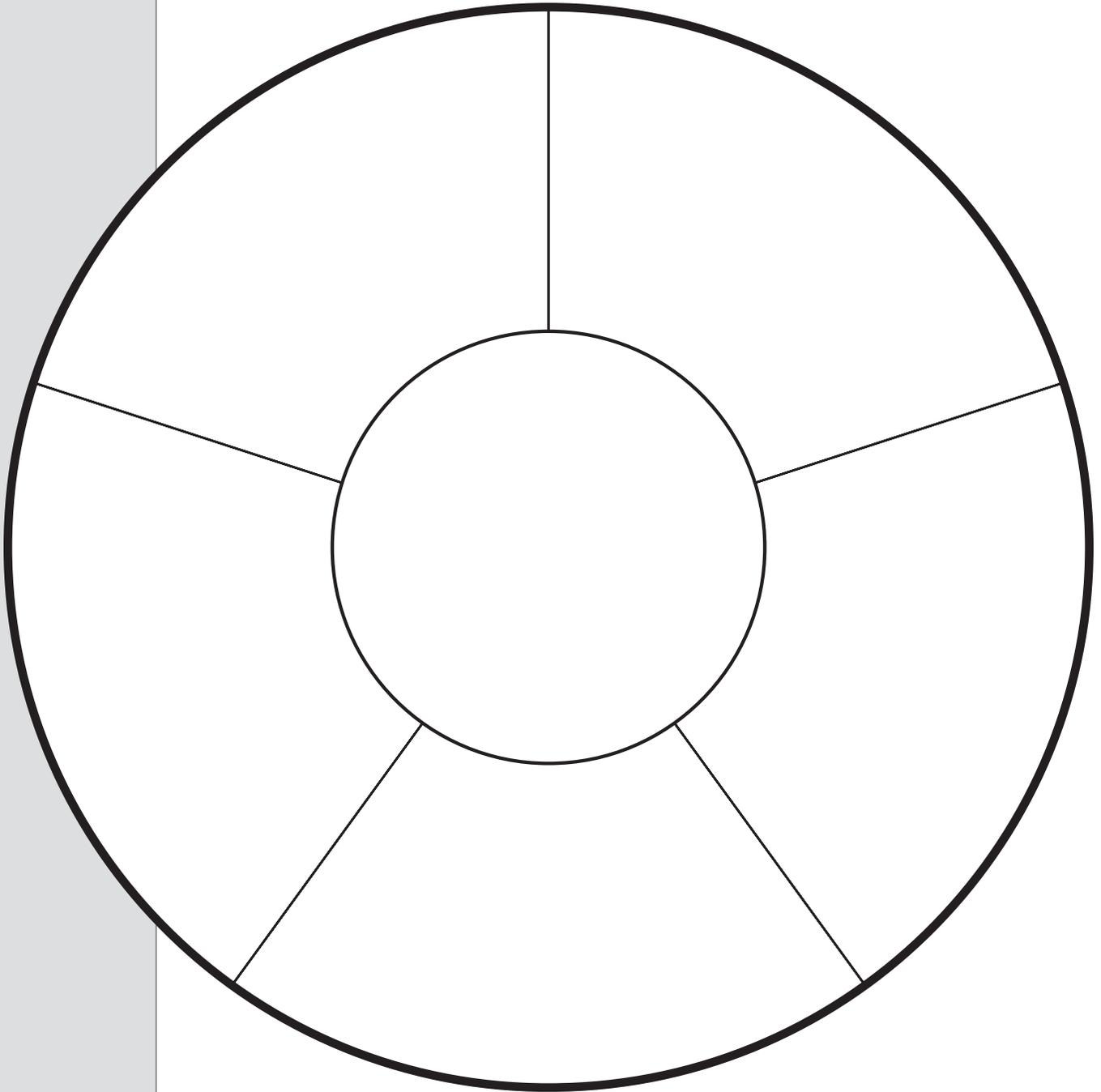
Find out more about urbanization in Canada from Statistic Canada's *Census Snapshot of Canada – Urbanization* at www.statcan.gc.ca/pub/11-008-x/2007004/10313-eng.htm.

Visit CBC's digital archives at www.cbc.ca/archives/categories/economy-business/agriculture/whats-happening-to-the-family-farm/topic-whats-happening-to-the-family-farm.html to find *What's Happening to the Family Farm?* and other related articles and video clips.

Find and consult the following articles, or search the internet using search terms such as "family farm, Canada, and decline" and "Canada, population distribution, or boom."

