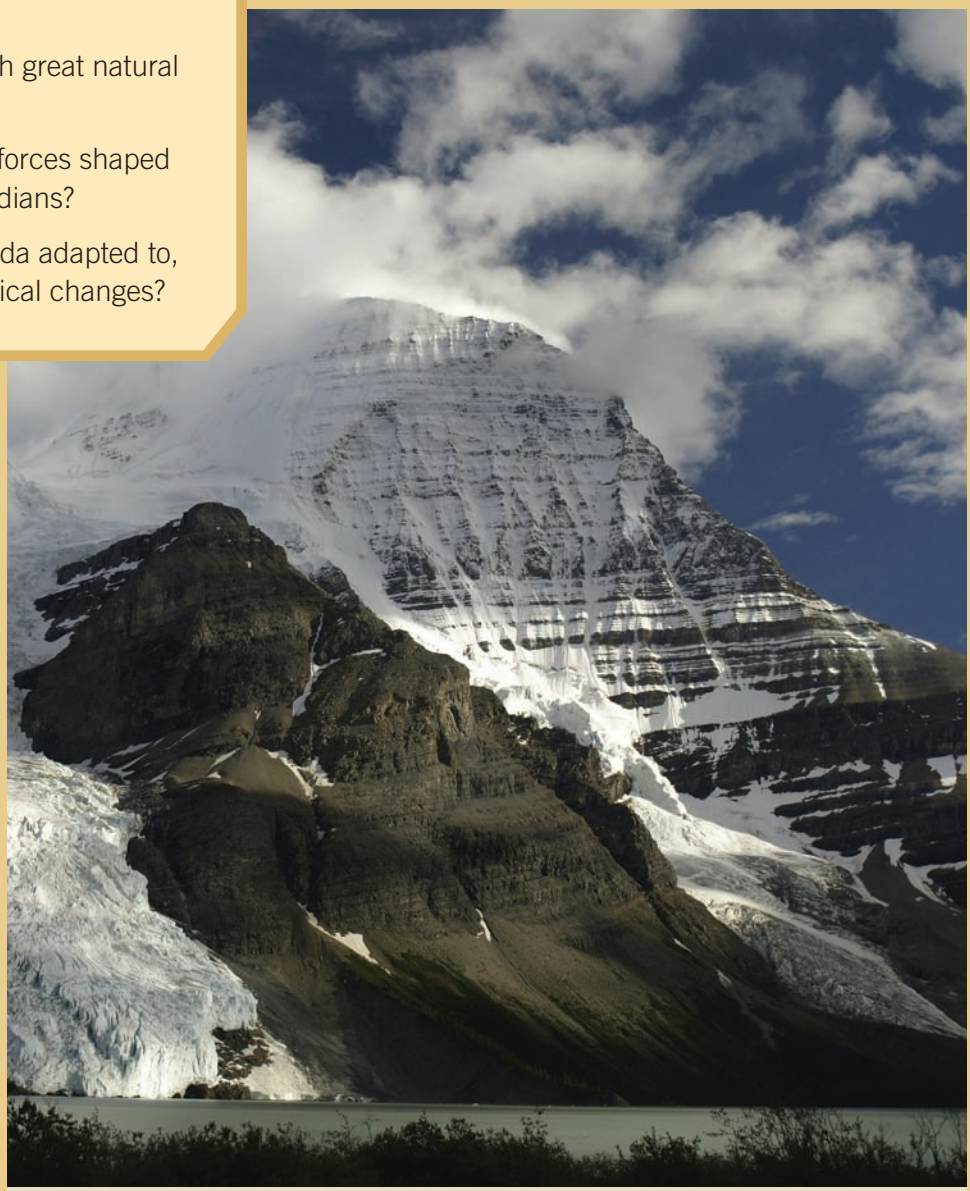
UNIT 1

The Geography of Canada

IN THIS UNIT

This unit helps you investigate these questions.

- What physical and natural forces have shaped Canada?
- Why is Canada a country of such great natural diversity?
- How have physical and natural forces shaped the culture and identity of Canadians?
- How have communities in Canada adapted to, and been affected by, geographical changes?



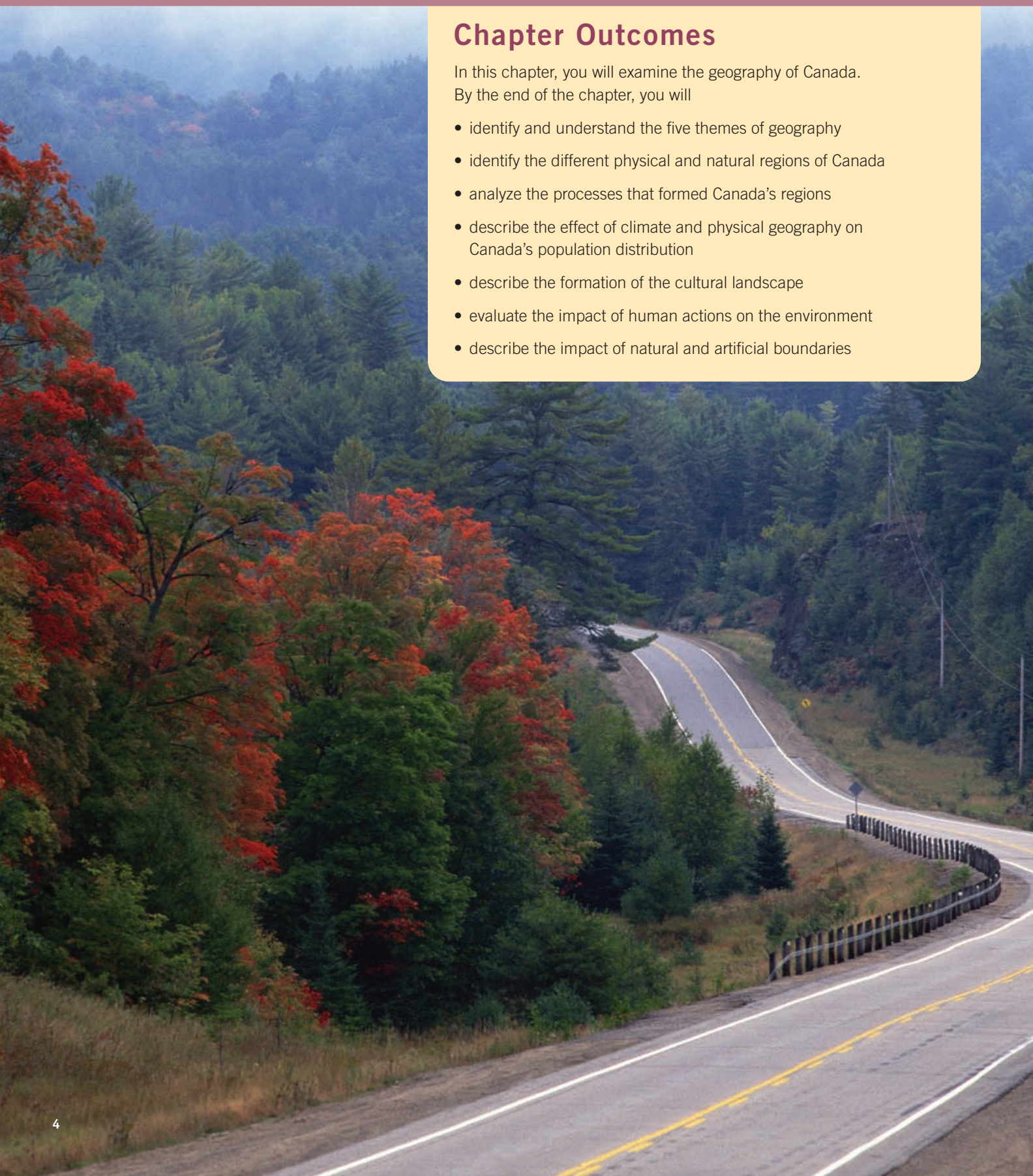
Natural forces. Plate tectonics—movements within and on the earth's crust—formed the mountains of Canada. Mount Robson is the highest mountain in the Rockies. It was eroded and sculpted by glaciers into the landscape we see today. Do you think mountains like this one might change in the future?

Nature's highways. Melting water from glaciers and rivers shaped the landscapes of Canada. Aboriginal peoples, and later fur traders and explorers, used the rivers to travel across the country.

