

Finding Alberta Beef



Places, Spaces and Stories
about Beef Cattle Farming
and Ranching in Alberta for
Elementary Classrooms

Grade 5

TEACHING RESOURCE

**Finding Connections to Land,
Agriculture and Ways of Life**



SINCE 1969
**Alberta Beef
Producers**

The **Finding Alberta Beef** teaching resources provide curriculum-based activities and supports for a mini-unit that focuses on the contributions and vitality of agriculture in Alberta. Activities encourage students to explore cattle farming and ranching in Alberta. From family farms and ranches, passed down through generations, to new, state-of-the-art feeding and breeding operations, Alberta's farmers and ranchers are proud of their industry.

The many authentic photos and stories used in these learning resources share the land, resources, experiences and stewardship that are part of Alberta cattle farming and ranching families.

It is our hope that students develop understandings of the ways of life involved in raising cattle and contributing to Alberta's and Canada's food system while respecting the different choices that people make about their food. Alberta Beef Producers is proud to support education and provide the **Finding Alberta Beef** resources for teachers and students in Kindergarten to Grade 5 Social Studies, Science and Health/Wellness programs.

The **Finding Alberta Beef** elementary resources were conceptualized and developed for Alberta Beef Producers by the education experts and design team at **InPraxis Learning**, led by:

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Alberta Beef also thanks the cattle farmers and ranchers who have shared stories and photos that are used in these resources.

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Readers should be aware that Internet websites offered as citations and/or sources for further information may have changed or disappeared between the time this was written and when it is read. Teachers are cautioned that all websites listed in this resource should be checked for appropriateness and suitability before being provided to, or used with, students.

Every effort has been made to acknowledge sources used in the **Finding Alberta Beef** resources. In the event of questions arising as to the use of any material, we will be pleased to make the necessary corrections in future versions.



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Finding Alberta Beef provides a mini-unit that can be integrated into Alberta Social Studies, Science and Health/Wellness curriculum. This resource is focused on the cattle farming and ranching industry in Alberta.

Those students who do not eat beef or other meats for personal, cultural or religious reasons can be asked to focus on examples of plant-based agriculture as a point of comparison. Students can be asked to consider how all types of agriculture are important human activities. Consider student and family sensitivities when making decisions about using or adapting these activities.

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introduction

Over the course of the school year and across different subject areas, students explore topics and concepts that are connected in one way or another to agriculture. The food production system and its implications for nutritional health and well being, rural communities and ways of life, and the use of resources and industries that produce, move and trade products are all part of daily lives.

For generations, Canadians have had access to a nutritious, safe and affordable food supply and consumer products. These products have their roots on Alberta's farms and ranches and are a result of the vitality and importance of agriculture. Agriculture involves food production, research, transportation infrastructure, government policy and sound environmental practices.

The **Finding Alberta Beef** resources provide integrated mini units that centre on the importance of agriculture, specifically the impact that beef production has on Canadian and Alberta communities, individuals and quality of life. These resources are designed to support the competencies and specific learning outcomes in Alberta's **elementary Social Studies, Science and Health/Wellness** programs of study. Many activities also reinforce **literacy and numeracy** skills. This resource supports learning in **Grade 5 Social Studies, Science and Health/Wellness**.

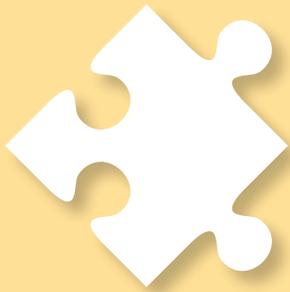


COMPONENTS

Finding Alberta Beef for Grade 5 includes the following components:

- **Finding Alberta Beef** Grade 5 Teaching Resource
- **Finding Connections to Land, Agriculture and Ways of Life** Grade 5 Student Learning Pages
- **Finding Alberta Beef** Grade 5 Infographic





This **Finding Alberta Beef Grade 5** resource meets **general outcomes and benchmark skills** in Social Studies, Science and Health/Wellness programs of study, the competencies and literacy and numeracy. These resources also have been developed to provide support to learning outcomes identified in the Alberta Education Draft K-4 curriculum and will be updated as this curriculum progresses. Find a full curriculum and competencies correlation in **meeting curriculum needs** on **pages 11 to 15**.

Grade 5

Social Studies 5.1: Physical Geography of Canada

Students will demonstrate an understanding and appreciation of how the physical geography and natural resources of Canada affect the quality of life of all Canadians.

Social Studies 5.3: Canada: Shaping an Identity

Students will demonstrate an understanding of the events and factors that have changed the ways of life in Canada over time and appreciate the impact of these changes on citizenship and identity.

Science Topic E: Wetland Ecosystems

5–10 Describe the living and nonliving components of a wetland ecosystem and the interactions within and among them

Health/Wellness

W–5.5 examine ways in which healthy eating can accommodate a broad range of eating behaviours; e.g., individual preferences, vegetarianism, cultural food patterns, allergies/medical conditions, diabetes

L– 5.5 Relate personal skills to various occupations

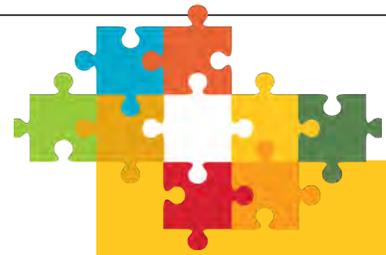
Grade 5

Grade 5 Social Studies Benchmark Skills

Critical thinking and creative thinking	Assess significant local and current affairs from a variety of sources, with a focus on examining bias and distinguishing fact from opinion
Historical thinking	Use primary sources to broaden understanding of historical events and issues
Geographic thinking	Construct and interpret various types of maps (i.e., historical, physical, political maps) to broaden understanding of topics being studied
Decision making and problem solving	Propose and apply new ideas, strategies and options, supported with facts and reasons, to contribute to decision making and problem solving
Research and information	Determine the reliability of information, filtering for point of view and bias
Oral, written and visual literacy	Express opinions and present perspectives and information in a variety of forms, such as oral or written presentations, speeches or debates
Media literacy	Detect bias present in the media

Grade 5 Science Inquiry

5–2 Recognize the importance of accuracy in observation and measurement; and, with guidance, apply suitable methods to record, compile, interpret and evaluate observations and measurements



how to use this resource

This **Finding Alberta Beef Grade 5** Teaching Resource encourages students to explore and build understandings around three guiding questions:

- **HOW IS AGRICULTURE INTERDEPENDENT WITH THE ENVIRONMENT?**
- **HOW DO HEALTHY FOOD CHOICES COME FROM HEALTHY ENVIRONMENTS?**

Teaching and learning activities provide students with the opportunity to learn more about agriculture, and the cattle and beef production industry, in a context that is curriculum-relevant and connected to their daily lives.

Student learning sources are organized around conceptual knowledge and understandings. Each learning source is focused on one of the twelve conceptual learnings, and provides illustrative examples and individual, group or whole class learning activities.

Teaching and learning activities support learning outcomes in Social Studies, Science and Wellness curriculum as well as the competencies, literacy and numeracy. A **curriculum overview** is provided on **pages 11 to 15**.

using the Finding Alberta Beef features

The teaching and learning activities in this resource are supported by the **Finding Alberta Beef Learning Pages** and **Infographic**.

Learning Pages provide suggestions and active learning strategies to reinforce, connect, extend and focus learning on cattle and beef production in Alberta communities, beef as a nutritious food choice and the ways that agriculture is part of people's daily lives.

The following features are found throughout the teaching activities in this resource.



BUILD COMPETENCIES sidebars highlight opportunities to reinforce the competencies, literacy and numeracy in the context of subject-centred learning activities.

CONCEPTUAL LEARNING

ONE

The food we eat is connected to Canada's natural resources.

TWO

The land sustains rural communities and ways of life on cattle farms and ranches.

THREE

Diverse ways of living with the land sustains the food system.

FOUR

Cattle farming and ranching activities can help protect habitats like those found in wetland ecosystems.

FIVE

Cattle farming and ranching is connected to other human activities.

SIX

Food availability and accessibility influences food choices.

SEVEN

Cattle farming and ranching provides healthy food choices.

EIGHT

Healthy eating patterns encourage healthy food choices.



FINDING ALBERTA BEEF INFOGRAPHIC

The **Finding Alberta Beef Infographic** provides a series of puzzle pieces with images, words, phrases and sentences. These puzzle pieces connect to the activities in the **Learning Pages**.



Suggestions for meeting the different learning needs of students are provided in the **MEET DIVERSE LEARNING NEEDS** feature. These suggestions include approaches that can be used to meet different grade level learning outcomes.



The **ASSESS LEARNING** features provide strategies for formative and summative assessment of student learning. These strategies can be used with the **Finding Alberta Beef Learning Checklists** provided in the **assessing student learning** section on **pages 17 to 19**.



TEACHER NOTES are also provided throughout the teaching and learning activities section of this resource. These include references to additional sources, background notes and teaching tips.

TEACHER BACKGROUND on cattle ranching and beef production is provided on **pages 37 to 45** of this resource. The background information provides additional support for implementing the learning activities throughout this resource.

preparing to integrate this mini unit

Consider the following suggestions for integrating the **Finding Alberta Beef Learning Pages** and **Infographic** into the learning process.

- Display the PDF version of the **Learning Pages** and **Infographic** on an interactive whiteboard or with a document camera.
- Provide small groups of students with a group copy of the **Learning Pages** and **Infographic**.
- Work with the class in circle time using a print copy of the **Learning Pages** and **Infographic**.
- Provide the **Learning Pages** and **Infographic** as a learning centre activity.

Review the teaching and learning activities that follow and select or adapt those that best meet the needs of your students.



USING DIGITAL FORMATS

Some sections in this teaching guide and many student learning pages include fillable fields. These fillable fields allow learning pages to be completed digitally and saved in shared classroom folders. To use fillable PDFs, students will need PDF readers on their computers or devices. **Adobe Reader** is a free download or app. PDF files stored in **Google Drive** folders provide an option to open the PDF and use the fillable fields with **Lumin PDF**. Go to **www.luminpdf.com** for more information.



Select and prepare the **Finding Alberta Beef Learning Pages** for students. The **Learning Pages** can be printed or copied for individual, partner or small group learning. They have been designed for use with Grade 5 students.

