



Big Question

How can we use natural resources to meet our needs and wants while protecting the environment?

Learning Goals

- evaluate the effects that drilling for oil has on the environment
- formulate questions
- identify the characteristics of the Interior Plains and the human activities that take place there

The Interior Plains



Hi, I'm Sophie.

My family has a large wheat farm in Gull Lake, Saskatchewan. That's in the Interior Plains. This region of Canada is often called the "Big Sky Country." It has that nickname because there are lots of flat, open areas with low hills, so the sky seems to go on forever.

My family earns money from an oil company because we have an oil pump at the back of our property.

We're so lucky. This region has so many natural resources, like fertile soil for farming and oil for drilling. Sometimes, I wonder if we are using these resources in a way that shows we care for the environment.

An oil pump sits in a wheat field in Gull Lake, Saskatchewan. In the background is a grain elevator where grain is stored before it is transported to other places.



What Are the Physical Features and Climate of the Region?

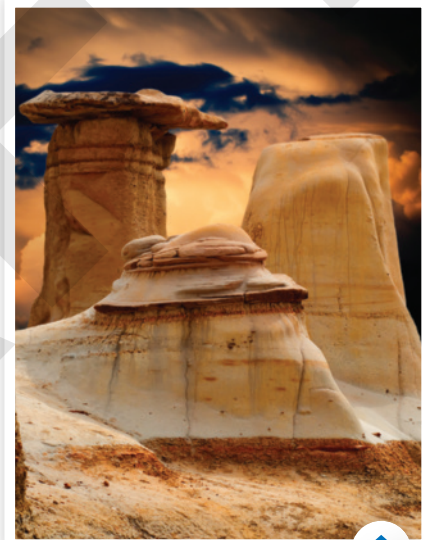
Physical Features

The physical features of this region include plains, prairie grasslands, foothills, large lakes, long rivers, and wetlands. **Plains** are broad areas of flat, low lands. **Foothills** are rolling hills that rest at the base of a mountain range. **Wetlands** are swampy areas of land that are partially flooded all year.

Did You Know?

Millions of years ago, dinosaurs roamed the Interior Plains. Thousands of dinosaur fossils have been found in Drumheller Valley in Alberta. This area is also known as Dinosaur Valley.

Physical Features of the Interior Plains



Hoodoos, like the ones in this photo, are a unique physical feature that can be found throughout Drumheller Valley. Over a very long time, the forces of wind and water shaped these rock formations. In some Niitsitapi and Siksika stories, hoodoos are giants who come alive at night and throw rocks at any intruders.

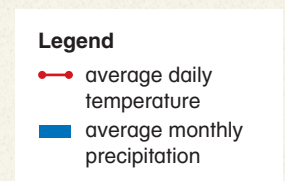
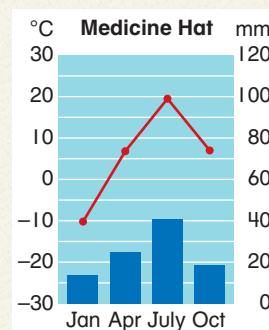
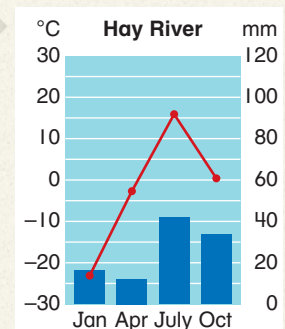
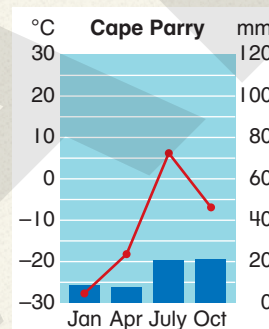
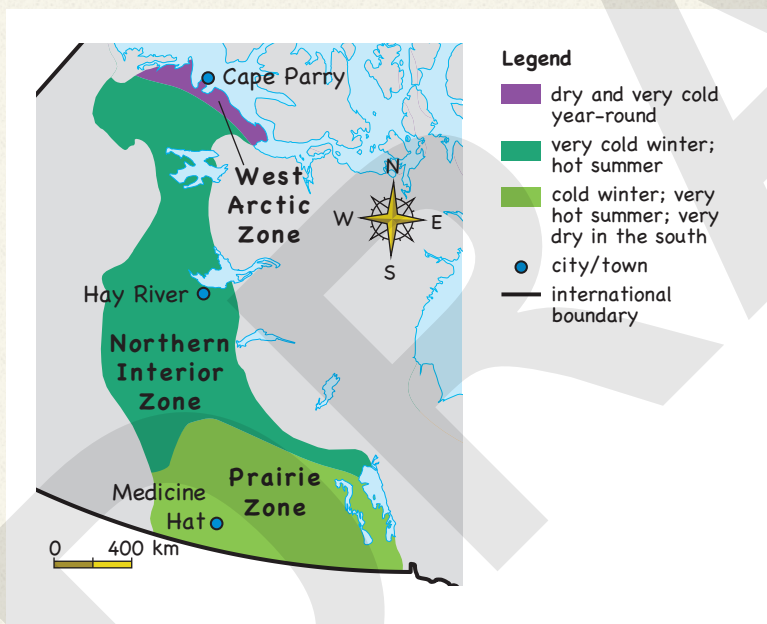
Climate