Changes. The geography of Canada was changed as colonization spread from the Atlantic Ocean to the Pacific Ocean. As newcomers grew in number, the landscape was changed even further. Will these changes continue?

A smaller world. Modern communication has bridged the distances of what early explorers called "the great lone land." The identity of Canadians has been shaped by Canada's size and landscape. As the country "shrinks" as a result of new technology, will an identity so closely linked to the land be lost?

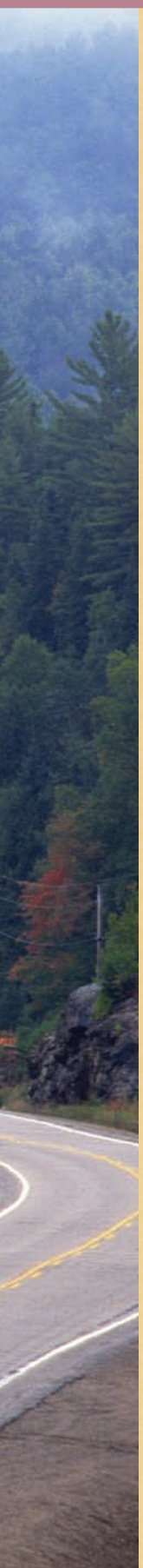
1 Canada: Making Connections



Chapter Outcomes

In this chapter, you will examine the geography of Canada. By the end of the chapter, you will

- identify and understand the five themes of geography
- identify the different physical and natural regions of Canada
- analyze the processes that formed Canada's regions
- describe the effect of climate and physical geography on Canada's population distribution
- describe the formation of the cultural landscape
- evaluate the impact of human actions on the environment
- describe the impact of natural and artificial boundaries



How does studying Canada's geography help us understand how the land has shaped us, and how we have shaped the land?

In this chapter, you will study Canada's regions, climates, and cultural landscapes. You will be introduced to issues, such as climate change, that may have a great effect on Canada's future. For many, the identity of Canada is linked to the vast size and physical diversity of this country. As you follow Canada's historical, economic, and cultural development in *Horizons*, knowledge of geography will help you to better understand the reasons behind these developments.

Key Terms

- geographic perspective
- latitude
- longitude
- Global Positioning System (GPS)
- sustainable
- globalization
- Geographic Information System (GIS)
- geology
- topography
- plate tectonics
- seismic
- climate
- ecosystem
- cultural landscapes

Examine the two images shown here. Do they define "Canada" to you? Why or why not? Now read the quotation below. How does it relate to your image of Canada? Give examples of times when Canada's geographic diversity was a challenge for you, your family, or someone you know.

> *...if some countries have too much history, we have too much geography.*
>
> —Prime Minister Mackenzie King, House of Commons, June 18, 1936

The Five Themes of Geography

How can an understanding of location, place, regions, movement, and interaction help us study geography?

Did You Know…

Modern geography includes the study of both physical geography (including climate, landscapes, and oceans) and human geography (including culture, communities, and transportation).

Although you might think that geography is something you only need to deal with in class, it is really a part of your everyday life. When you travel across town, when you text message or e-mail a friend, or when you read a headline about world trade, you are taking part in the broad area of study called geography.

Geography explores how people interact with the world around them. It involves climate, geology, economics, biology, history, and more. What would your family consider if you were moving to a new town? The climate, the size of the town, and types of jobs and recreational activities that are available might be concerns. These are also questions a geographer would ask. Geographers also study how humans interact with each other, and how they affect and are affected by the land. These are themes you will study throughout this text.

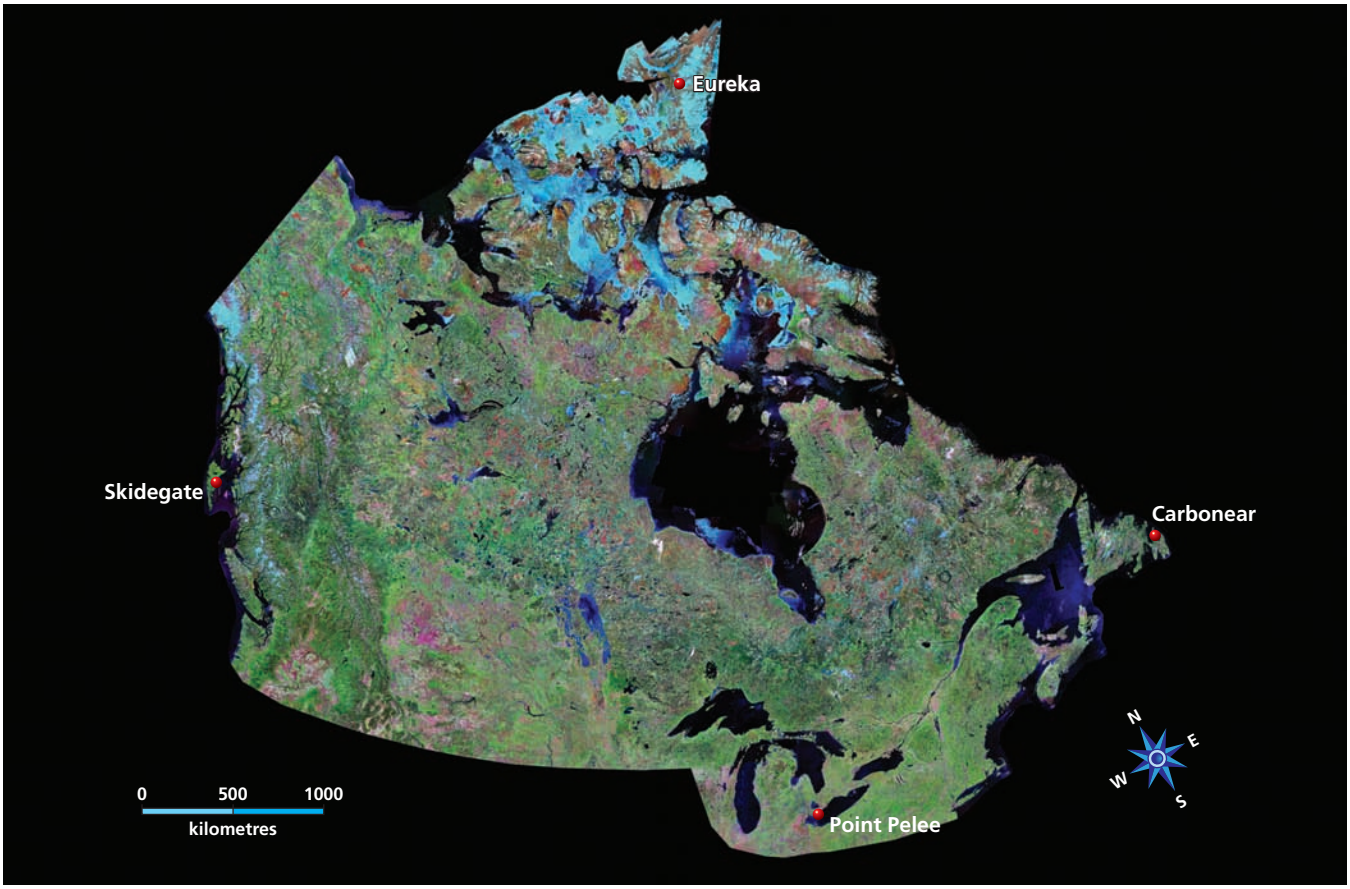


FIGURE 1–1 "Canada, which we tend to think of as a thin ribbon of city lights stretched out along the forty-ninth parallel, is as high as it is wide. It's as far from Eureka, on Ellesmere Island, to Point Pelee in Ontario… as from Carbonear to Skidegate" (Peter Gzowski, journalist). How would you describe Canada to someone not familiar with this country?