Some of the **Learning Pages** include cards that can be cut out and laminated in advance for students. These cards can be prepared as a permanent class set.

Start a picture collection of visuals, photographs and illustrations that represent urban and rural communities, cattle farms and ranches, beef production and food products. Include different types of illustrations related to healthy activities and food choices from **Canada's Food Guide**, collected from magazines, advertisements or Internet sources, including vegetables and fruits, protein foods and whole grain foods.

SUPPORTING RESOURCES

Additional information and resources on **Canada's Food Guide** can be found on the **Health Canada** website at <https://food-guide.canada.ca/en/>.

Some education websites can provide clip art of different types of foods. For example, **Pics4Learning** provides a section containing free food images at www.pics4learning.com.

A variety of authentic photos from Alberta cattle farms and ranches are provided throughout all **Finding Alberta Beef** resources, including many **photo cards** that can be cut out and shared with and by students. All grade levels can be accessed on the **Alberta Beef** website at www.albertabeef.org/consumers/resources.

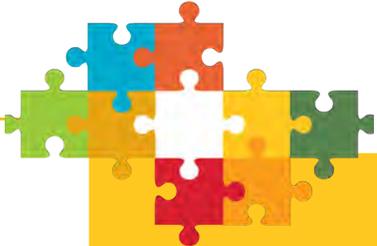


meeting curriculum needs

This section provides an overview of the guiding questions and activity focus supported by this resource. Guiding questions and the activities support specific learning outcomes in Social Studies, Science and Health/Wellness programs of study. Outcomes from Alberta's Literacy and Numeracy Progressions are also identified with each guiding question. The checklist format allows you to monitor and identify those learning outcomes you cover with the activities you select.

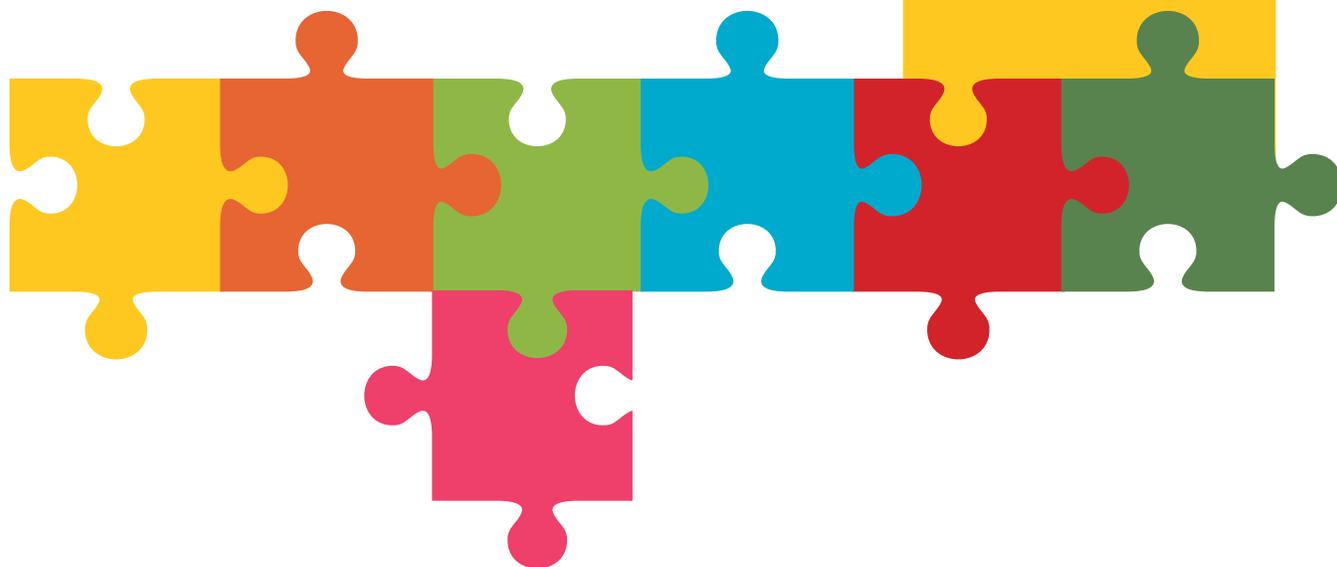
It is important to note that cattle are raised to provide food for people. They are not pets. Consider ways to address questions that students may have:

- In the activities that students do, ensure that time is provided to discuss the differences between raising animals and plants for human consumption and those kept as pets.
- Discuss ways to respect the different choices that people make about their food sources. For example, people from some cultures consume foods that other cultures may not find appealing.
- Explore the ways that people who raise animals for human consumption ensure that the animals are well cared for and respected for their importance in providing nutritious and safe food sources. Explore ways that farmers also protect the environment.



Please use caution with students who are not ready to make the connection that beef comes from cattle. Be respectful of student's food choices and their dietary preferences, needs, cultural and family traditions.

We encourage you to review and select teaching activities most suitable for your students. We also suggest you integrate sources of information that also reflect alternative dietary choices, such as vegetarian or vegan, or that respect cultural choices and traditions that avoid meat if appropriate for your students.



Specific learning outcomes from **Grade 5** Alberta programs of study are supported by the activities for each of the two guiding questions in this resource.

1 HOW IS AGRICULTURE INTERDEPENDENT WITH ENVIRONMENTS? COMPETENCIES



In this guiding question, students **manage information** to build understandings of land and features of the environment and apply **critical thinking** to critically assess the influence of past events and present ways of life. They focus on **personal growth and well-being** by developing opinions about the importance of stewardship and sustainable environments and develop **collaboration** and **communication** skills by working and sharing in groups.

- Students explore connections and relationships to the land and agricultural ecosystems that shape farming and food production in Canada.
- Students develop understandings of perspectives that shape the use of the land, care of the environment and the use of resources.
- Students share ideas about and demonstrate responsibility for natural and human-made environments, including wetland ecosystems.

CONCEPTUAL KNOWLEDGE	PROCEDURAL KNOWLEDGE	LITERACY AND NUMERACY
<p style="text-align: center;">GRADE 5 Social Studies</p> <p>5.1.1 Value Canada’s physical geography and natural environment:</p> <p style="padding-left: 20px;">Appreciate the variety and abundance of natural resources in Canada (ER, LPP)</p> <p style="padding-left: 20px;">Appreciate how the land sustains communities and the diverse ways that people have of living with the land (GC, LPP)</p> <p style="padding-left: 20px;">Appreciate the influence of the natural environment on the growth and development of Canada (LPP)</p> <p style="padding-left: 20px;">Demonstrate care and concern for the environment through their choices and actions (GC, LPP)</p> <p>5.1.2 Examine, critically, the physical geography of Canada by exploring and reflecting upon the following questions and issues:</p> <p style="padding-left: 20px;">How do landforms, bodies of water and natural resources affect the quality of life in Canada? (LPP)</p> <p style="padding-left: 20px;">What are the differences and similarities among the geographical regions of Canada? (LPP)</p>	<p style="text-align: center;">GRADE 5 Social Studies</p> <p>5.S.1 Develop skills of critical thinking and creative thinking:</p> <p style="padding-left: 20px;">Evaluate ideas, information and positions from multiple perspectives</p> <p style="padding-left: 20px;">Generate original ideas and strategies in situations of individual and group activities</p> <p>5.S.2 Develop skills of historical thinking:</p> <p style="padding-left: 20px;">Use photographs and interviews to make meaning of historical information</p> <p style="padding-left: 20px;">Use historical and community resources to understand and organize the sequence of local historical events</p> <p style="padding-left: 20px;">Explain the historical context of key events of a given time period</p> <p>5.S.3 Develop skills of geographic thinking:</p> <p style="padding-left: 20px;">Construct maps, diagrams and charts to display geographic information</p> <p>5.S.4 Demonstrate skills of decision making and problem solving:</p> <p style="padding-left: 20px;">Collaborate with others to apply strategies for decision making and problem solving</p>	<p style="text-align: center;">DIVISION II LITERACY</p> <p>Access</p> <p style="padding-left: 20px;">Students select, sort and analyze information from a variety of sources to respond to a problem, question or topic. With guidance, students identify areas or gaps to determine further information needs</p> <p>Background Knowledge</p> <p style="padding-left: 20px;">Students make connections to background knowledge and, with guidance, identify gaps to explore new information</p> <p>Vocabulary</p> <p style="padding-left: 20px;">Students acquire and use precise and descriptive vocabulary, general academic vocabulary (e.g., identification, definition) and subject/discipline-specific vocabulary (e.g., pulley, ecosystem) related to learning experiences</p> <p>Purpose</p> <p style="padding-left: 20px;">Students organize texts according to their purpose or intent</p>