Think back to how the climate in the Cordillera is affected by the Pacific Ocean. In the Interior Plains, there are no massive bodies of water to affect the climate.

The climate of the Interior Plains is affected by dry winds from the west that have dropped most of their moisture while crossing the Cordillera. In winter in southern Alberta, sometimes these winds are strong enough to push warm air over the Rocky Mountains. These warm winds are called **chinooks**. Chinooks bring warm, dry air to the region.

In the northern part of the region, winds bring cold air south from the Arctic. There are no mountains to block the cold air. This makes winters in this part of the region very cold.

Climate Zones of the Interior Plains



Inquire and Apply

- 1 Compare the climate zones of the Interior Plains with those of the Cordillera (see page 14).
- 2 Imagine you are a TV weather reporter. Choose a city and month from the climate graphs above. Create a weather report for one day.

Who Are the People of the Region?

First Nations peoples and Inuvialuit (Western Canadian **Inuit**) were the first people to live in this region. Today, Alberta, Manitoba, and Saskatchewan have some of the largest First Nations populations in Canada. First Nations peoples in these provinces include Nêhiyawak, Niitsitapi, Dakota, and Lakota.

Around 500 years ago, Europeans came to this region. They came for many reasons, including farming and trading goods for furs with First Nations peoples. Some European men married First Nations women. Their children are called **Métis**. More than 96 000 Métis live in Alberta. This makes Alberta home to the largest number of Métis in Canada.

Today, people from other parts of Canada and all over the world come to live in this region. In recent years, many immigrants from South and East Asia have been making this region their home. **Immigrants** are people who leave their home countries to live permanently in other countries. Many immigrants are drawn to the Interior Plains by the jobs in the mining and oil industries.

Citizenship in Action



Each year, Cambridge Street Community Public School in Ottawa, Ontario, holds a multicultural dinner. Students and their families share food from their cultures with their friends and teachers. There are also artistic performances celebrating different cultural traditions from around the world.



This region is home to one of the largest collections of dinosaur fossils in the world. Dinosaur-themed attractions exist throughout the region and employ many people. Tourists flock to the area's museums to see dinosaur bones close up, such as at the Royal Tyrrell Museum in Drumheller, Alberta, and the T.rex Discovery Centre (shown here) in Eastend, Saskatchewan. What brings tourists to your community?

Inquire and Apply



- 1 List some of the benefits of living in this region. Next, list some of the challenges.
- 2 Create a poster to attract people to this region. Be sure to include the reasons they should consider moving.

How Do People Use the Resources of the Region?

Thinking about Cause and Consequence

In 1947, a huge oil field was found in Leduc, Alberta. This was the beginning of the modern oil industry in the province. What impact do you think the discovery of the oil fields has had on the people and the environment in Alberta? Compare this impact with that of the gold rush on the Cordillera region.