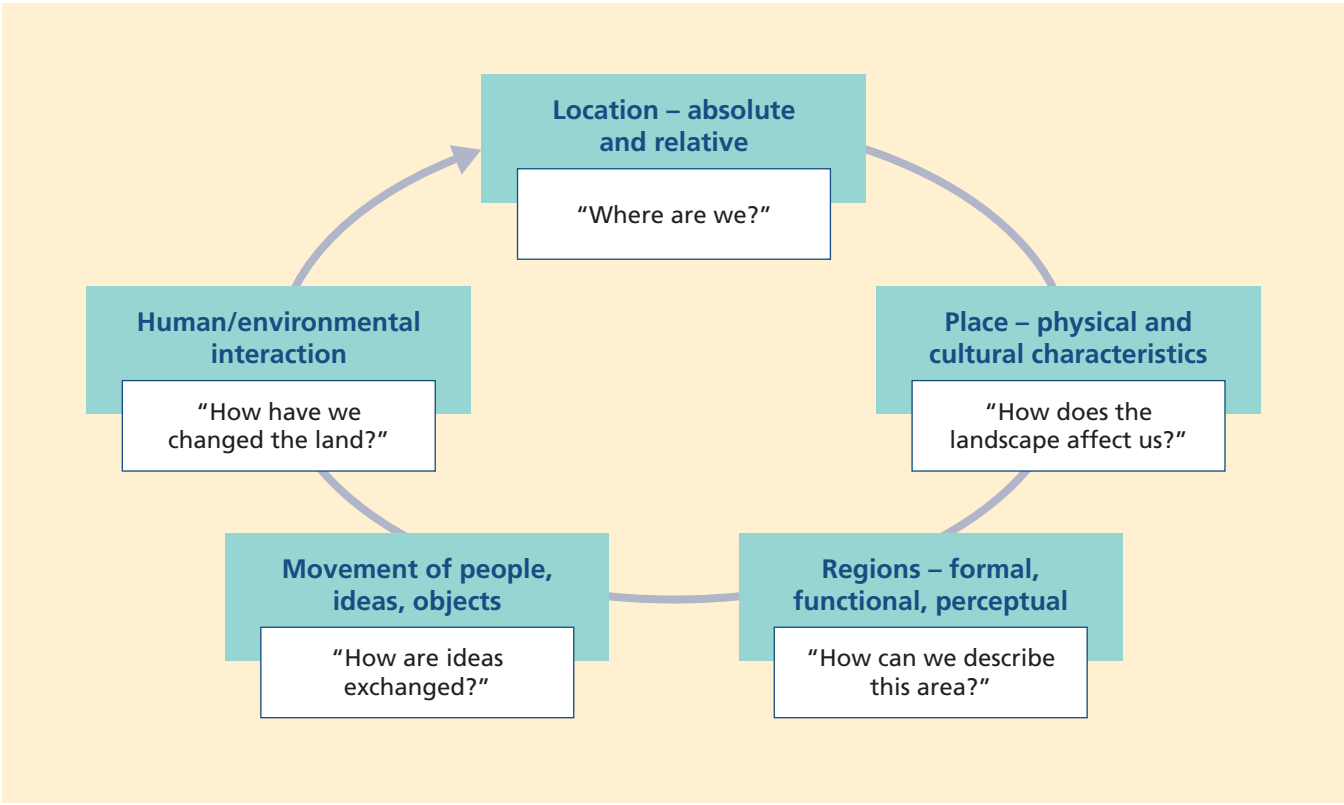


FIGURE 1–2 The five themes of geography provide a framework that allows you to select and organize information.

Geography begins with posing questions and gathering information. The five themes of geography are a convenient way to help you gather and organize this information. You can then examine the information and draw conclusions from your questions, making the five themes a valuable tool in helping you to develop a **geographic perspective**. Looking for patterns in the events, problems, or issues presented in *Horizons* helps you study the behaviour of people in their environments both in the past and in the present.

geographic perspective a way of looking at and understanding the world

Location

Why do we need to know where people or places are located? Knowing the location of people or places is usually the first step in the process of a geographic study. Absolute locations are very precise, in terms of position on the globe. For example, Kelowna, British Columbia, is located at 49 degrees north **latitude** and 119 degrees west **longitude**. Relative locations are described by time, direction, or distance from one place to another: Kelowna is approximately 400 km east of Vancouver, 600 km west of Calgary, 110 km north of the United States border, and 1100 km south of the Yukon border.

latitude the distance of any point north or south of the equator, measured up to 90 degrees

longitude the distance of any point east or west of the Prime Meridian, measured up to 180 degrees

Geographers are also interested in the significance of location. For example, knowing that because of its location, Kelowna is the gateway to the Okanagan Valley and serves as a transportation, service, and business hub gives us much more information about the city, its history and development, and the people who live there.

Global Positioning System (GPS) a system of satellites and portable receivers able to pinpoint each receiver's location anywhere on earth

FIGURE 1–3 A **Global Positioning System (GPS)** allows you to find a location with amazing accuracy. GPS is used by researchers and map-makers to pinpoint exact locations. It is used to survey land, explore for resources, track wildlife, and fight fires. Receivers are now common in cars, and are used by hikers and boat owners, and in sports. They are also popular as personal tracking devices.

FIGURE 1–4 This map shows the location of Kelowna. Why is Kelowna the transportation and service hub of the region? What other centres in the region have a significant location in terms of their economic role or regional influence?

Zoom In > Canada's Ideal Location

Geographically, Canada is ideally located to participate in the global economy of the 21st century. On the Pacific and Atlantic coastlines, Canada's transportation connections with Europe, Asia, and Latin America are well-established. The ports of Prince Rupert and Vancouver are the closest major North American ports to China, South Korea, and Japan. Halifax is North America's closest harbour to Europe, and is ice free year round. International airports in Vancouver, Halifax, and Newfoundland and Labrador open up connections to Asia and Europe. Together, these airports serve approximately 50 million passengers a year.

By land, Canada is connected to one of the largest consumer markets in the world—the United States. Trucking and railway freight carriers transport millions of dollars worth of goods across the border every year.

Canada is also large enough to cover many time zones. This can allow business transactions to happen around the clock: business people can access European markets from midnight until noon, and then link with Asian economies from noon to midnight.

- How might Canada's ideal location affect the country's economic future?

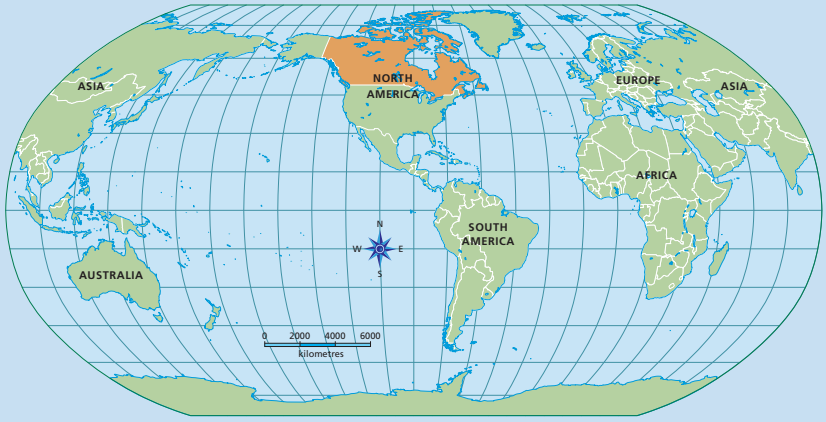


FIGURE 1–5 Canada is at the centre of this map of the world. How does this perspective support the idea that Canada has an ideal location? How else might Canada's position be represented on a map?

Place: Physical and Cultural Landscapes

How do the physical characteristics of a place affect how people live? Landforms, bodies of water, soil, and mineral deposits can bring advantages, disadvantages, or both. For example, Prince Rupert, British Columbia, is in a mountainous area on the coast and has heavy rainfall, but also has abundant forests and access to the ocean.

Nearly every human activity leaves its mark on the environment. The visible results of human activity are known as the "cultural landscape." People affect the landscape in different ways. For example, in the Prince Rupert area, the Tsimshian First Nation removed bark from standing trees to make blankets, clothing, and fishing nets. The long-term effect of this **sustainable** activity is that the trees survived, and the forest stood for centuries. Later, as more people came to the area, the physical environment underwent dramatic alterations as the forest was cleared for timber and to build roads, ports, and buildings. You will learn more about resource management in British Columbia in later chapters.

sustainable an activity that maintains an ecological balance by avoiding the depletion of a natural resource

FIGURE 1–6 Laxspa'aws (Pike Island) is a small island near Prince Rupert. Although archeological evidence shows that the island has been the home of the Tsimshian Nation for thousands of years, its environment remains intact.

FIGURE 1–7 Examine this view to determine how people have modified and adapted to the physical environment of Prince Rupert. How does this compare with the image above? Is one better than the other? Why?

Regions

WEB LINK

Tour Canada from space. Look at the Pearson Web site to learn more.