CONCEPTUAL KNOWLEDGE	PROCEDURAL KNOWLEDGE	LITERACY AND NUMERACY
<p>GRADE 5 Social Studies</p> <p>5.1.3 Analyze how people in Canada interact with the environment by exploring and reflecting upon the following questions and issues:</p> <p>In what ways do natural resources and the physical geography of a region determine the establishment of communities? (ER, LPP)</p> <p>How are natural resources used, exchanged and conserved in Canada? (ER, LPP)</p> <p>5.3.1 appreciate how changes impact citizenship and identity:</p> <p>Recognize how economic and political changes impact ways of life of citizens (C, ER, I, PADM)</p>	<p>GRADE 5 Social Studies</p> <p>Use graphic organizers, such as mind mapping/webbing, flow charting and outlining, to present connections between ideas and information in a problem-solving environment</p> <p>5.5.7 Apply the research process:</p> <p>Determine themes, patterns and trends from information gathered</p> <p>Use graphs, tables, charts and Venn diagrams to interpret information</p> <p>Draw and support conclusions, based on information gathered, to answer a research question</p> <p>5.5.8 Demonstrate skills of oral, written and visual literacy:</p> <p>Create visual images for particular audiences and purposes</p> <p>5.5.9 Develop skills of media literacy:</p> <p>Examine how various people might interpret a media message differently</p>	<p>DIVISION II NUMERACY</p> <p>Magnitude</p> <p>Students interpret, compare and use quantities expressed as whole numbers, and as percentages, fractions and decimals that are commonly used in real-life situations</p> <p>Patterns and Relationships</p> <p>Students analyze and use patterns, including increasing or decreasing patterns, to make simple predictions in real-life situations</p> <p>Organization of Data</p> <p>Students organize objects, ideas or information using a variety of classification systems</p> <p>Time</p> <p>Students determine the chronology and duration of events encountered in real-life situations using time and elapsed time</p>
<p>GRADE 5 Science</p> <p>Topic E: Wetland Ecosystems</p> <p>5–10 Describe the living and nonliving components of a wetland ecosystem and the interactions within and among them</p> <p>9. Identify human actions that can threaten the abundance or survival of living things in wetland ecosystems; e.g., adding pollutants, changing the flow of water, trapping or hunting pond wildlife</p> <p>10. Identify individual and group actions that can be taken to preserve and enhance wetland habitats</p> <p>11. Recognize that changes in part of an environment have effects on the whole environment</p> <p>GRADE 5 Health/Wellness</p> <p>L–5.5 Relate personal skills to various occupations</p>	<p>GRADE 5 Science</p> <p>Focus</p> <p>Ask questions that lead to exploration and investigation</p> <p>Identify one or more possible answers to questions by stating a prediction or a hypothesis</p> <p>Explore and Investigate</p> <p>Identify sources of information and ideas and access information and ideas from those sources. Sources may include library, classroom, community and computer-based resources</p> <p>Reflect and Interpret</p> <p>Communicate with group members to share and evaluate ideas, and assess progress</p> <p>State an inference, based on results. The inference will identify a cause and effect relationship that is supported by observations</p>	<p>Interpretation and Representation of Quantitative Information</p> <p>Students create and interpret different representations of quantitative information</p> <p>Interpretation and Representation of Spatial Information</p> <p>Students interpret and create models and labelled diagrams to represent spatial concepts (e.g., mind</p>

2 HOW DO HEALTHY ENVIRONMENTS PROVIDE HEALTHY FOOD CHOICES? COMPETENCIES



In this guiding question, students **manage information** to build understandings of factors that affect availability of healthy food choices and apply **critical thinking** to critically assess the connection between healthy environments and food. They focus on **personal growth and well-being** by examining their own food choices and preferences and develop **collaboration** and **communication** skills by working and sharing in groups.

- Students examine influences on food choices, including the role of the environment in the availability of food products, food choice and personal preferences.
- Students develop understandings of various perspectives that contribute to healthy and nutritious food choices.

CONCEPTUAL & PROCEDURAL KNOWLEDGE

GRADE 5 Health/Wellness

W.5.5 Examine ways in which healthy eating can accommodate a broad range of eating behaviours; e.g., individual preferences, vegetarianism, cultural food patterns, allergies/ medical conditions, diabetes

L-5.5 Relate personal skills to various occupations

LITERACY AND NUMERACY

DIVISION II LITERACY

Access

Students select, sort and analyze information from a variety of sources to respond to a problem, question or topic. With guidance, students identify areas or gaps to determine further information needs

Background Knowledge

Students make connections to background knowledge and, with guidance, identify gaps to explore new information

Vocabulary

Students acquire and use precise and descriptive vocabulary, general academic vocabulary (e.g., identification, definition) and subject/discipline-specific vocabulary (e.g., pulley, ecosystem) related to learning experiences

Purpose

Students organize texts according to their purpose or intent

*Division II Literacy and Numeracy outcomes apply across this guiding question. Outcomes continue on the following page.

CONCEPTUAL KNOWLEDGE	PROCEDURAL KNOWLEDGE	LITERACY AND NUMERACY
<p style="text-align: center;">GRADE 5 Social Studies</p> <p>5.1.1 Value Canada’s physical geography and natural environment: Appreciate the variety and abundance of natural resources in Canada (ER, LPP)</p> <p>5.1.2 Examine, critically, the physical geography of Canada by exploring and reflecting upon the following questions and issues: How do landforms, bodies of water and natural resources affect the quality of life in Canada? (LPP)</p> <p>5.1.3 Analyze how people in Canada interact with the environment by exploring and reflecting upon the following questions and issues: How are natural resources used, exchanged and conserved in Canada? (ER, LPP)</p>	<p style="text-align: center;">GRADE 5 Social Studies</p> <p>5.S.1 Develop skills of critical thinking and creative thinking: Evaluate ideas, information and positions from multiple perspectives Generate original ideas and strategies in situations of individual and group activities</p> <p>5.S.4 Demonstrate skills of decision making and problem solving: Use graphic organizers, such as mind mapping/webbing, flow charting and outlining, to present connections between ideas and information in a problem-solving environment</p> <p>5.S.7 Apply the research process: Determine themes, patterns and trends from information gathered Use graphs, tables, charts and Venn diagrams to interpret information Draw and support conclusions, based on information gathered, to answer a research question</p>	<p style="text-align: center;">DIVISION II NUMERACY</p> <p>Magnitude Students interpret, compare and use quantities expressed as whole numbers, and as percentages, fractions and decimals that are commonly used in real-life situations</p> <p>Patterns and Relationships Students analyze and use patterns, including increasing or decreasing patterns, to make simple predictions in real-life situations</p> <p>Organization of Data Students organize objects, ideas or information using a variety of classification systems</p> <p>Interpretation and Representation of Quantitative Information Students create and interpret different representations of quantitative information</p>

assessing student learning

The assessment checklists that follow can be used to assess students' understandings and skill development as they engage in the learning activities in each inquiry. The criteria statements can provide a basis for diagnostic, formative and summative assessment of students. These checklists can be applied in a number of different contexts.

- All specific learning outcomes from Alberta programs of study identified in the **meeting curriculum needs** section on **pages 11 to 15** correlate to the checklists provided in this resource.
- Criteria statements can be recombined and reorganized to create focused checklists or rubrics to evaluate student attainment of specific outcomes.
- Criteria statements can be used as a starting point or guideline for student self-assessment, can support students in creating their own checklists or rubrics and can be used to provide feedback to students. Criteria statements can be developed as "I can" statements.
- The statements can be used to communicate student learning to parents.
- The checklists can be photocopied for each student, and their learning progress tracked as they complete each inquiry. Alternatively, checklists can be selected as an area of assessment focus and used specifically to monitor and record student growth.



Finding Alberta Beef

checklists reflect learning outcomes from the Alberta Social Studies, Science and Wellness/Health programs of study. Four checklists are included:

- **Building Understandings**
- **Researching and Creating**
- **Expressing and Sharing**
- **Working Together**

Criteria statements reinforce the Alberta competencies as well as literacy and numeracy progressions.





checklist 1: Building Understandings



CRITICAL THINKING

PROBLEM SOLVING

CULTURAL AND GLOBAL CITIZENSHIP

LEARNING CRITERIA	Yes	Often	Sometimes	Not yet
Describes ways that human activities are interdependent with the environment and ecosystems				
Compares the availability of resources across different regions of Canada				
Describes the features of wetland ecosystems in agricultural contexts				
Describes benefits and challenges that arise from interdependencies between human activities and the environment				
Compares the effect of agricultural practices on the environment and on food availability				
Compares the cycle of energy in an ecosystem and the food system				
Compares skills required in different agricultural occupations				
Makes connections between the food system and personal food choices				
Describes the nutritional benefits of a range of food choices				



checklist 2: Researching and Creating



MANAGING INFORMATION

CREATIVITY AND INNOVATION

LEARNING CRITERIA	Yes	Often	Sometimes	Not yet
Finds and combines information and examples from a variety of sources				
Identifies points of view and perspectives that influence decision-making				
Applies and uses graphic organizers to gather and organize ideas and information				
Summarizes important ideas to construct relevant and meaningful messages				
Applies examples to support ideas and information				
Identifies a conclusion from information provided				

checklist 3: Expressing and Sharing



CREATIVITY AND INNOVATION

COMMUNICATION

PERSONAL GROWTH AND WELLBEING

LEARNING CRITERIA	Yes	Often	Sometimes	Not yet
Shares personal understandings and new learnings about human activities and the environment with others				
Provides examples to support ideas and opinions				
Selects appropriate media and means of communication to effectively share knowledge of information, ideas and concepts				
Shares knowledge and understandings clearly and with a purposeful message				

checklist 4: Working Together



COMMUNICATION

COLLABORATION

LEARNING CRITERIA	Yes	Often	Sometimes	Not yet
Contributes own ideas to group activities and encourages contributions from others				
Works effectively in groups by fulfilling responsibilities and completing tasks				

teaching and learning activities

The activities that follow are organized around three guiding questions and include suggestions for exploring the connections between geographic features in regions of Canada and agricultural activities, wetland ecosystems and the food system, care of the environment and nutritional food choices with individual, small group and whole class learning.

- HOW IS AGRICULTURE INTERDEPENDENT WITH THE ENVIRONMENT?
- HOW DO HEALTHY ENVIRONMENTS PROVIDE HEALTHY FOOD CHOICES?



Watch for suggestions for using the **Student Learning Pages** and integrating the **Finding Alberta Beef Infographic** into teaching and learning activities.

Additional sources and weblinks are included in the activities as well as in the **Teacher Background Notes** on pages 37 to 45.

Plan to highlight the photos of Alberta cattle farmers and ranchers, land and environments found throughout the learning pages. Additional photos, including photo cards, are included in other grade level resources, all provided on the Alberta Beef website at www.albertabeef.org/consumers/resources.



HOW IS AGRICULTURE INTERDEPENDENT WITH ENVIRONMENTS?

THIS GUIDING QUESTION ENCOURAGES STUDENTS TO EXPLORE INTERDEPENDENCIES AND RELATIONSHIPS BETWEEN AGRICULTURE, THE ENVIRONMENT AND COMMUNITIES.

the range of agriculture

SOCIAL STUDIES, SCIENCE, HEALTH/WELLNESS

Ask students to share examples of food products that come from agriculture – making the point that all food and many other products come from farms and ranches across Canada. All of the food we eat also depends on the natural resources that are available in places and regions across the country.

Ask students to think about the natural resources that we depend on for the food that is available to us by posing discussion questions. What are the most important natural resources for agriculture? Why is agriculture an important human activity? How are different types of agriculture shaped by the regions in which they are found?

Plan a **video viewing** session with students. As they watch, ask them to identify the connections they see between natural resources and farming. What are some similarities in the messages in each video? What different insights does each video provide?