- Tavia Grant. "Canadian farmers have never been older: census data:" *The Globe and Mail* (May 10, 2012). www.theglobeandmail.com/report-on-business/economy/economy-lab/canadian-farmers-have-never-been-older-census-data/article4106100/
- "Number of farmers continues steep decline." *Regina Leader-Post*: CanWest MediaWorks Publications (December 3, 2008). www.canada.com/reginaleaderpost/news/story.html?id=5decacf8-b6b4-4212-b5b4-874834f08b67
- Tanya Brouwers. *Canada's Disappearing Farmland*: Organic Agriculture Centre of Canada website. www.organiccentre.ca/NewspaperArticles/na_disappearing_farmland_tb.asp
- "Canada Census 2011: The cities leading Canada's population boom." Postmedia News: *National Post* (February 8, 2012). <http://news.nationalpost.com/2012/02/08/canada-census-2011-see-which-cities-and-towns-have-grown-the-most/>

Wheel Chart



LESSON SEQUENCE FOUR: TECHNOLOGY

Overview

In Lesson Sequence Four, students examine the relationship between technological advancements and the agricultural industry. They compare the role of pesticides and herbicides, various fertilizers, genetic breakthroughs in plant and animal production, developments in seed research and improved harvesting techniques.

Rationale

Students should understand how technology has brought about change in agricultural practices and ways of life.

Presenting students with “I can...” statements can help focus their learning and provide a context for assessment with this lesson’s activities.

Inquiry

How has technology changed agricultural practices and ways of life?

Key Concepts

Technology

Quality of life

Biotechnology

Genetic engineering

Contributions

Impact

Preparation

Suggested Time: 2 to 4 50-minute class periods

The following handouts, materials and resources are used in this lesson sequence:

- Handouts
 - Briefing Notes 4A: Technology
 - Student Resource 1B: KWHL Chart (from Lesson Sequence One)
 - Student Resource 4B: Timeline
- 11" x 17" paper
- Internet, library, classroom and textbook resources, with information on technological and agricultural changes over time
- Internet access and interactive whiteboard to display and share website links

“I CAN”

Lesson Sequence Four encourages students to demonstrate their learning by developing understandings such as the following:

- **I can** evaluate different perspectives on the impact of technology on agriculture.
- **I can** identify the changes that agricultural practices and ways of life have gone through as a result of technology.
- **I can** summarize the ways that changes in technology have contributed to Canadian ways of life and identities.

Lesson Sequence Four

Grade 7 Social Studies Curriculum Connections

Inquiry

Technology

How has technology changed agricultural practices and ways of life? (Lesson Sequence Four)

Values & Attitudes Outcomes

7.2.3 appreciate the challenges that individuals and communities face when confronted with rapid change (I, CC, LPP)

Knowledge & Understanding Outcomes

7.2.7 critically assess the impact of urbanization and 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 & Processes Outcomes

7.5.1 develop skills of critical thinking and creative thinking:

- critically evaluate ideas, information and positions from multiple perspectives
- generate creative ideas and strategies in individual and group activities

7.5.4. demonstrate skills of decision making and problem solving:

- predict outcomes of decision-making and problem-solving scenarios from multiple perspectives
- propose and apply new ideas and strategies to contribute to problem solving and decision making, supported with facts and reasons

7.5.7 apply the research process:

- develop a position supported by information gathered through research
- draw conclusions based upon research and evidence
- organize and synthesize researched information
- formulate new questions as research progresses
- integrate and synthesize concepts to provide an informed point of view on a research question or an issue

7.5.8 demonstrate skills of oral, written and visual literacy:

- communicate information in a clear, persuasive and engaging manner, through written and oral means
- use skills of informal debate to persuasively express differing viewpoints regarding an issue



Lesson Sequence Four Teaching and Learning Strategies

How has technology changed agricultural practices and ways of life?



Introductory Activity

Students brainstorm and write about the impact they think technology has on agriculture.

Instructional Strategy: Shared Writing

A shared writing strategy asks students to take turns writing a collective response to a question. One student starts the process by writing their response. They then pass their response to their partner or group member, who adds their ideas.

PROCESS

1. Ask students to consider how they think technology has most changed, or is changing, agricultural practices and ways of life.
2. Continue working in small groups and use a shared writing strategy.
3. Provide each group with a piece of 11" x 17" piece of paper on which to record their brainstorming ideas. Ask one student to start the process, and pass the paper around the group until group members run out of ideas.
4. Ask groups to share some of their ideas with the class. Discuss the similarities and differences in answers and perspectives. What might the reasons be for these similarities and differences?



Briefing Notes Activity

Students read and discuss the Briefing Notes with a small group. They focus on some effects of technology on agriculture.