How can geographers organize information about different areas? Regions are areas that have common characteristics, such as government, landforms, or climate. They are the basic unit of study in geography, and you will learn about several different types of regions in this chapter. You use the idea of "region" when you say you will travel to "the coast," "the interior," "South Asia," or "the Middle East." In this text, you will be introduced to topics such as climate change, the building of communities, the political growth of Canada, and Canada's changing economy. All of these topics can be studied as regional issues.

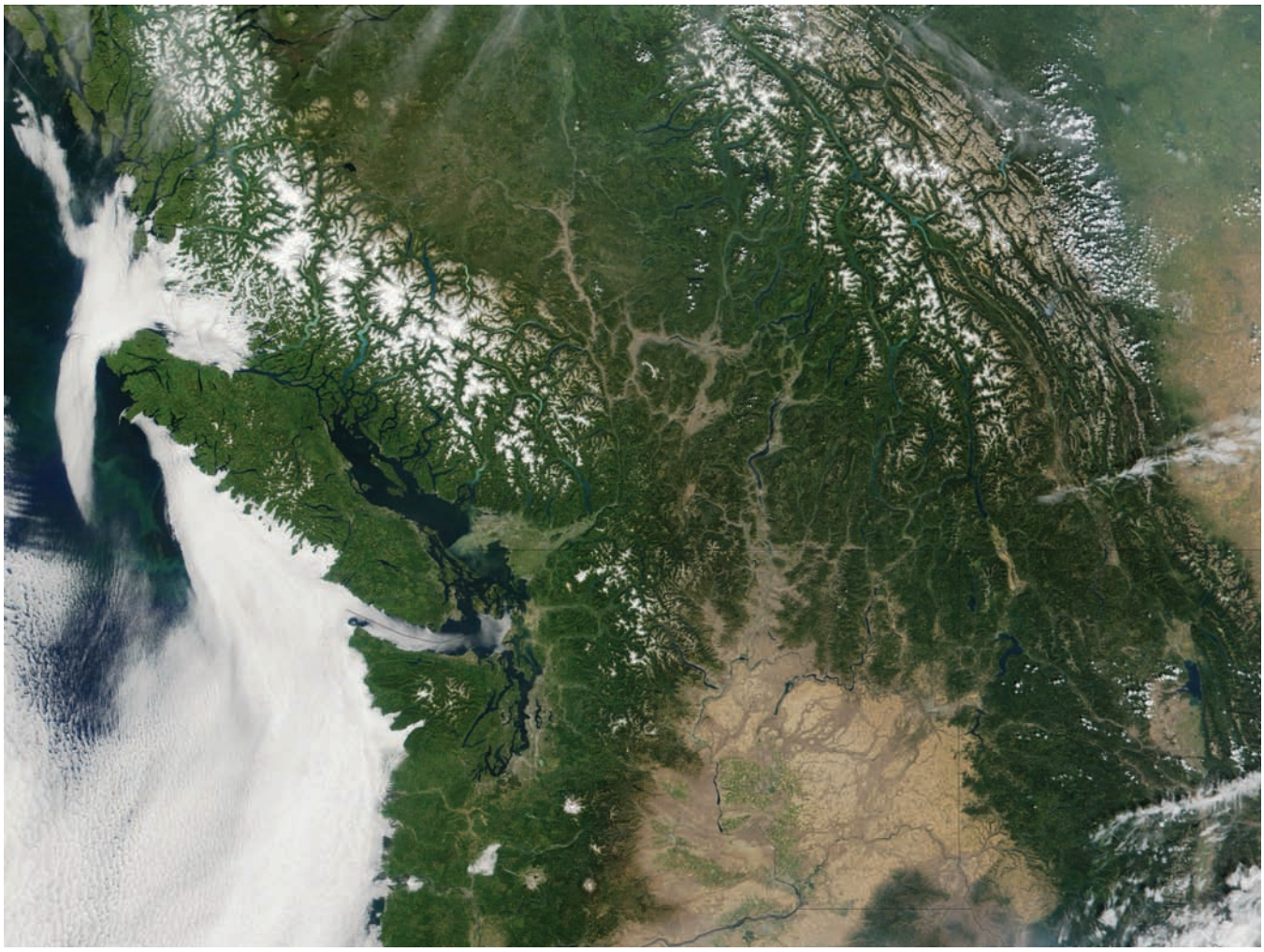


FIGURE 1–8 Examine this satellite image and list the regions you might divide it into. Are there regions that you already know about that can be found in this image? After you read the table on this page, look at the image and your regions again. Has anything changed?

Types of Regions		
	Definition	**Examples**
Formal regions	Based on official boundaries, such as cities and provinces. Can also include areas that share physical or climatic similarities. These regions are usually widely accepted.	St. Lawrence Lowlands, Greater Victoria Regional District
Functional regions	Based on connections created by an activity such as communication or trade flows. These regions can only exist as long as the activity or duty exists.	The distribution area of a newspaper, North American Free Trade Agreement countries
Perceptual regions	Determined by people's attitudes and feelings. This type of region usually has meaning only to individuals who have a "mental map" of it as a region.	"up north," "the interior"

Cross Currents

The Geography of Cyberspace

CRITICAL INQUIRY Patterns and Change

Geography studies how places and people relate to each other—but how might geographers deal with instant worldwide communication? What parts of the world do *you* connect with every day?

The rapid growth of the Internet and other communication systems, such as satellite phones, has influenced political boundaries, communities, and the movement of people, ideas, and objects. The speed of communication has helped bring about what many have called the "death of distance." Geographers are concerned with what links people and places together, and they must now look at the way people interact in cyberspace. One example of this would be the study of communities that exist only online.

When Canadian philosopher Marshall McLuhan coined the phrase "global village" in the early 1960s, long before the Internet existed, it was a popular new concept. Why did the term hold such interest? McLuhan was describing a future world in which technology could cross barriers between nations and regions of the world.

Today, McLuhan's phrase is still well-known, and the "global village" he predicted is real, showing itself not only in the instant sharing of information and the creation of online communities, but in many international agreements and trade that happens between countries worldwide, including Canada.

Have all aspects of the global village been positive? This is another question being asked by geographers. Protecting the environment, for example, is no longer just a local issue. The environment of the entire planet can be affected by the actions of its global citizens. But perhaps cyberspace can help bridge those barriers—solutions about climate change, for example, will need the cooperation of all nations.

- Is this cooperation possible? How can aspects of the global village help the environment?
- What are the advantages and disadvantages of online communication? Should it be regulated by governments and individuals? Why or why not?

WEB LINK

Go to the Pearson Web site to learn more about Marshall McLuhan and his theories about media, culture, and language.

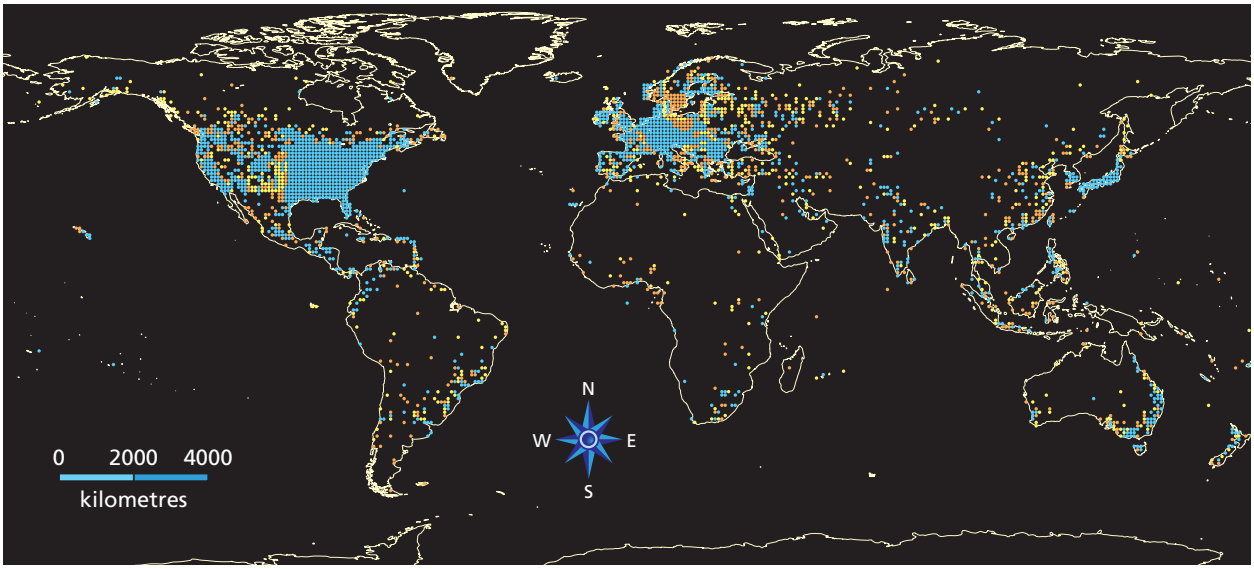


FIGURE 1–9 This map shows Internet connectivity across the globe. The blue areas have the most intense activity, followed by orange, and then yellow. Areas with no colour have no connectivity. Explain the patterns that can be seen here.