The **Canada 150** video from **Agriculture and Agri-Food Canada** highlights themes of diversity, youth, environment, and reconciliation, all against the backdrop of Canada's prairies. It was shot in a field of Durum wheat on a farm in Wilcox, Saskatchewan, in September 2017. What evidence of food and farming do they see? What natural resources can be identified? Find this video at www.youtube.com/watch?v=mgGRN2gj6Yc.

The **We Put the Best of Canada into our Beef** video was produced for **Canada Beef** and different cattle farming organizations across Canada. It features the resources that are important to cattle farmers and ranchers. What are the connections between natural resources and other physical features of the environment and cattle ranching? Find this video at www.youtube.com/watch?v=v_IH4egPtDk and in the **Supporting Resources** section of the **Alberta Beef** website.

Ensure that students understand that this video also is an example of an advertisement for Canadian beef products. Tell students they will have the opportunity to view other videos that present perspectives on food choices and questions related to agriculture and its impact on the environment.



BUILD COMPETENCIES

MANAGING INFORMATION

Challenge students to also share examples of non-food products that come from agriculture. They will have the opportunity to look at some of these examples in more detail as well.

Students can be asked to record key words from the videos and add photos and additional information from their research on a **Padlet** board. The videos can also be linked to a board to facilitate student access. Infographics referenced in this activity can also be downloaded and stored on a **Padlet** board.

Padlet, found at <https://padlet.com>, is an online bulletin board that encourages collaboration and can be used to sort and organize infographics, images, links, videos and other information.



Additional videos are provided in the **Supporting Resources** section of the **Alberta Beef** website at www.albertabeef.org/consumers/resources.

Select and download any of the **agricultural infographics** identified below from the Agriculture and Agri-Food Canada website at www.agr.gc.ca/eng/about-us/publications/discover-agriculture/infographics-agricultural-products-and-their-impacts/?id=1530198199592.

Share these infographics with the class. Infographics can be downloaded and shared in a class folder, through an app such as **Padlet** or on an interactive whiteboard or with a document camera. Introduce each one you select by starting with the **title slogans**. Tell students that these title slogans were created by Agriculture and Agri-Food Canada as the focus for each infographic. What do these title slogans communicate about food and farming?

The following list provides each title slogan used in the **Agriculture and Agri-Food Canada** website:

- No wonder the agricultural industry is the apple of Canada's eye
- Ahead of the herd in cutting cattle carbon
- Little berry, big benefits
- Our canola oil really stands the heat
- Our kernels deserve attention
- Nothing can curdle our cream's enthusiasm
- No wonder this syrup is such a sweetie
- These seeds really cut the mustard
- Our potatoes have eyes on the future
- What is a pulse?
- No wonder the tomato wears a crown
- Our wheat is in a field of its own



MEET DIVERSE LEARNING NEEDS

Provide support to students if some of the infographic slogans are not clear by discussing the slogan, then viewing the infographic to make connections between its content and the meaning of the slogan.



BUILD COMPETENCIES

LITERACY

CREATIVITY AND INNOVATION

Reinforce literacy skills by discussing the title slogans of the **Agriculture and Agri-Food Canada** infographics. Challenge students to match slogans with their products before sharing the infographics. Reinforce creative writing skills by asking students to create their own slogans for food products or agricultural activities.

Extend student learning by connecting the use of slogans to advertising techniques and encourage students to identify examples of food ads that use slogans. What do these ads communicate about agriculture in Canada? Use the discussion questions on the following page to analyze these ads.



MEET DIVERSE LEARNING NEEDS

Alternatives to the infographics are available on the **Agriculture and Agri-Food Canada** webpages.

A brochure, with a larger version of this map, can be downloaded as a PDF at www.agr.gc.ca/resources/prod/doc/info/pdf/aafc-aac_brochure_mar2013_eng.pdf.

Agriculture and Agri-Food Canada provides an overview of Canadian food products in **We Grow a Lot More than You May Think**, found at www.agr.gc.ca/eng/canadian-agri-food-sector/we-grow-a-lot-more-than-you-may-think/?id=1251899760841.

Students may need some support to develop an understanding of a food system. Focus on identifying the variety of elements that contribute to our food, such as natural resources, farming, transportation, science, health and food stores and restaurants.

Record key words used in the infographic messages on the board. (*Guide and support students to identify terms and concepts such as land, feed, environmental footprint, research, healthy, economy, nutritious, Indigenous peoples, soil, water (irrigation, hydroponics) and technologies.*)

Ask students to identify facts in the infographics that tell where in Canada these different food products are grown and raised. Why are these food products grown and raised in some areas of Canada and not in others? As students explore some of the messages in these infographics, discuss and make connections with questions such as the following:

- Why is science important to farming and ranching? Why is it important to food production?
- How can you apply geographic knowledge and understandings to the messages in an infographic?
- Why is it important to look critically at messages about health and wellness associated with different food products?

Provide students with **Learning Page 1: The food we eat is connected to Canada's natural resources**. Discuss the idea of a **food system** as a class – the food products they just explored in the **Agriculture and Agri-Food Canada** infographics are part of the food system.

Have students focus on the connection between natural resources and these food products. The learning page asks students to provide examples of natural resources, identify natural resources and human activities associated with different food products and create a **cycle diagram** that focuses on **one** food product from a region of Canada, using the **cycle graphic organizer** provided in the learning page.

Have students draw on previous learning about regions and the geographic characteristics of the region they wish to focus on. Encourage them to make connections between the production of various agricultural products, what they have learned previously about geographic features and the natural resources available.



The **Alberta Cattle Feeders Association** provides an interactive visual that illustrates the seven stages of beef cattle production and can be used to support discussion of the food system cycle illustration in the learning page at <https://cattlefeeders.ca/the-7-stages-of-beef-cattle-production/>.



Find an overview of how Canadian beef is raised on the **Canada Beef** website, **Answering your questions about world-class Canadian Beef**, found at www.raisingcdnbeef.ca. This website provides visual overviews of topics that include, Where Does Canadian Beef Come From?; Beef and the Environment; Beef and the Canadian Economy; Beef Nutrition; and Antibiotics and Hormones.



ASSESS

After exploring the Infographic, ask students to respond verbally or in writing to sentence stems such as those below:

- Canada's natural resource are connected to the foods I eat because . . .
- When I compare foods that are produced in different regions of Canada, I make connections like . . .
- Agriculture, including farming and the production of food, contributes to the vitality of communities by . . .



FINDING ALBERTA BEEF INFOGRAPHIC

Challenge students to identify natural resources and food products represented in the **Finding Alberta Beef Infographic**. Reinforce the connection between natural resources and the human activity of agriculture. Challenge students further by asking them to explain why natural resources like trees, grassland, soil and water shape the types of agricultural activities found in different regions of Canada.



environmental interactions, past and present

SOCIAL STUDIES, SCIENCE

In a whole class setting, introduce and watch the videos about Alberta cattle ranchers on the **Alberta Beef** website. Preview and select one or two of the videos to share with your students.



A number of videos can be accessed in **Environmental Stewardship Awards** webpage on the **Alberta Beef** website at www.albertabeef.org/producers/environmental-stewardship-award. Award winners in various years can be accessed at the bottom of this webpage; many of these award recipient features include videos. All should be previewed before sharing any segments with students.

Selected videos, including the families featured in **Learning Page 2**, are also available in the **Supporting Resources** section of the **Alberta Beef** website at www.albertabeef.org/consumers/resources.

Prepare some pre- and post-discussion questions you might ask students. Encourage them to make connections to what they have learned about regions of Canada, the land and resources. Discussion questions can include:

- These videos share perspectives from cattle ranchers in Alberta. How are their perspectives similar to or different from yours?
- Why is the environment important to these cattle ranchers? How do resources found in the interior plains region support a human activity like cattle farming and ranching? How might the land and resources in other regions of Canada support or discourage farming and ranching?
- What can you learn about the importance of wetlands to these ranches?
- How do these videos illustrate the food system? (*Ask students to revisit what they have learned about the food system cycle and encourage them to see that farming and ranching are the most directly connected part of the food system to natural resources.*)
- What perspectives do these ranchers express about their families, communities and the land?

After watching the videos, provide students with **Learning Page 2: The land sustains rural communities and ways of life on cattle farms and ranches**. Have students work with a partner to read the stories and respond to the questions provided throughout the learning page.



BUILD COMPETENCIES

COLLABORATION

MANAGING INFORMATION

In a **board share strategy**, students brainstorm responses in a small group. One group member is appointed to record the group's responses on the board.

This activity can be tied to other research that students may do to identify human activities and environments in the different geographic regions of Canada. Students may also be asked to reflect on and find connections between what they have learned about Indigenous ways of living with the land and the sustainability practices that cattle farmers and ranchers are implementing.

The stories in the learning page can be used to focus on connections between people and the land on which they live and work. The stories include families who have started cattle ranches in the interior plains and cordillera regions of Canada. As a class, discuss what the concept of interdependence means. **Interdependence** occurs when two or more objects, individuals or groups are connected and depend upon each other. Ask students to apply this concept by working together to create a **class Venn** graphic organizer.

First, use a **board share** strategy to have students brainstorm and record examples of human activities involved in cattle farming and ranching in one circle of the Venn. Brainstorm and record environmental features found on cattle farms and ranches in the second circle.

Then, as a class, describe the interdependencies or connections that exist in the intersection of the Venn. *(Students can be asked to revisit what they have learned about the living and non-living features in an ecosystem; and then identify connections between cattle ranchers and ecosystem preservation. Students can be asked to find examples of wetland ecosystems and their role on cattle farms and ranches. Students can also be asked to revisit the role of natural resources like the sun and climate, grasslands and water systems and identify their importance to cattle farmers and ranchers.)*

Extend learning by asking students to create a **water cycle diagram** that illustrates the flow of water on a farm or ranch. Use the **cycle graphic organizer** provided at the end of **Learning Page 2**. Encourage students to compare the water cycle diagram with that of the food system diagram they completed in the previous activity.

Provide students with **Learning Page 3: Diverse ways of living with the land sustains the food system**. Ask students to synthesize what they have learned by discussing and reflecting on the ways that the natural environment has influenced the growth and development of ways of life in Canadian communities in the past and present.