The Interior Plains is rich in natural resources, such as oil, minerals, and fertile soil. These resources have helped this region develop mining, farming, and other primary industries. A **primary industry** is a business, trade, or operation that makes use of natural resources.

Mining

Drilling for oil and natural gas and mining potash are important primary industries in the Interior Plains. **Potash** is a mineral used in fertilizers to help crops grow.

In order to drill for oil, companies need to get permission from the Canadian government. Before making a decision, the government uses environmental reports to determine how a drilling project will affect the land, water, plants, and animals.

One way companies reach the oil in the ground is with oil pumps. Open-pit mining is another method. First, miners use machines to dig a huge hole in the ground. Then, they dig out the oil-soaked earth. The oil must be separated from the earth, which is a complicated process that uses a lot of hot water. Some of the water can be cleaned and reused, but some of it is full of toxic waste.

In recent years, better methods have been developed to reach the oil and lessen the impact of mining on the environment. For example, oil companies can reuse water in the separation process.

This is a potash mine in Saskatchewan. Building mines destroys natural areas and **habitats**. When mines are no longer operating, mining companies must, by law, return the sites to their natural state.



Farming and Ranching

Farming is an important primary industry in the Interior Plains. Crops such as wheat, barley, oats, and corn are grown here. These grains are all used to make different types of flour. **Processing** wheat into flour is a secondary industry. **Secondary industries** process natural resources to **manufacture**, or make, products.

Some people in this region raise cattle for meat. Raising animals, such as cattle, is called **ranching**. Alberta produces nearly half of all Canadian beef. Producing beef creates many types of jobs in the Interior Plains, from ranching and meat processing to cooking and serving in restaurants. Restaurants and grocery stores are examples of tertiary industries. **Tertiary industries** provide services, including transportation and banking.

People are always researching ways to improve farming and produce new and stronger varieties of crops. These are quaternary industries. **Quaternary industries** are information based and include education and research.

Monitoring Comprehension

As you read, ask yourself questions to monitor your comprehension. Try rephrasing a new idea to check that you understand it. You might even create a graphic organizer to help you understand new ideas.

This photo shows chemicals being sprayed on crops at a farm. Chemicals control weeds, insects, and crop diseases. Many people are concerned about the use of such chemicals because they can harm soil, water, air, animals, and people. Some farmers are choosing not to use chemicals on their fields.



Inquire and Apply



- 1 What is similar about all primary industries? What is the difference between secondary and tertiary industries? What role do you think quaternary industries can play in taking care of the environment?
- 2 Create a chart that shows how one resource in the Interior Plains is a part of primary, secondary, tertiary, and quaternary industries.



What benefits does oil provide?
What problems might drilling for oil create?

When you start a research project, it's important to think about the questions you want answered about your topic. There are different types of questions.

Fact questions receive straightforward answers based on obvious facts or knowledge. For example: Where can oil be found in Canada?

Opinion questions are personal and may have more than one answer. The response to an opinion question should be supported with reasons. For example: Do you think drilling for oil is good for Canada?

Critical questions require you to make a reasoned judgment. Critical questions help you identify, understand, and solve problems. For example: What are the pros and cons of drilling for oil?

Read the text below and on the next page. Examine the images on this page. Think about the questions you could ask about oil in Alberta.

To Drill or Not to Drill?

Alberta has one of the largest reserves of oil in the world. The province's largest deposit is in the Athabasca oil sands. The Athabasca River flows through this area.

Oil sands contain sand, clay, and water mixed with very heavy oil. Most of the oil is deep underground. Oil is pumped to the surface by drilling methods that use steam or heat. The oil is then separated from the sand and clay using hot water.

Major benefits from developing the oil sands are the jobs and prosperity it creates. However, it also greatly affects the environment and the people who live nearby.



This is Tsimshian Elder Terry McKay. He is at a public meeting, expressing his concerns about drilling for oil along the banks of the Athabasca River. Why is it important for First Nations Elders to be involved in resource development in their communities? Who else should be involved in making decisions?