FIGURE 1–10 The Gulf States are centres of finance, recreation, and tourism. In the malls, such as in this one in Dubai (which has an indoor ski hill), you can see the mingling of ideas from around the world. Find the Gulf States in an atlas. How does their location make them a link between East and West?

Movement of People, Ideas, and Objects

How do people interact in the 21st century? Modern technology allows people to interact no matter where they are. Even people in the most remote locations can be in contact with others. **Globalization** has created a world of rapid movement and interaction, and ever-faster communication. So, not only are people and goods moving, but ideas are as well. Fads, fashions, and ideas can spread quickly throughout the world.

globalization the process of economic, technological, political, and cultural forces creating a single, global society

Human/Environmental Interaction

What brings about changes in the natural landscape? Humans depend on the environment and adapt to it, but they also change it dramatically to suit their needs and wants. Geographers are especially interested in knowing how the actions of people change the natural environment. For example, how do dams, roads, industry, and housing developments change an environment? How have land-use decisions affected our ability to buy locally grown food? How has information technology changed where people work? How does the moving of an industrial plant from one community to another affect the people in these two communities?

FIGURE 1–11 As this community's population increased, housing began to replace farmland. This dramatically changed the environment. Have changes like this occurred in your community? Why?

ACTIVITIES

1. Summarize in your own words the main idea from each of the five themes of geography.
2. Brainstorm a list of the ways people (from the earliest inhabitants to today) have affected the landscape in your area. What were the long- and short-term effects of these activities on the environment?

SKILLBUILDER • Using and Understanding Maps

You may typically use maps as a means of finding directions, and today those types of maps are readily available on the Internet. Maps can be one of the best ways to share information about a place or region, showing climate, population, or political boundaries, and they can show how places have changed over time. Maps also show us something about those who made them—their perspective, their purpose in sharing information, and what they think is important.

What all maps have in common is that they are a visual representation of an area. They all use symbols, sometimes explained in a legend, to display information. A compass rose may be included to show north, south, east, and west. Maps also use scale to indicate distance—an important feature if you need to decide the best way to travel.

As you use this text, part of your study will involve maps. Some will show geographical information, while others will show historical, cultural, political, or economic information. To interpret a map, you may ask some or all of these questions:

- What kind of map is it? What can it be used for?
- Who created the map, and when?
- What do we know about the creator from examining the map?
- How was the map created? Where did the information come from?
- Who would use this map?
- Are there any symbols on the map? What do they mean?
- Have there been changes to the area since the map was drawn? What do these changes tell us?
- What is the significance of the map?

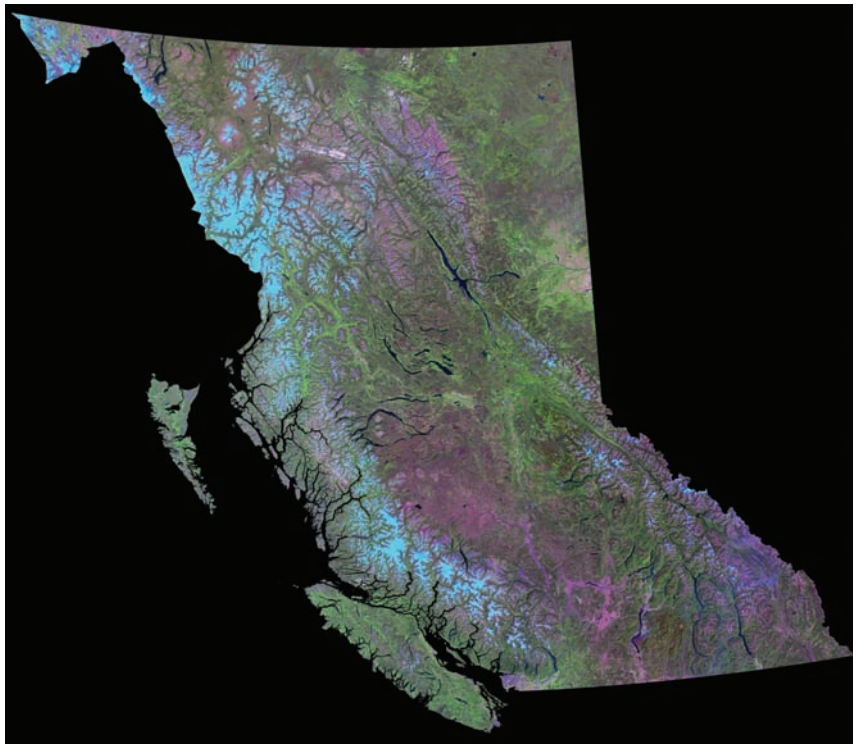


FIGURE 1–12 Satellites gather information on oceans, soils, land use, pollution, and weather. This information can then be translated onto maps using a **Geographic Information System (GIS)**. This satellite image shows the destruction of forests in British Columbia by the Mountain pine beetle (in red). How might a map of this information be useful for industries, community members, or the government?

Geographic Information System (GIS) an information system that stores, analyzes, and presents geographic data

In your studies, you will come across many types of maps. Some may even be combinations of types. Practise identifying and interpreting maps by looking at the maps on this page. What do they show? What might they be used for? Use the questions on the previous page as a guide if necessary.

FIGURE 1–13 Political Maps

FIGURE 1–14 Physical/Topographical Maps

FIGURE 1–15 Historical Maps

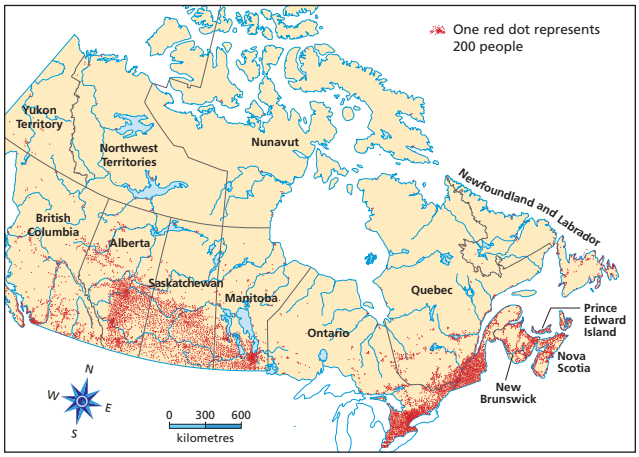


FIGURE 1–16 Special-Purpose/Thematic Maps

APPLY IT

1. Choosing one type of map from above, draw a map of your school and its surroundings. Use different sources of information to construct your map.
2. Refer to the five themes of geography on pages 6–13. How might maps be used in the study of each theme?
3. In groups, use the Web link to access maps at Natural Resources Canada. Choose one of the categories listed under "Explore Our Maps." Present a report to the class on the maps in that category and their uses.

Perspectives

4. How does a map reflect the world view of the map-maker? Consider issues such as perspective, values, economics, and beliefs.

The Physical Regions of Canada

How can Canada be divided into physical regions?

With the second-largest land mass of any country, Canada has a great variety of landscapes. Its mountains, plains, massive Canadian Shield, and northern lands made development a challenge; however, the lowlands, rivers, and valleys of southern Canada proved relatively easy to travel through and were therefore suitable for development.

geology the study of the earth's crust to learn its origin, history, and structure

topography the shape and structure of the surface features of a place or region

The physical geography of Canada is defined by the regions shown in the map below. Each of these regions has very different **geological** features, landforms, climate, and vegetation. Each was formed by different geological processes.