Use examples from cattle farming and ranching in the interior plains region, as well as examples of human activities in other regions that students have previously learned, to complete the **triple t-chart** in the learning page to **make inferences** about past and present connections between the land, natural resources and the food system.

Students can also be encouraged to connect the interdependencies between rural communities and urban communities. *(For example, people in urban communities depend on goods and services provided by people in rural communities. People who live and work in rural communities depend on people in urban communities as consumers of those goods and services.)*



MEET DIVERSE LEARNING NEEDS

This activity uses both whole class and partnering grouping strategies. Students who need additional support in understanding the concept of interdependence can benefit from being paired with students who are proficient.

Instead of completing the **class Venn**, each pair can be asked to join another pair to assess the connections and interdependencies between the bigger ideas of agriculture as a human activity and the environment.

Alternatively, ask pairs of students to read about one of the families in the student resource and look for evidence of connections and interdependencies with the environment. Have students find a pair who has read a different story and report back to each other.



The Weder family story provides an example of ranchers who have raised cattle in two different regions of Canada. The Weder's current ranch website can be accessed at www.venatorranches.com/, if students are interested in exploring further. The website provides some additional information on their bison herd and the environment on their ranch.

The **Nature Conservancy of Canada (NCC)** at www.natureconservancy.ca/en/ is a national land conservation organization that partners with individuals, corporations, foundations, Indigenous communities and other non-profit organizations and governments at all levels to protect natural areas.

Find other examples of partnerships between the **NCC** and cattle farmers and ranchers in the **Featured Projects** webpage at www.natureconservancy.ca/en/where-we-work/alberta/featured-projects/. Scroll through the project examples to find stories related to Alberta cattle farmers and ranchers.

Other organizations that partner with Alberta cattle farmers and ranchers include **Ducks Unlimited** and **Cows and Fish**. Find information on **Ducks Unlimited** initiatives and their relationship with cattle farmers and ranchers on their website at www.ducks.ca/places/alberta/. Find a story about an Alberta cattle ranch that can provide some background at www.ducks.ca/stories/landowners/natural-habitat-improves-grazing-land-for-cattle-ranchers/#.

Ducks Unlimited has also shared a video about connections that cattle ranchers have to the land at www.youtube.com/watch?time_continue=179&v=N2QeDm3nra8&feature=emb_title.

Cows and Fish can provide additional perspectives on the contribution that cattle farmers and ranchers make to sustainability and conservation efforts in communities at <http://cowsandfish.org/>.



The history of First Nations people is also connected to agriculture and the environment. The **Blackfoot Crossing** website provides perspectives on the treaties and some information on the role that agriculture played at www.blackfootcrossing.ca/survival.html. Students will explore the historical context more in the following activity.

An additional resource for exploring First Nations' relationship with the land and its resources, **Niisitapisinni: Our Way of Life**, can be accessed at www.glenbow.org/blackfoot.

cause and effect

SCIENCE

Present the following focus questions to students and ask them to share initial ideas and responses to it. Encourage students to also consider any questions they might have as they discuss their ideas.

- What risks do you think agricultural activities like cattle farming and ranching can pose for habitats and ecosystems? In what ways do you think agricultural activities can protect habitats and other elements of the environment?
- What evidence have you seen so far of the connection between agriculture and wetland ecosystems?

Have students watch **What is the Environmental Impact of the Canadian Beef Industry?** from **Beef Advocacy Canada** at www.youtube.com/watch?v=JDS0ZBmdudg. Tell students that, in this video, ranchers and scientists share information that supports the cattle industry and also identifies some risks. Students may need some help with the terms and concepts presented in the video. Use it to set a context for the research that students will do next.

Students may also be introduced to the conservation practices that cattle farmers and ranchers use in the video **Alberta beef producers work with great organizations like Ducks Unlimited and Cows**, found in the **Supporting Resources** section of the **Alberta Beef** website at www.albertabeef.org/consumers/resources.



Additional videos are also provided in the **Supporting Resources** section of the **Alberta Beef** website.

Use a **jigsaw research strategy**. Organize students into home groups of five and provide them with **Learning Page 4: Cattle farming and ranching activities can help protect habitats like those found in wetland ecosystems**. Ask each group to review the information on the learning page and assign a topic to each home group member. Students can select from five topics:

- Cattle in the food chain
- Riparian areas
- Grazing practices
- Soil and nutrients
- Water management



MEET DIVERSE LEARNING NEEDS

The intent of these questions is to explore what students know and think about risks and benefits of agricultural activities like beef production. They also encourage students to revisit what they know from their Science study of wetland ecosystems.

Accept any answers or responses that students offer at this time. Encourage students to record any questions they may have during the discussion and remind them that the questions will be revisited at the end of the activity.



Agriculture and Agri-Food Canada provides a webpage at www.agr.gc.ca/eng/canadian-agri-food-sector/fields-of-science/?id=1411999466585 that introduces the scientists who make sure food is safe, high quality, and produced in sustainable ways. The **Fields of Science** webpage includes profiles, a quiz and infographics. Use the information to discuss the role of science in agriculture and encourage students to make connections to its benefits.



MEET DIVERSE LEARNING NEEDS

A **jigsaw** is a cooperative learning strategy in which “home” groups of students are given a task, usually focused on an inquiry or a problem.

Group members each take responsibility for one area in which they become experts. Students then work with “experts” from other groups who are assigned the same area of responsibility. They then return to their home groups to share their knowledge and insights.

Regroup students so that those with the same topic area are now working together in an expert research group. Provide time for expert groups to research their topic areas, using the **topic expert cards** and website references in the learning page as well as other classroom resources.

The learning page provides room for students to cut and paste their topic expert cards at the top of a **retrieval chart** to help them organize their research. If you and students decide to add or revise the topics, students could also use the fillable field to create and/or customize a topic expert card.

Challenge each expert group to create a motivating and engaging way to share what they have learned with their home groups. Encourage groups to add visuals or develop presentation strategies.

Have students return to their home groups and share what they have learned. Ask each home group to construct a group response to the focus question, “What are the risks and benefits of agricultural activities like cattle farming and ranching to ecosystems and habitats?” Revisit questions that were generated during the initial class discussion and identify ways to find answers if the questions were not addressed with students’ research.



Cattle ranches represent some of the strongest and healthiest ecosystems in the world. They are compatible with many wildlife, landscapes and habitats. Cattle use land that is not suitable for growing crops because it is too dry, wet, rocky, cold or hilly. Keeping this land as grassland is good for the soil and water quality. Cattle are ruminant animals and have four stomachs, which enables them to convert coarse vegetation into high quality protein. Cattle also produce manure, which is a natural fertilizer for growing crops.

Feeding grain to cattle does not deprive anyone of an adequate diet. Cattle are typically only fed grain for a short period to produce more tender and flavourful beef. Much of the grain eaten by cattle is coarse grain that cannot be used for human consumption.

Research-based information on the environmental footprint of beef and other topics can be found on the **Beef Cattle Research Council** website at www.beefresearch.ca/research/environmental.cfm.

Alberta Beef provides information on ecosystem services programs that cattle producers are involved with and support, many of them focused on wetland conservation and reclamation. This document may provide you with background for examples you can share with students. Find it at <https://irp-cdn.multiscreensite.com/f1ef9cf3/files/uploaded/ABESprograms.pdf-756.pdf>.



Organizations that are involved with these initiatives and in partnerships with Alberta Beef include the following, also referenced in earlier activities in this teaching resource.

Cows and Fish (Alberta Riparian Habitat Management Society) assists with the management of wetlands and riparian areas.
www.cowsandfish.org

Ducks Unlimited supports the restoration of wetlands, working with farmers and ranchers to manage the restored area. There are a number of different programs that **Ducks Unlimited** provides with beef producers across Canada. Information on their programs can be found at www.ducks.ca/resources/landowners/.

Nature Conservancy of Canada promotes the diversity of plant and animal life by conserving healthy natural lands, wildlife and water. An overview of their work in provinces and territories can be accessed in the **Where We Work** tab at www.natureconservancy.ca/en/where-we-work/. You may identify and preview projects related to farms and ranches as well as wetlands and ecosystems to share with students.

Managing Effects of Livestock on Waterways on Public Land (July 2019) provides information on the impact on water quality and practices for range management that protects waterways and wetlands. It can be accessed at <https://irp-cdn.multiscreensite.com/f1ef9cf3/files/uploaded/Managing%20Effects%20of%20Livestock%20on%20Waterways%20on%20Public%20Land%202019.pdf>.

Cattle farmers and ranchers also have a unique and innovative partnership with **Bird Studies Canada**, a national bird conservation organization. Find their website at www.birdscanada.org.



ASSESS

Have students revisit and expand on the water cycle diagrams they completed in **Learning Page 2** from the previous activity. Ask them to expand their water cycle illustrations using their learning from this activity and assess for evidence of understanding of the impact of interactions between living and non-living things in a wetland ecosystem.



FINDING ALBERTA BEEF INFOGRAPHIC

Ask students to identify features they would expect to find in natural ecosystems and/or agricultural ecosystems in the **Finding Alberta Beef Infographic**. Have students use these examples to discuss the ways in which farmers and ranchers can affect, and are affected by, natural ecosystems.

a range of human activity

HEALTH/WELLNESS

Ask students to brainstorm a list of occupations that they think are associated with beef and the food system. Provide each student with an index card and some research time, either in the library or on the Internet.

Have students complete an **index card research** mini project. Ask them to research one occupation and, using their index card, create a brief summary of the occupation. Ask students to answer the following two questions on their index cards:

- What are the main responsibilities involved with this occupation?
- What skills are necessary for this occupation?

Some websites that may help students to research occupations associated with beef and the food system include:

- **Alberta Beef** website at www.albertabeef.org
- The **AgCareers.com** website at www.agcareers.com/canada.cfm; students can select Alberta on the map and/or use the search term "cattle" to find examples of current jobs in the beef production industry
- Some districts may have a subscription to **MyBlueprint** at <https://myblueprint.ca/> that students can use to explore and research different occupations

Create small groups of three to four students. Tell groups not to share the name of the occupation they have researched. Ask them to interview each other by asking questions such as the following:

- What is the most important skill needed for this occupation?
- Why is this occupation important to the beef production industry?

Have students guess each other's occupations. As a class, discuss what students learned about the jobs and activities involved in the beef production industry from their interviews.