For example, chemicals, waste, and oil spills have polluted the Athabasca River. Pollution has impacted people living along the river. Roxanne Marcel, chief of Mikisew Cree First Nation from 2005 to 2011, speaks about how drilling for oil affects the Athabasca River and her people.

“When water levels are down, we can no longer access our traditional lands by boat, which limits our fishing, trapping, and hunting. Our members have been stranded. We no longer drink the water. We see our rights along with our river deteriorating before us.”

Don Thompson, president of the Oil Sands Developers Group, speaks about why drilling for oil is important.

“The oil sands currently support 75 000 jobs in Canada, with this growing to over 900 000 by 2035. Do the math. That’s 825 000 more jobs; 825 000 people with work, and there is nothing that gives an individual more dignity and self-respect than a job.”

Sample Fact Question

Where are the oil sands?

Sample Opinion Question

Who should be responsible for deciding about oil-sands development—governments, communities, or companies?

Sample Critical Question

What challenges do First Nations groups face in protecting their lands?

Did You Know?

Drilling for oil in the oil sands often creates lakes containing toxic water. These lakes can be the size of a city. Migrating birds can become stuck in these lakes and die. This happened to a flock of ducks in April, 2008. The company that created that toxic lake was fined \$3 million.

Inquire and Apply



- 1** What three questions would you ask an oil company about environmental issues? Label each question as fact, opinion, or critical.
- 2** The quotations above show you two different perspectives about the oil sands. With a partner, role-play a conversation between Roxanne Marcel and Don Thompson.

Spotlight on Political Regions



Most of the Interior Plains is located in Alberta and Saskatchewan. Alberta and Saskatchewan are both provinces. There are many different cities in these two provinces. Cities provide many services, such as libraries, museums, swimming pools, community centres, and public transportation.

Edmonton is the capital of Alberta. What do you think makes this city an attractive place to live?



Alberta



Size	661 185 square kilometres
People	<ul style="list-style-type: none"> • population 3 873 700 • 40 210 Grade 4 students
Industries	mining, ranching
Festivals	<ul style="list-style-type: none"> • Edmonton International Street Performers Festival • Calgary Stampede

Official Plant and Animal



wild rose



Rocky Mountain bighorn sheep

Saskatchewan



Size	588 239 square kilometres
People	<ul style="list-style-type: none"> • population 1 080 000 • 11 897 Grade 4 students
Industries	mining, farming, ranching
Festivals	<ul style="list-style-type: none"> • Canadian Western Agribition (Regina) • Windscape Kite Festival (Swift Current)