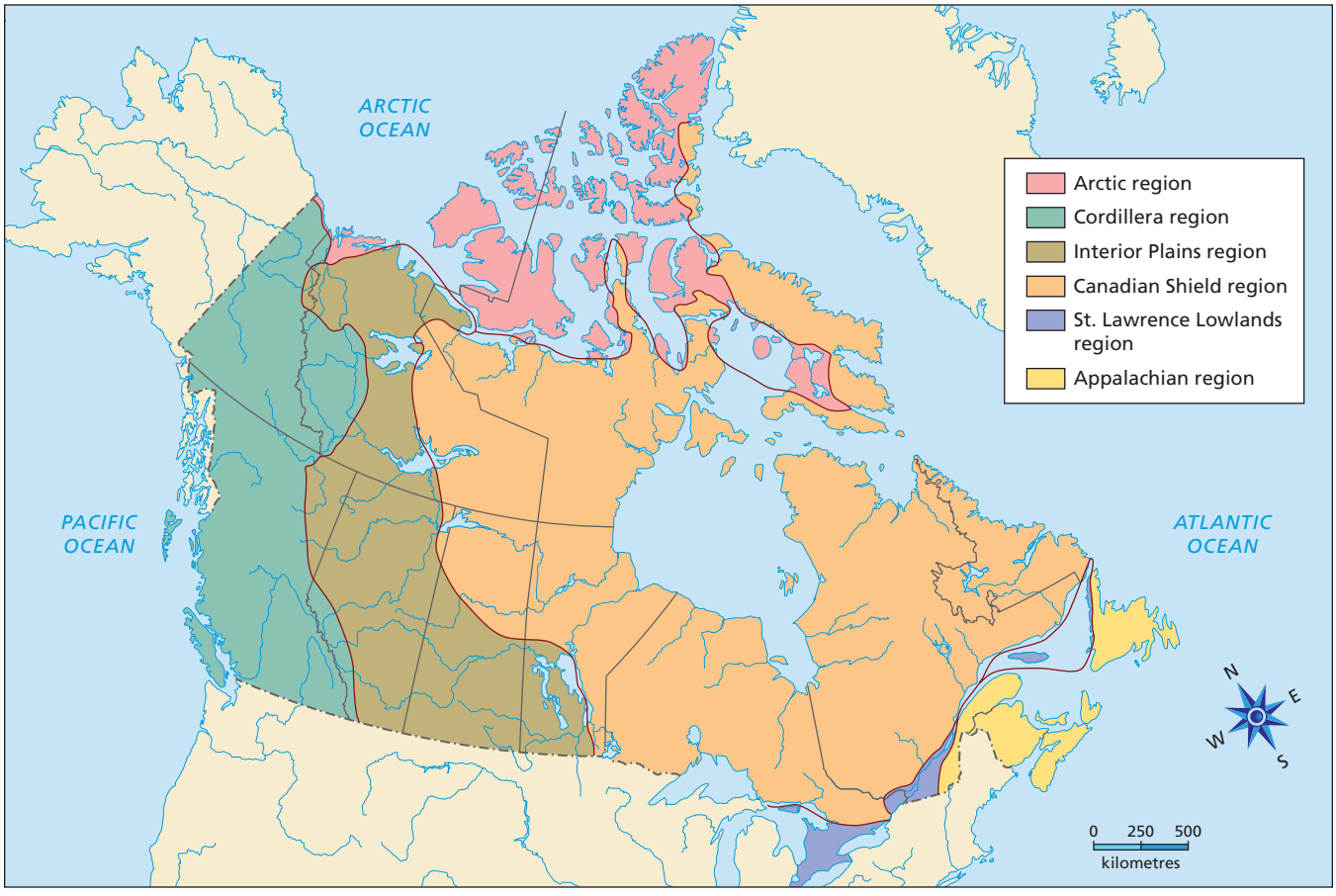


FIGURE 1–17 The physical regions of Canada are based mostly on the type of rock found in that region, and on the **topography**. Why is looking at regions a useful way to analyze geographic factors?

Zoom In The Great Ice Age: The Shaping of Canada

How did ice and snow shape Canada as we know it today? In Canada, about a million years ago, the climate became very cold. The amount of snow falling in Canada's North began to exceed the amount that melted in the spring. Eventually, the buildup of snow in the North reached 3 km in depth. As the snow accumulated, weight and pressure turned it to ice. As even more snow fell and pressure increased, the ice began to move out from the centre of the ice sheets, covering more and more of the land. At its greatest extent, the ice sheets, or continental glaciers, covered most of North America.

As the ice sheets moved, they shaped the land. Pushing away the top level of soil, the ice scraped a large area down to bare rock, creating the Canadian Shield.

In some cases, the ice sheets deposited rocks and debris, leaving ridges called moraines. They also carved deep fjords, and left behind large boulders, called glacial erratics, which can be found throughout Canada.

When the climate warmed, the ice began to melt. About 10 000 years ago, great amounts of meltwater flowed, flooding the land, shaping valleys and ridges, and filling low areas to form lakes.

- Would you expect current changes in climate to lead to similar dramatic changes in the future? Why or why not?

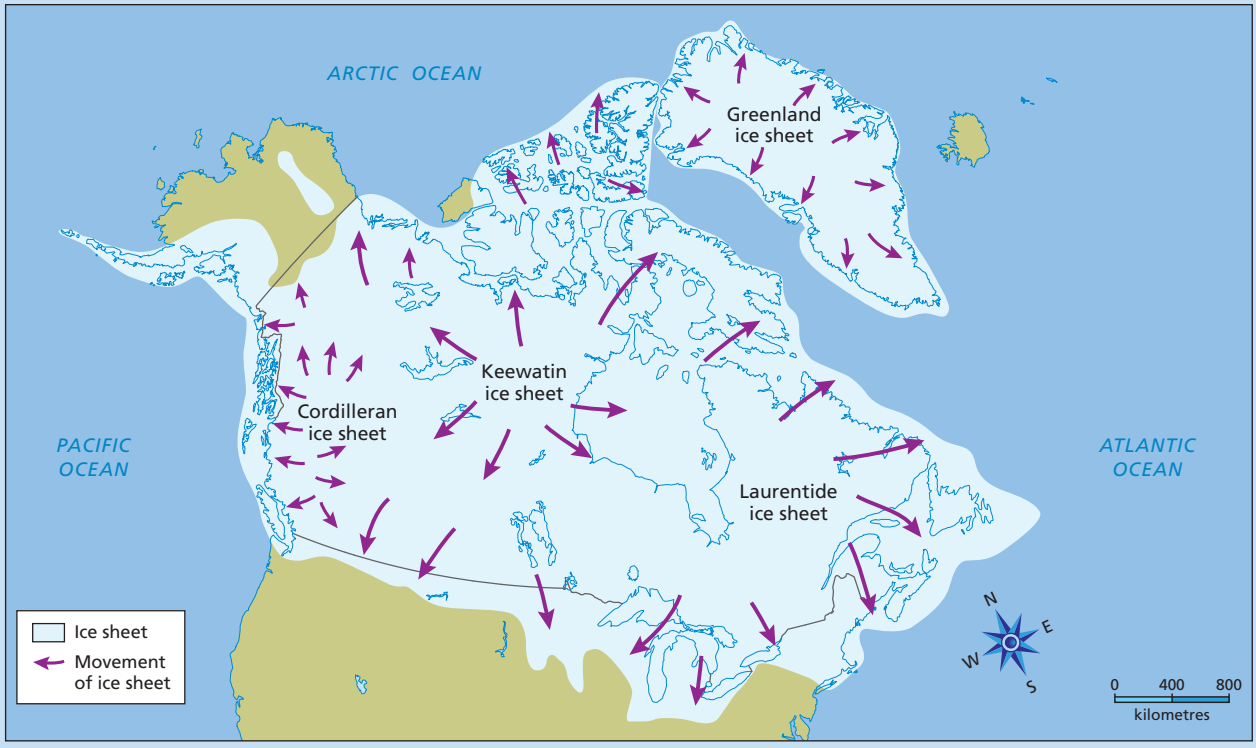


FIGURE 1–18 During the last ice age, ice sheets and glaciers covered most of Canada. Some areas of the Yukon escaped glaciation because of a lack of snow. Compare this map to a physical map of North America. What evidence can be seen of glacial activity? Can you see evidence of the ice age in your area?

The Appalachian Region

The Appalachian region is an extension of the Appalachian mountains, which begin in the southeastern United States and end in the Maritime provinces of Canada. It has a varied landscape of rolling hills, valleys, small mountains, highlands, and coastal fjords—what is left of an older mountain range worn down by glaciers and by millions of years of erosion.