Provide students with **Learning Page 5: Cattle farming and ranching is connected to other human activities** and have students summarize their learning in the graphic organizer. How do these occupations depend on, or connect to, the land and its resources? How could they have an effect on the land and resources? (*Encourage students to consider the impact of human activities, such as those involved in different occupations, on the environment.*)



MEET DIVERSE LEARNING NEEDS

There are many occupations involved in the beef production industry. Some of these include rancher, farmer, veterinarian, truck driver, auctioneer, feedlot operator, meat cutter, restaurant owner, grocery store manager and chef.

As an alternative to this activity, organize students into pairs or small groups to play a "headbanz" game. Once students have explored the different occupations involved in agriculture and the cattle industry, have them randomly select from the index cards other students have created. Have them hold the card on their forehead without looking at it and ask questions of the other students that will help them identify the occupation. For example, they could ask a question like "Do I work on a ranch?" Their partner or small group members answer the questions until the student guessed the occupation.

HOW DO HEALTHY FOOD CHOICES COME FROM HEALTHY ENVIRONMENTS?

THIS GUIDING QUESTION ASKS STUDENTS TO MAKE CONNECTIONS BETWEEN FOOD AVAILABILITY, PREFERENCES AND INFLUENCES AND HEALTHY FOOD CHOICES.

then and now

HEALTH/WELLNESS

Provide students with **Learning Page 6: Food availability and accessibility influences food choices**. The learning page starts with a link to a video – **Agriculture: Then and Now – Food accessibility** – that provides an overview of some of the changes that affect the accessibility of food.

This **Agriculture and Agri-Food Canada** video can be previewed at www.agr.gc.ca/eng/about-us/publications/discover-agriculture/videos-agricultural-products-and-progress/agriculture-then-and-now-food-accessibility-video/?id=1490789847100.

Remind students of the different food types in **Canada's Food Guide** and challenge them to share ideas or hypothesize how each food type has been affected by changes in food production, preparation and availability.

- Fruits and vegetables
- Protein foods
- Whole grain foods



Canada's Food Guide provides a summary of suggestions for making healthy food choices at <https://food-guide.canada.ca/en/healthy-food-choices/>.

Canada's Food Guide also provides information on using food labels at <https://food-guide.canada.ca/en/healthy-eating-recommendations/using-food-labels/>, including links to additional information for making informed choices about healthy and safe foods.

Alberta Beef provides information about the nutritional benefits of beef as a source of protein, including discussion and additional weblinks. Go to www.albertabeef.org/consumers/faqs and scroll down to the bottom of the webpage to the **Nutrition** section.



BUILD COMPETENCIES

PERSONAL GROWTH AND WELL BEING

Focus on personal growth and well being by asking students to talk about how they make healthy lifestyle choices that include nutritious foods.



The learning page provides a very simple introduction to the concept of the environmental footprint of beef production. Some families choose not to eat meat-based protein for cultural, religious or personal reasons.

The information in the learning page simply presents a perspective on the environmental footprint of all food. Plan to recognize all perspectives that may be represented in your classroom, respecting other viewpoints that students may bring to the discussion.

Are plant-based diets better for the health of the environment? There is no black and white answer. Whether growing lentils or raising beef, the act of creating any food and getting it to stores and markets has environmental impacts.

All food production requires land, water and energy. The environmental impact of any food can vary greatly based on factors such as where the food comes from, the packaging, and how it is grown or raised, processed and transported.

The risks and benefits of choosing only one food over another have to be balanced. Removing cattle from environments could have negative consequences that include the loss of native grasslands and the prairie ecosystems.

As a class, use **Learning Page 7: Cattle farming and ranching provide healthy food choices** to discuss the nutritional factors in beef food products.

Ask students to complete the **food label search** activity, identifying two foods, including at least one protein source, that they would choose as part of a healthy meal and using their food labels to compare and assess these food products.

Ask students to share examples of their nutrition fact tables and discuss with questions such as the following:

- Are these foods that come from another country or area of Canada? Or are they locally grown or raised? Does this influence the food choices you make?
- How do you know these foods provide you with enough protein in your meal? What is the protein source?
- How does the information about nutrition influence the food choices you make?



MEET DIVERSE LEARNING NEEDS

Create a **class display** of food labels that students find and complete the healthy meal chart as a class activity. Use a document camera to display the chart and have students discuss and agree on two or three choices for each square in the chart. Remind students to check that they are balancing their food choices.

averages

HEALTH/WELLNESS

Ask students to discuss the factors that influence personal food choices. Make a class list on the board of these influences, which may include:

- Family traditions or culture
- Ways of life (Ask students to discuss whether living in an urban or rural community; or living in a northern community; may influence food choices.)
- Health conditions (Consider factors that affect health conditions such as allergies and diabetic requirements.)
- Quality or availability of the food, cost and time needed to prepare it
- Personal likes and dislikes

Provide students with **Learning Page 8: Healthy eating patterns encourage healthy food choices**. This learning page asks students to find the average kilograms of food items consumed by Canadians in a year.

This information can be accessed on a **Statistics Canada** webpage at www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3210005401. Do a walk-through of the process used to access this information on the webpage. Select a commodity and point out the 2018 statistic.

Students select four food items they would eat to fill a plate. They then find and record the **yearly consumption statistic** for each of these food items. The next part of the activity will ask students to select one of the foods in the chart and work out their own **average daily consumption**.

Once students have brought back their own daily consumption of a food item, provide them with some time to move around the classroom and find classmates who have worked out averages on other food choices. Have them record these averages in their charts. As a class, discuss and compare food choices with the “average” food consumption of Canadians. Use questions such as the following to explore what students have learned:

- What is an “**average**?” What can averages tell us about a behaviour we are measuring mathematically? (*An average is a numerical value that approximates the middle of a range of values added together. Encourage students to discuss how averages can sometimes provide interesting comparisons but may not always give us insights into exceptions and other factors.*)



MEET DIVERSE LEARNING NEEDS

Students can be asked to calculate their daily consumption with help from parents. Ask them to take a typical daily serving of a food category and calculate its weight or volume. Respect student food preferences or choices if they and their families do not eat a particular food or food group. A list of the 14 essential nutrients that beef provides can be found in **Learning Page 7**.

The “food averages” chart can be completed as a whole class activity, using examples of daily consumption of different foods from students who volunteer to share that information with the class.

Students can complete individual calculations for all food categories and compare their consumption with a partner or small group. A class chart can be completed with class averages or ranges.

Alternatively, work out the average calculations together, using the guide in the top row of the chart to create a “composite” class chart.



BUILD COMPETENCIES

NUMERACY

PROBLEM SOLVING

This activity provides a real world example that asks students to apply understandings of averages, percentages and fractions. Ensure students have developed understandings of these concepts and the opportunity to practice with sample problems before completing the activity.

If appropriate for your students, extend this activity by having students graph some of their results.

- What are the similarities between your food choices and those made by other Canadians?
- What are the differences?
- To what extent do your choices match what **Canada's Food Guide** says about food choices?
- What are the disadvantages and limitations of looking at "averages"? What do these averages tell us? What do they not take into account? (*Encourage students to consider how averages do not represent the individual food preferences, traditions and requirements that influence the choices that many people make about foods.*)
- What are the best guidelines to follow when considering what food choices to make? (*Ask students to discuss how Canada's Food Guide and nutrient information that is provided on foods can provide a positive influence on food choices.*)



FINDING ALBERTA BEEF INFOGRAPHIC

The **Finding Alberta Beef Infographic** can provide a starting point for the creation of a student project. Ask students how they can "put the puzzle pieces together" to share their learning. Provide the blank puzzle template at the end of the **Student Learning Pages** to students. Challenge them to create their own infographic with pictures, words or phrases that illustrate their learning.



BUILD COMPETENCIES

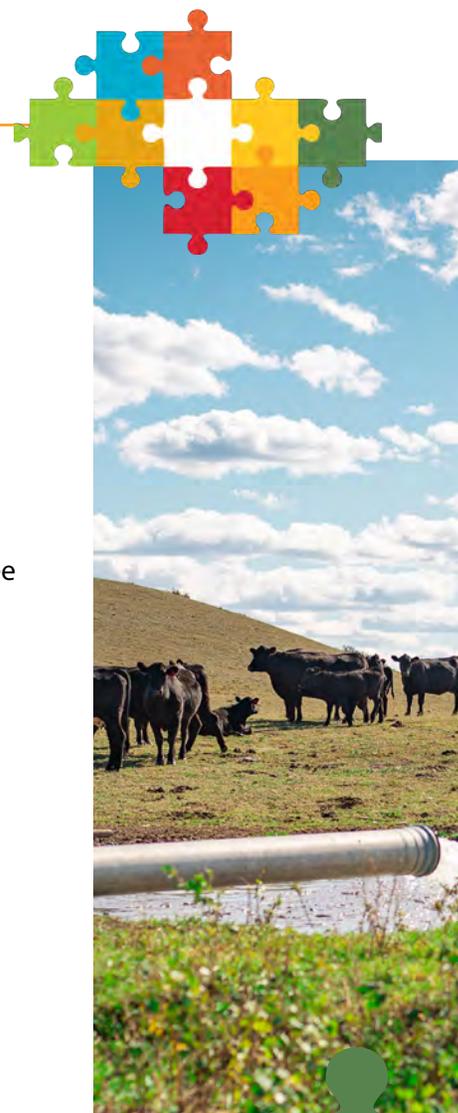
PERSONAL GROWTH AND WELL BEING

Focus on personal growth and well being by asking students to talk about how they make healthy lifestyle choices that include nutritious foods.

teacher background notes

Beef animals are ruminants and like all ruminants they have four compartments to their “stomach.” When ruminants swallow grass or other vegetation the feed goes into the first section of the “stomach,” called the rumen. Here it is broken down by billions of micro-organisms.

It is this feature that allows ruminants to digest tough cellulose and convert it to usable food. When the rumen is full, the animal will lie down to rest. During this time it will burp up portions of food from the rumen. These portions, called “cud,” are brought back up into the mouth, chewed into a pulp and swallowed again. The chewed food goes on through the other three “stomachs” where it is digested. Other ruminant animals are dairy cattle, sheep, goats and bison.



the cattle industry in Alberta

The Alberta cattle industry began in the late 1800s with English and American settlers discovering the many advantages that make Alberta an ideal location to raise cattle. These frontier producers found ways to prosper in the Canadian climate by using progressive management practices and by being early adapters of technology.