Official Plant and Animal



western red lily



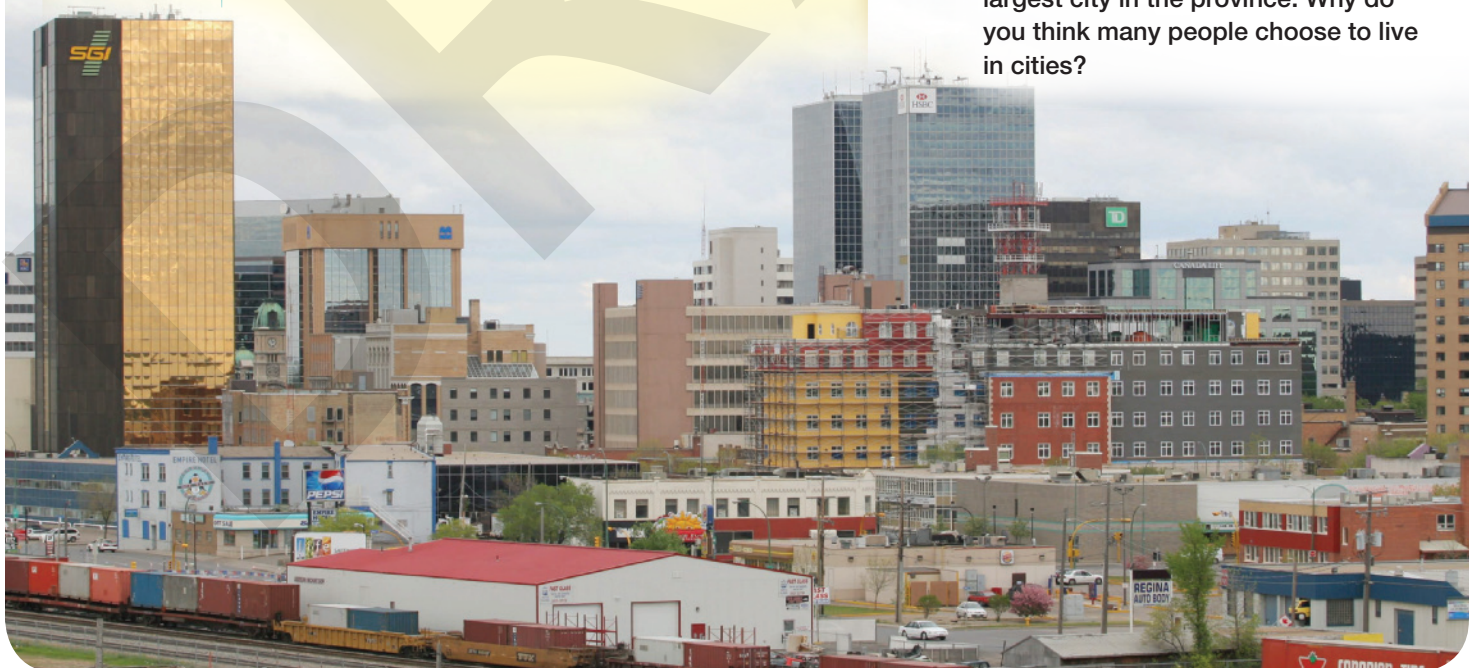
white-tailed deer

Inquire and Apply



- 1 Review the text and photos in this chapter. Why do you think Saskatchewan has “Land of Living Skies” and wheat stalks on its licence plate?
- 2 Design a postage stamp that celebrates one of the industries in Alberta or Saskatchewan.

Regina (shown here) is the capital of Saskatchewan, but Saskatoon is the largest city in the province. Why do you think many people choose to live in cities?



Pulling It Together

How Can We Be Good Environmental Stewards?

It's Up to You

Responsible, active citizens of Canada act in a way that benefits the community—both human and natural.

Reflect

What do you see as the good things about the oil industry? What are you concerned about?

Take Action

Think about ways in which we can be responsible stewards of oil. Create and present a radio or TV ad to share your ideas.



My aunt and uncle work in the Athabasca oil sands and live in Fort McMurray, Alberta. My aunt says that these oil sands produce almost two million barrels of oil a day.

Oil helps produce many great things, such as plastic, clothing, and fuel for cars, planes, and boats. I can't imagine life without these things.

But I'm worried that using the oil sands harms our wildlife, water, and air. I'm wondering if we are using this resource in a way that will be good for people and the planet. What do we do if the oil runs out?

Sophie

This photo is of an open-pit mine in the oil sands near Fort McMurray. Massive trucks haul away thousands of tonnes of oil-soaked sand each day.



Summarizing

Imagine you are writing a book about the Interior Plains. Create a blurb to go on the back cover of your book. First, record some of the most important facts and ideas you learned in this chapter. Next, write your blurb. Remember, a blurb is supposed to summarize the book and make people feel excited about reading it. Finally, share your back cover blurb with others. Talk about what you found rewarding or challenging about summarizing in this way.

Making Connections

Review the diagram called “products made from oil and natural gas” on page 30. Create a similar diagram to show how we use another natural resource from this region. Under your diagram, record some questions you have about that natural resource.

Chapter Inquiry

Creating effective questions can help you find out more about important issues. For example, concerned citizens may ask questions about how primary industries, such as mining, farming, and ranching, might harm the environment.

Develop three questions to help you investigate how a primary industry affects the environment. Make sure you include one question for each category.

Refer back to the Learning Goals on page 24 to guide your inquiry.

Question	Type of Question
	fact
	opinion
	critical