The **sedimentary rocks** of the Appalachians were deposited at a time when the area was heavily forested. The rock layers gradually covered the vegetation, and over time these layers became large deposits of coal. Non-metallic minerals such as gypsum are also found in the rock layers. **Igneous rock** is present as a result of ancient volcanic activity, as is **metamorphic rock**, which is formed by heat and pressure. These actions formed metallic minerals such as iron, lead, and zinc.

Deposits of coal and minerals, rich fishing resources, vast forests, and farmland encouraged the creation of numerous communities along the coast and in the river valleys of the Appalachian region. Ports developed in natural harbours and have linked the region to trade and shipping for hundreds of years.

sedimentary rock rock made up of layered deposits that have fused together

igneous rock rock formed from molten material, such as lava

metamorphic rock rock changed from its original form through heat and pressure

Did You Know...

In 1497, John Cabot's crew reported that there were so many cod fish in the waters off the Atlantic coast that they could be caught with buckets. The cod industry was a vital part of the region's economy for hundreds of years until the cod stocks ran out. In Chapter 8, you will learn about the causes and consequences of the decline of this valuable resource.

FIGURE 1–19 These two images show the varied landscape of the Appalachian region. With some of the resources of the region in decline, what action might people take to protect those resources?

The Canadian Shield Region

The Canadian Shield makes up nearly half of Canada's land surface. In geological terms, shield formations are among the oldest areas in the world. These shields are hard, rigid blocks, surrounded by younger continental landforms. The Canadian Shield stretches from the Arctic Islands south to the United States border and east across Labrador.

The Shield was once a volcanic mountain range. Over millions of years, weathering and erosion—especially the action of glaciers—have worn the land down to a landscape of flat, bare rock, lakes, and wetlands. Travel is difficult in this terrain, and the thin soils make it unsuitable for agriculture. Most areas of the region are sparsely populated.

Much of the rock of the Shield has been changed into metamorphic rock by heat and pressure. This process also created many valuable minerals, such as copper, gold, lead, diamonds, platinum, and nickel, making the Shield one of the world's richest areas for mining. Small mining centres such as Timmins in Ontario, Val-d'Or in Quebec, and Thompson in Manitoba were one-industry towns built in isolated areas to extract the mineral wealth of the Shield.

Did You Know...

In the past, the wetlands and forests of the Shield region also supported huge populations of fur-bearing animals, such as the beaver. These animals made the region a vital part of the fur trade, drawing European traders and explorers farther into North America.

FIGURE 1–20 The worn-down landscape of the Shield is evident in this historic photo of Cobalt, Ontario. Why might the geography of the Shield prevent the growth of larger communities and mining centres, even though there are rich mineral deposits?

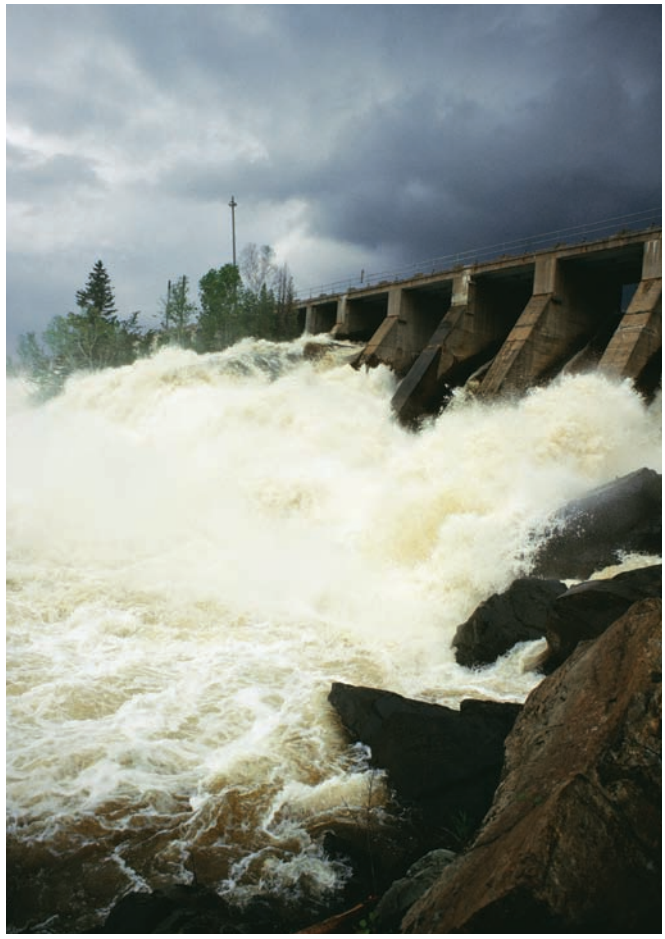


FIGURE 1–21 Hydroelectricity is another valuable resource in the Shield region, where its many rivers provide seemingly endless power. This dam is in James Bay, Quebec. What is the impact of using water as a resource in the Shield? Is it a better option than other sources of power? Why or why not?

The Arctic Region

fold mountains mountains formed by sedimentary rock being pushed together by forces within the earth and folded into mountains and valleys

The Arctic region includes plains, lowlands, and mountains. Pressure at the northeastern edge of the Canadian Shield pushed up the sedimentary rock to form a range of **fold mountains**. These mountains, called the Innuitian Mountains, extend more than 1000 km across the northern islands of the Arctic region. Since they are similar to the Appalachians, they likely contain the same minerals. Little exploration of mineral resources has taken place due to the region's remote location and harsh climate. However, the mineral wealth of this region may not remain untapped. An increased rate in the melting of sea ice has been noticed in recent years—possibly due to climate change—and open waters will mean greater opportunities for transportation and exploration.

The Innuitian Mountains cover much of the islands of the eastern Arctic, and lowlands cover the islands of the western Arctic. The lowlands are composed of sedimentary rock. They are similar to the Great Lakes–St. Lawrence Lowlands, and have deposits of oil and natural gas. Melting sea ice has also made this resource more accessible. The possibility of increased shipping of oil and gas through Arctic waters has raised concerns for the environment among the Inuit, who rely on the region's wildlife for food and clothing. The same fears are held by the Canadian government and environmentalists.

Did You Know...

Diamond mining has recently become one of the more profitable resource industries in the Arctic region.

FIGURE 1–22 Devon Island, in Nunavut, is part of the Innuitian mountain range. What natural resources might be found here? Consider what would happen with reduced ice and snow cover.

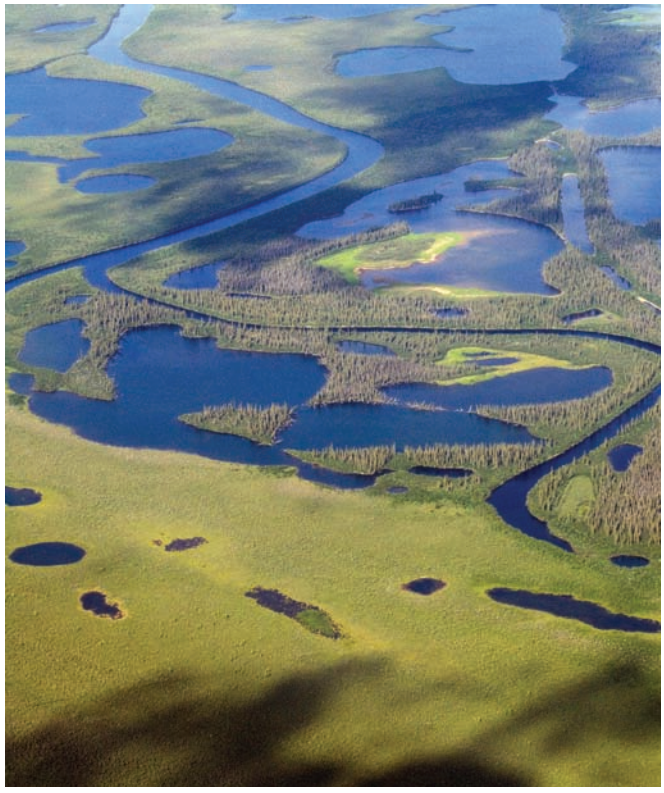


FIGURE 1–23 The Mackenzie River delta, in the Northwest Territories, provides a habitat for migrating birds and beluga whales. The river has been, and continues to be, a source of food and transportation for the people who live there. Natural gas has also been found in the delta. What challenges might lie ahead for the people and wildlife in this area?