With more than five million head of cattle, Alberta is the largest cattle producing province in Canada and has the fourth largest cattle herd of all provinces or states in North America, just behind Texas, Kansas, and Nebraska.



PRODUCTION

Canada's Beef Industry

FAST FACTS

June 2019



CANADIAN BEEF

59,784



Farms and Ranches with Beef Cattle
2016 Agriculture Census

11.45 million



Total Cattle and Calves Down 1% from 2018
(includes 1.4 million dairy cattle)
Statistics Canada

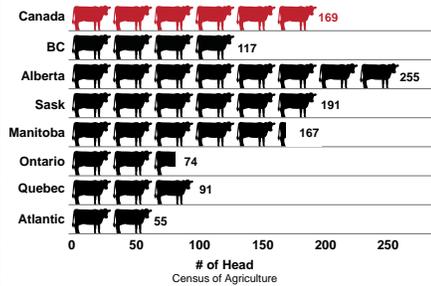
3.66 million



Beef Cows Down 1% from 2018
Statistics Canada

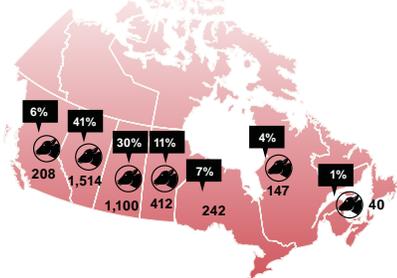
Average # of Beef Cattle per Farm

May 10, 2016

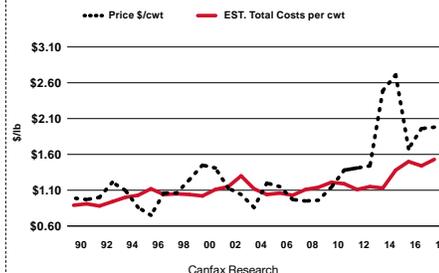


Beef Cows by Province

January 1, 2019 (beef cows = 3.66 million)
All inventories in 1,000 head



Average Cost of Production vs. Average Returns on an Alberta 550 lb Calf

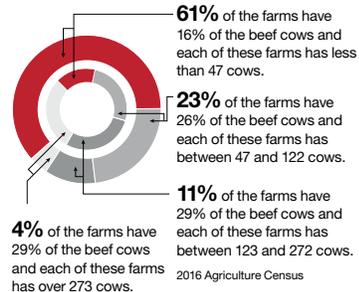


Did you know...

The average beef cow herd size in Canada is 69.

2016 Agriculture Census

There are a lot of small cattle farms...

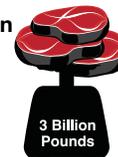


Canada fed 2.9 million cattle in 2018 (finished to market weight) up 1% from 2017.

Canfax, Statistics Canada, AAFC

Western Canada finishes 76% of all fed cattle in Canada. Canfax

In 2018, Canada produced 3.08 billion pounds of beef, up 2.7% from 2017.



3 Billion Pounds

Canfax, Statistics Canada

Cattle and calf cash receipts in 2018 totaled \$9.07 billion, steady with 2017. Statistics Canada

Beef production contributed \$18 billion to Canada's GDP (2014-2018 average).

Canfax, Statistics Canada

Alberta is one of the world's most successful beef exporters, shipping a yearly average of \$1.5 billion of beef all over the globe. Of Alberta's 2018 beef exports, 73 percent was sold to the United States, 7 percent to Hong Kong, 7 percent to Japan and 13 percent to other countries. These countries or regions included Mexico, Mainland China and South Korea.

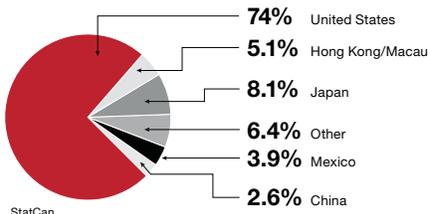


Alberta Beef provides information and infographics on beef production at www.albertabeef.org/consumers/industry-info.

WHERE CANADA TRADES

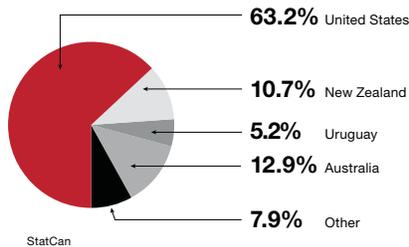
Beef Exports – 2018

879 million pounds (399 million kg)



Beef Imports – 2018

391 million pounds (177 million kg)



In 2018, Canada exported **44.6%** of total beef and cattle produced in Canada.

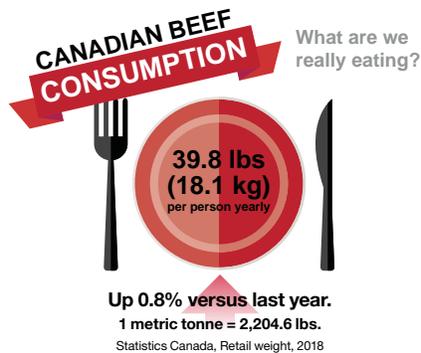
Statistics Canada, Canfax, AAFC

On a net basis (subtracting out imports), **Canada exported 30%** of its beef and cattle production in 2018.

Statistics Canada, Canfax, AAFC

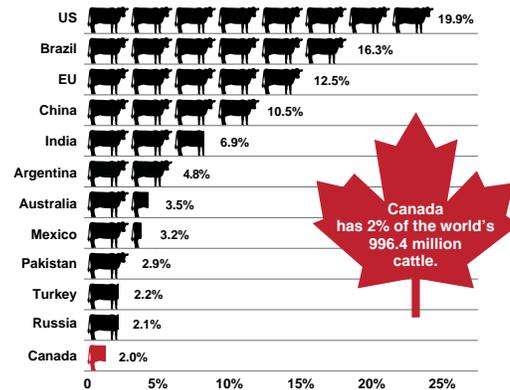
Canadian beef exports were valued at **\$2.75 billion** in 2018, up 14% from \$2.41 billion in 2017.

Statistics Canada



WHERE CANADA FITS

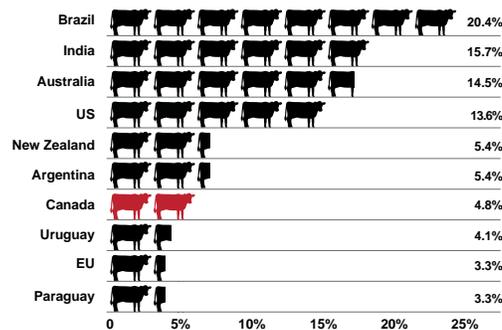
Top 12 Beef Producing Nations – 2019f



Canada produces 2% of the world's beef supply. Worldwide Beef Production is projected at 63 million metric tonnes in 2019. USDA

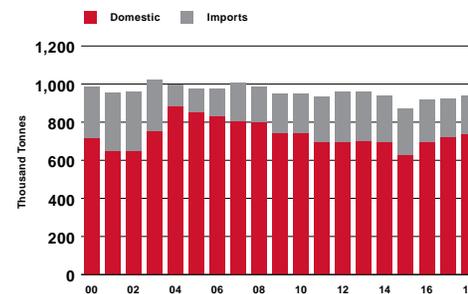
Top 10 Beef Exporting Nations 2019f

(excludes live slaughter exports)



Total world exports in 2019 are projected at 10.8 million metric tonne and Canada is projected to be the 7th largest beef exporter in the world (excluding live cattle exports). USDA

Canadian Beef Consumption



Canadian's consumed 941,280 tonnes of beef in 2018

Statistics Canada

Infographics provided by Canada Beef:
www.canadabeef.ca

producing beef

Beef cattle production is Alberta's largest agricultural sector, providing \$4.9 billion in farm cash receipts annually or 36 percent of Alberta's farm production income.

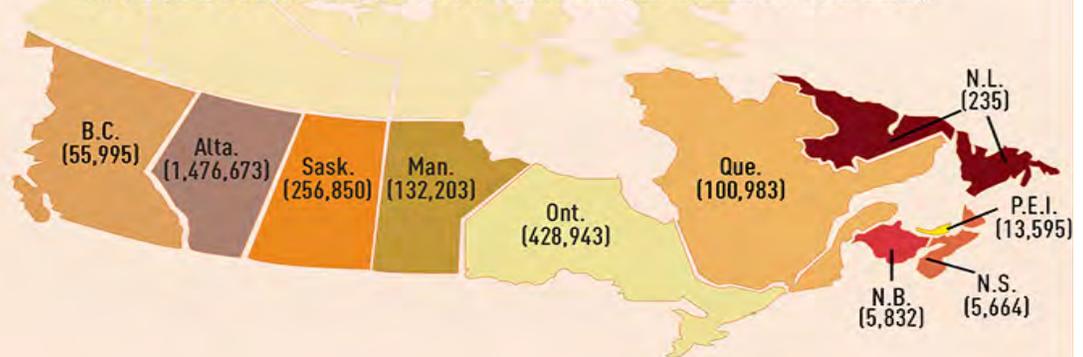
- 46 percent (18638) of Alberta farms have beef cattle
- Alberta cattle and calf numbers – 5 207 000 head (42 percent of Canadian total)
- Canada cattle and calves – 12 531 000
- Alberta has 1 866 000 breeding beef cows and heifers (42 percent of Canadian total)
- Alberta feeds nearly 2 000 000 cattle each year with total annual beef production of over 900 000 tonnes
- Alberta averages 93 beef cows per cattle farm
- Alberta has 21 127 243 hectares of farmland
- 30 percent of all Alberta farmland is natural land for pasture
- 10 percent of all Alberta farmland is tame or seeded pasture land
- Alberta federal and provincial inspected plants processed 2 365 000 head of cattle or roughly 74 percent of Canadian total in 2018

Infographic excerpt from Statistics Canada: *Livestock in Canada*. www150.statcan.gc.ca/n1/pub/11-627-m/11-627-m2017011-eng.htm

Alberta had more feeder beef cattle than all other provinces combined in 2016, with almost 1.5 million head.