Instructional Strategy: Research Strategy

Research strategies for an issue should address:

- *The concepts related to the issue: What does this issue mean? How should the terms be defined?*
- *The information connected with the issue: What are the facts? What differing perspectives are represented?*
- *The values and attitudes reflected in positions that people take: What points of view do people have? What facts and/or perspectives are their opinions based on?*

PROCESS

1. Provide each student with a copy of the **Briefing Notes 4A: Technology**. Ask students to discuss or respond in writing to the *Predict* questions at the beginning of the handout.
2. Have students follow the research process provided at the end of the Briefing Notes handout. Students are asked to use examples of technology that are introduced in the Briefing Notes to respond to the question, "To what extent does increasing use of technology improve our quality of life?" *(Students should summarize the issue in their own words, find supporting information and summarize different points of view. They should then identify and support their own opinion.)*
3. Ask students to use the chart in the Briefing Notes to help them organize their research. Encourage students to consult other sources, including textbooks, library resources and some of the websites referenced in the Briefing Notes.
4. Have students work with a small group to discuss their opinions and the evidence they have used to support it. Remind groups to ensure that each student has a turn to present opinions and use evidence to defend it.
5. Debrief the group discussions with the class, discussing how examples and facts can be used to defend opinions in an informal debate.

The *Farmissues.com* website provides a student resource and teacher's guide that explore a number of issues connected to agriculture, farming, technology and change. The Real Dirt on Farming can be accessed at http://farmissues.com/assets/media/PDF/DIRT_ENG.pdf.

The Real Dirt on Farming Teacher's Guide can be accessed at <http://farmissues.com/assets/media/PDF/DirtTeachGuideENG.pdf>.



Closing Activity

Students explore the uses and contributions of technology.

Instructional Strategy: Class Contribution Chart

Exploring contributions made by individuals, groups and communities can help students make the connection between human activities and quality of life. A visual organizer such as a chart encourages students to organize their research in such a way that they make these connections.

PROCESS

1. As a class, complete a contribution chart, using a format such as the example below, which identifies uses of technology in agriculture, and technology's contributions to quality of life.

Population Centres in Canada's West	Why I Think these Population Centres Grew

2. Have students revisit the KWHL chart they completed in Lesson Sequence One. Ask them to fill in the last column and share observations about their learning with a partner or small group.



Extension Activity

Students create a visual timeline to explore the changes that technology has brought to an agricultural industry.

Instructional Strategy: Visual Timeline

A visual timeline requires students to summarize and synthesize information in chronological format. Students should be encouraged to create visuals that represent important events or changes. Timeline captions should summarize the information.

PROCESS

1. Have students work with a partner to investigate the technology involved in an agricultural industry.
2. Ask each pair to use other sources of information, such as internet, library, classroom and textbook resources, to find out how technology used in the agricultural industry they select has changed over time. Ask students to consider questions such as:
 - What needs were met through the development of these technologies?
 - How has scientific knowledge played a part in the development of new technologies?
 - What effects has the technology had on people and communities in western Canada?
3. Have students present their findings in a timeline format, using both visual and textual information. Provide students with **Student Resource 4B: Timeline** to help them organize their timelines.

Technology

Predict

How do you think agriculture has benefited from technological changes and advances?

In what ways do you think rural communities have been affected by these changes?

Canadian innovation

Farming and technology have always been closely linked. The development of machinery and crops that would flourish in the Canadian west has affected the growth of agriculture over time. New technologies, such as computerization, biotechnology and genetic engineering, continue to affect individuals and communities.



Canola is an example of a Canadian innovation.



Canola is the combination of two words – Canadian and oil. Canola oil is produced by crushing seeds from Canada's major oilseed crop – canola. Canadian plant breeders developed canola from rapeseed.

Source:

Maynard, Hugh & Jacques Nault (2005). *Big Farms, Small Farms: Strategies in sustainable agriculture to fit all sizes*. Agriculture Institute of Canada: p. 29. www.aic.ca/pdf/AIC_2005_ENG.pdf

"New technologies have continued to revolutionize Canadian farming methods. Among these are pesticides and herbicides, chemical fertilizers, genetic breakthroughs in plant and animal production, developments in seed research, and improved harvesting techniques. Huge tracts of land in the northern prairies that were once considered too remote and arid (dry) for farming have been brought under cultivation. Computer technology is now harnessed for the automatic irrigation of these prairie lands.

Canadians were at the forefront in the development of new farming tools and methods that transformed agriculture beginning in the late 19th century. Two Ontario manufacturers of cast-iron and wrought-iron farm implements, Massey and Harris, merged to form a major farm machinery company, Massey-Harris, in 1891. But the main source of power on the farm remained the horse, until it was finally phased out by the new gasoline-powered tractor after the Second World War."

Find Information

Find out more about the ways that farm technology affected farming production with the following online sources:

- The Canada Agriculture Museum provides information and images that explore different types of agricultural technology. Find out about *Threshing Machines* at www.agriculture.technomuses.ca/english/collections_research/threshing.cfm. Find out about *Tractors* at www.agriculture.technomuses.ca/english/collections_research/tractors.cfm

Communication technologies

Agriculture has benefited enormously from the introduction of electricity, which was accomplished quite quickly in Canada. The government made policies that worked to provide all Canadians with access to electricity – including farmers and rural communities. Other technology, such as radio and television, was also introduced to rural areas.