Alberta leads in beef

Feeder beef cattle across Canada (in number of head)



For every milk-producing cow in Canada there were 4 beef cows.



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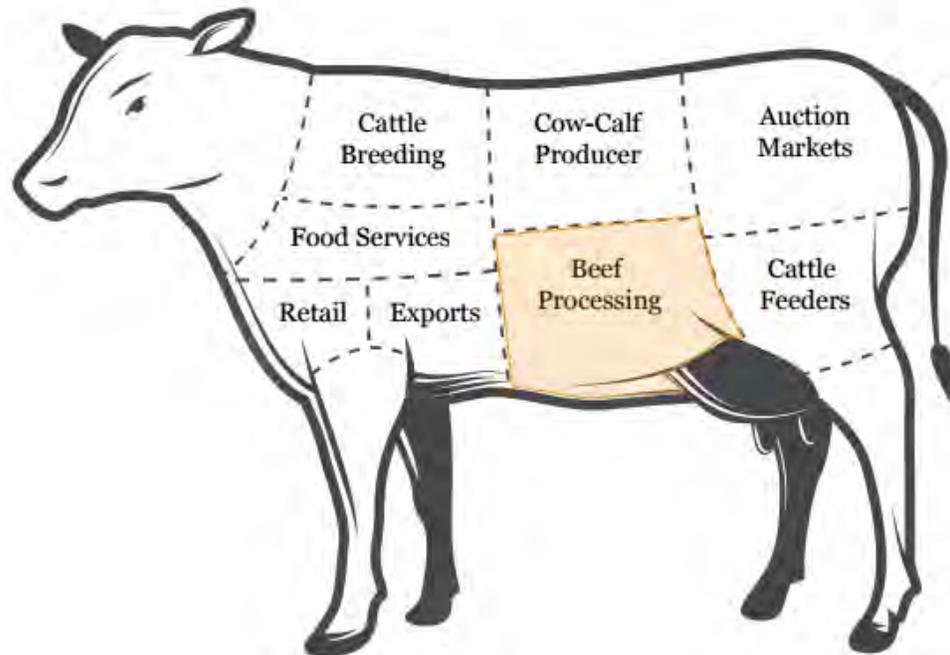
There are many different people and jobs involved in beef production. Some examples include:

- Ranchers (cow/calf operators)
- Backgrounding operators
- Feedlot operators
- Veterinarians
- Machinery dealers
- Feed and fertilizer sales persons
- Auctioneers
- Truckers
- Packing plant workers
- Meat graders, inspectors and butchers



The **Alberta Cattle Feeders Association** provides background information on the seven stages of beef cattle production at <https://cattlefeeders.ca/the-7-stages-of-beef-cattle-production/>, including descriptions of the different roles involved in each stage.

Image from Alberta Cattle Feeders Association.



sustainability and environment

The beef production industry has a strong commitment to protection and sustainability of the environment. The beef industry uses practices for forage, grazing and beef production that can benefit the environment including maintaining plant and wildlife habitats, reducing soil erosion and protecting watersheds.

Every living organism produces greenhouse gases (GHG), but cattle produce more than some other livestock because rumen bacteria produce methane as they digest feed. Additional greenhouse gases come from manure and fossil fuel use. However, beef production in Canada accounts for only .04 percent of global greenhouse gas emissions.

Pastureland removes greenhouse gases from the air and stores them in the soil. Removing cattle from these lands would put the land at risk for conversion to other land uses that could release more GHGs.

Cultivating land can release up to 59 percent of carbon previously stored in the soil. Grasslands and pastures also store carbon, protect marginal lands from tillage and erosion, provide habitat for wildlife and promote biodiversity.

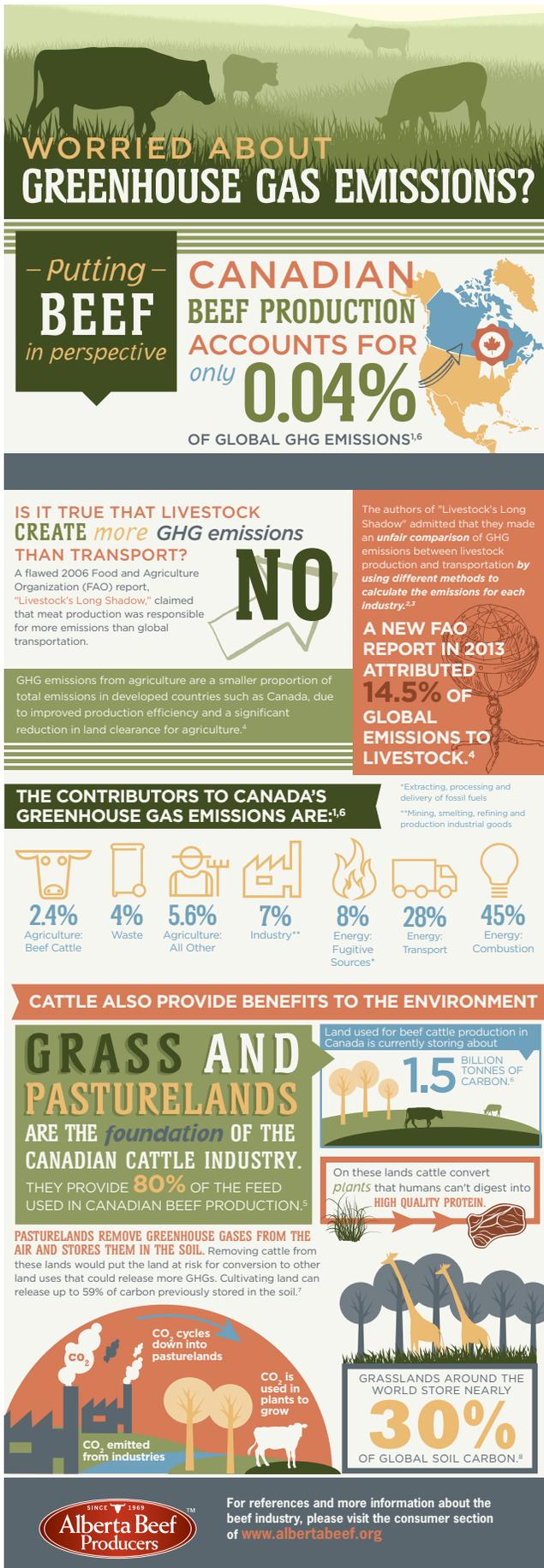
Alberta beef farmers and ranchers are committed to producing beef in an environmentally sustainable manner. Alberta Beef supports policies, programs and educational efforts that uphold this vision. They also formally recognize beef producers who have incorporated environmental protection into their management strategies.

Find the full infographic on the **Alberta Beef** website at www.albertabeef.org/consumers/resources.

Canada Beef provides information and resources, including videos, about cattle and the environment

at <https://canadabeef.ca/whycanadianbeef/>. This source is suitable for teacher background. **Canada Beef** also provides an infographic that provides environmental and nutritional information about beef at https://canadabeef.ca/wp-content/uploads/2019/10/RS9895_CB_Environment_Nutrition-Infographic-Sheet_REV.pdf.

Canadian Cattlemen's Association provides a number of resources on environmental issues and nutrition, suitable for teacher background, at www.cattle.ca/cca-resources/.



nutrition

Meat products contain nutrients that are essential for health. Lean meats, including beef, help you meet your needs for protein, vitamins, and minerals. **Canada's Food Guide** includes leaner meats as a protein choice in a healthy diet. Other healthy choices include grains, vegetables and fruits and milk products.

Beef is a complete protein. This means that the all essential protein building blocks, called amino acids, are found in beef.

Beef also provides a healthy source of dietary fats. Fat is an important nutrient for normal body functions and energy. Fat helps our body absorb fat-soluble vitamins such as A, D, E and K. Some fats are essential, because our body cannot make these fats. It is recommended that an adult's diet have 20 to 35 percent of total calories from fat.

Beef provides nutrients important to the body. One serving of cooked lean beef provides:

- About half of the protein requirements for a teen
- Enough vitamin B¹² to exceed requirements
- An excellent source of zinc and niacin
- A source of iron, thiamine and riboflavin

Nutritional values of foods can be affected by different factors, including geographic location, season and the soil used to grow plants and feed to raise animals. For example, cows fed mostly on pasture in the summer produce butterfat higher in Vitamin A than in the winter.

Nutritional values can also be affected by the ways in which foods are manufactured or processed, including the use of heat, light, oxygen, enzymes or microorganisms.



Find the full infographic on the **Alberta Beef** website at www.albertabeef.org/consumers/resources.

The **Think Beef** website provides a series of resources, including nutritional information, infographics and recipe booklets suitable for children at <https://thinkbeef.ca/resources/>.



cattle byproducts



If appropriate for your students, you may want to share some examples of the byproducts that come from beef cattle. When discussing byproducts with students, it is also important to note that, in some cases, technology has been developed that also allows for synthetic substitutes to be used in products that traditionally contained animal byproducts.

Edible beef byproducts are products that can be consumed. The majority of edible beef byproducts contain gelatin. Gelatin is made from cartilage, tendons and bones and can be found in products like:

- Hard cheese
- Jello
- Canned meats
- Ice cream
- Gummi bears
- Marshmallows
- Mayonnaise
- Gum
- Yogurt

Variety meats are edible organs and glands of a beef animal, and can include heart, tongue, liver, kidney, tripe (stomach walls), and testicles (Rocky Mountain or Prairie Oysters). Variety meats are edible byproducts.

Inedible beef byproducts are made from the hide, fat, bones and entrails. Products from the hide can include leather boots, luggage and shoes.

Products made from fat include:

- Deodorants
- Fabric softeners
- Plastics
- Shaving cream
- Detergent
- Floor wax
- Shampoo
- Candles
- Crayons

Byproducts made from the bones include toothpaste and bone china.

Byproducts made from entrails include violin strings.

Additionally, beef byproducts can be made from leftover meat portions, including pet foods.

The medical world also relies on the byproducts from cattle to produce a number of medications and treatments. Prior to the 1980s, people with diabetes relied totally on insulin supplies extracted from beef and pork pancreases.

Byproducts from cattle also assist in the treatment of anemia, allergies, parathyroid deficiencies, respiratory diseases, jaundice, rheumatoid arthritis and leukemia.



www.albertabeef.org/consumers/resources