Today, however, not every rural area has equal access to modern technology. There are some people who live in rural areas, including farmers, who are still not able to use fax machines. They are on party telephone lines, which means that more than one household shares the same phone line. This also affects their access to the internet. So technology is not always equal.

Find Information

Find out more about the ways that communication technology affected ways of life in both urban and rural communities with the following online sources:

- Alberta Online Encyclopedia has archived a virtual exhibit on *Alberta's Telephone Heritage*. This archived site is still available at http://wayback.archive-it.org/2217/20101208161902/http://www.abheritage.ca/telephone/virtual/oral_histories.html.
- Use the interactive online timeline of Canada's broadcasting history on the Canadian Communications Foundation's *Timeline: History of Canadian Broadcasting* site at www.broadcasting-history.ca/timeline/CCFTimeline.html.
- Find out more about agriculture and the biotechnology in *Agriculture and Nutrition Biotechnology: The Next Generation of Healthy and Green Living* at www.biotech.ca/uploads/pdf/agriculture-nutrition-en.pdf. This booklet was developed by a group of biotech companies. What perspective does it promote?
- Find out more about biotechnology from the Canola Council of Canada website at www.canolacouncil.org/oil-and-meal/canola-innovation/. What additional perspectives on biotechnology can you find?

Issues with technology

Changing technology has helped farmers to increase their crop production and make sure that crops are harvested and sent to markets. Technology has also helped farmers deal with weather problems and disease.

This technology, however, has not always helped to increase quality of life. Differing perspectives on modern use of technology can lead to many questions.

- Should technology be used to continue to increase crop production and to produce healthier foods?
- Will higher yielding crops help farm families and rural communities? Or will this technology and increased production lead to higher production costs, increased farm sizes or fewer farm families, which can decrease quality of life in rural communities?

Decisions and agricultural practices related to crop growth – genetic engineering of plant seeds, the use or avoidance of chemicals, the incorporation of **GPS** (global positioning systems) to determine seeding and fertilizer quantities – have, and will continue to influence crop **yields** – the amount of seed harvested. Each is a different technology with associated issues.

Consider the following examples that illustrate the range of opinions that different people may have on an issue such as the use of biotechnology. Then, decide what you think!

A farmer might say...

Products of biotechnology are simply one more tool that we can choose to use in raising crops and livestock. Farmers will choose which of these products, if any, work best for our farms.

Products like bioengineered vaccines can provide livestock with more disease protection that is safer or lower in cost than other types of protection. By applying biotechnology to plants and animals, we can make more efficient use of feed, water and other natural resources to produce food.



DID YOU KNOW?

Supporters and critics of biotechnology can include public interest groups, scientists and farmers.

A scientist might say...

Genetic engineering is the most promising strategy available today for meeting the challenges of producing food. Genetic engineering can result in less use of chemical pesticides and better plants with more resistance to pests and diseases.

Genetic modification can result in improvements in crops and animals that would not otherwise be possible. Genetic engineering lets us select genes that carry desirable traits from other species. There is no evidence that a gene will convert a harmless plant to a hazardous one.

A critic might say....

Biotechnology can result in hazards to public health and the environment. This new form of technology also has serious ethical and social concerns. The benefits of biotechnology are outweighed by the potential risks.

Some biotechnology research is controlled by companies that are, like all companies, motivated to make profits. It would be too difficult to ensure that the industry or its products are properly monitored and regulated. New products will replace old products from many traditional sources. This may take business away from local farmers, like registered seed growers. It may concentrate all food production in the hands of a few large companies.

We have no idea of the long-term consequences of biotechnology, because there is no long-term testing on people, the environment or the plants or animals involved. Biotechnology should be banned until it can be proven that there will be no long-term harmful effects. People should have the right to choose between products developed through biotechnology or those produced in traditional ways. All foods produced through biotechnology, or that contain ingredients from a biotech plant or animal, should be clearly labelled.

Find Information

Use *The Real Dirt on Farming*, at http://farmissues.com/assets/media/PDF/DIRT_ENG.pdf, to find out more about different issues connected to agriculture, farming, technology and change.

EXPLORE

To what extent does increasing use of technology improve our quality of life?

- **Research and respond to this issue question.**
- **Focus your response by using examples of some of the technologies that have affected agricultural practices and ways of life in rural communities.**
- **Use the retrieval chart on the following page to help you organize your research. Start with the information, perspectives and opinions in this Briefing Note. Consult one or two other sources of information.**

Briefing Notes 4A

What is the issue? Summarize the issue in your own words.

Summarize three positions on the issue.

Position One

Position Two

Position Three

Your conclusion:

Your reasons:

1.

2.

3.

Timeline