The St. Lawrence Lowlands

The St. Lawrence Lowlands are between Lakes Huron, Erie, and Ontario, and extend along the banks of the St. Lawrence River to Quebec City. This region was formed mainly by the retreating ice sheets that covered most of Canada during the last ice age. The ice sheets pushed soils from the Shield onto the area where the lowlands are today. As the ice sheets melted, giant lakes formed—lakes much larger than today's Great Lakes.

When the lakes drained to their present size, the old shoreline of the larger lakes remained as bluffs. Between the old shorelines and the present lakes, fertile areas of well-drained sandy soils were left behind. These areas now make up the rich agricultural land around Lake Ontario and the St. Lawrence River. The fertile land allowed First Nations people, such as the Huron, to practise a stable agricultural economy, and later European immigrants established farms and orchards. Today, orchards of apples, peaches, pears, and cherries provide a profitable business for farmers. Vineyards and wineries are also developing in the region.

Although the Lowlands are the smallest region in Canada, they are home to about half of Canada's population. Access to the Great Lakes and the St. Lawrence River has provided for the transportation of goods and raw materials in and out of Canada, and industry has thrived in the region.

Did You Know...

Niagara Falls, which was formed by glacial activity in the Lowlands region, is world famous for its beauty. It is also the most powerful waterfall in North America and a source of hydroelectric power. Its first hydroelectric plant was built in 1881.

FIGURE 1–24 The flat, rolling valleys of the St. Lawrence Lowlands contain rich soils that make the area suitable for farming. This orchard is in the Niagara region. Why might this region be among the first areas of Canada colonized by Europeans?

FIGURE 1–25 The St. Lawrence River runs from the the Great Lakes to the Atlantic Ocean. Why do you think some of Canada's largest cities can be found in this region?

The Interior Plains

fossil fuel a natural fuel formed by geological forces from the remains of living organisms

evaporite a type of sedimentary deposit resulting from the evaporation of seawater

In Canada, the Interior Plains region stretches from the Canadian Shield to the Cordillera mountains. The Interior Plains were formed as soils carried by rivers from the Canadian Shield were deposited at its edge. These deposits formed horizontal layers of sedimentary rock, which became large areas of mostly flat land, rolling hills, and river valleys.

Millions of years ago, when the area had a tropical climate and was covered by water, occasional flooding left remains of plants and animals. Over time, these remains were pressed between sedimentary layers to form large deposits of **fossil fuels**, such as oil and natural gas, and **evaporites** such as potash.

The wide, flat spaces and grasslands were ideal for grazing animals such as bison, and provided food and a way of life for the First Nations of the region. Later, the grasslands were changed by cattle ranches and vast farms. Other areas of the region were covered by parkland and boreal forests. Major cities such as Edmonton, Saskatoon, and Calgary developed on the banks of the many rivers that criss-cross the region.

The region's agricultural economy has been seriously affected by drought during the last century. The "Dirty Thirties," as the 1930s became known, saw the ruin of crops due to drought. Large areas were so dry that wind blew the soil away, creating huge dust storms.

Did You Know...

Increased European immigration to the plains brought overhunting and loss of habitat, which left the bison nearly extinct. This would have a devastating effect on the First Nations and Métis people of the plains, as you will read in later chapters.

FIGURE 1–26 Wind, rain, and river water continue to expose the sedimentary layers deposited millions of years ago. In some parts of Alberta, diverse deposits of fossils have created a booming tourist industry and have attracted paleontologists from around the world.

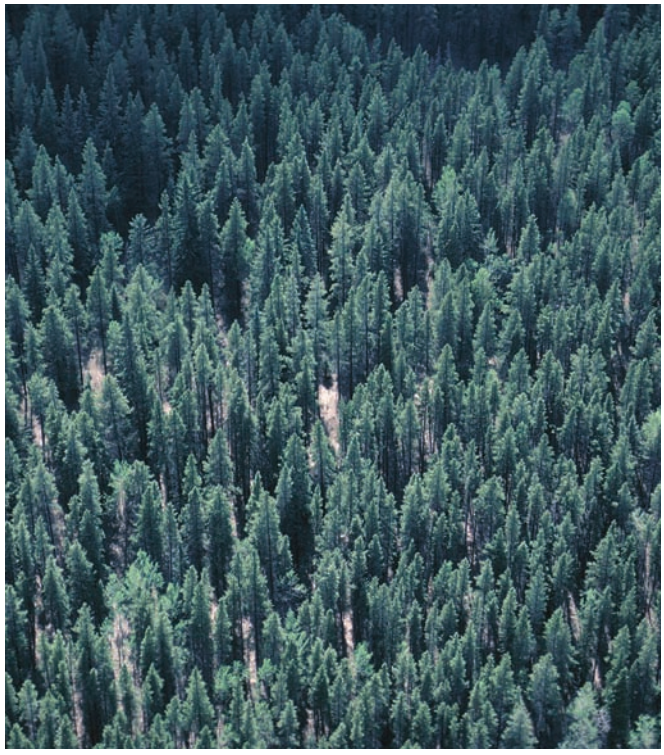


FIGURE 1–27 The Interior Plains include not only flat prairie and farmland, but also rivers, lakes, and forests. Together, these natural resources provided a rich environment for both the First Nations people who moved throughout the region and the immigrants who farmed and raised cattle. Why do you think the two lifestyles had difficulty existing side by side?

The Cordillera

The Cordillera region of Canada is made up of parallel mountain ranges separated by a series of plateaus, trenches, and valleys in British Columbia and the Yukon. This diverse landscape, which also includes dormant volcanoes, glaciers, and ice fields, is part of a vast chain of mountains that stretches from Alaska to Chile.

The Rocky and Coast mountain ranges, along with British Columbia's Interior Plateau, are the youngest landforms in Canada. They were formed when **plate** collision caused the earth's crust to buckle, pushing and folding volcanic rock into mountains. This plate movement, called **plate tectonics**, also caused the formation of plateaus, valleys, and trenches. Erosion from rivers and glaciers created the rugged, mountainous landscape seen today.

As in the Canadian Shield, geological processes left rich mineral deposits, such as copper, gold, and coal. Mining remains a major industry in the Cordillera, along with forestry. Sediments carried downstream by rivers were deposited in valleys. These deposits formed the rich, fertile soils of areas like the Fraser River Valley, which today has several land uses—agricultural, industrial, and recreational. Major cities such as Vancouver also developed along the Fraser River. Before the building of roads and railways, the river was a vital transportation route for Aboriginal peoples and Europeans who came later.

plate a slab of the earth's crust; plates are underneath all continents and oceans, regularly moving away from and toward each other

plate tectonics forces and movement within and on the earth's crust that form its features, such as mountain ranges and ocean basins

FIGURE 1–28 This rockslide on the Sea-to-Sky Highway cut off the route between Vancouver and Whistler. Examine this image. How does the physical landscape shown here affect human activity? How does human activity affect the land?

FIGURE 1–29 The jagged peaks of Mount Waddington, British Columbia's highest mountain, are typical of the Coast Range.

Did You Know...

The rich deposits of gold and coal in this region resulted in booms of activity in the 19th and 20th centuries. This activity helped develop British Columbia as a province.

Zoom In > Waiting for the Big One

CRITICAL INQUIRY Judgements

Canada's west coast is where two tectonic plates collide, making it the most active **seismic** area in Canada. Every year small quakes occur along the Juan de Fuca **subduction zone**, off the coast of Vancouver Island. As Vancouver Island is pushed against the mainland, tension builds along its west coast. When that tension is released, the earth will shift. Most quakes are too small to be felt. The strongest recent tremors were recorded in Courtenay in 1946, registering 7.3 on the **Richter scale**.

Scientists think we are overdue for a major earthquake—the "Big One." Evidence of earlier earthquakes has been found in coastal sediment layers that are greatly disturbed. Research shows that a major earthquake may have occurred around 1700. Some scientists fear that the pressure of the past 300 years may be released in a mega-quake.

- Should action be taken in your community to prepare for a major earthquake? For example, should the government restrict development in particularly risky areas? Why or why not?

seismic relating to earthquakes or other vibrations of the earth's crust

subduction zone a long region with a trench, where a descending tectonic plate is pushed down into the earth

Richter scale a measure of the power of earthquakes

FIGURE 1–30 Signs like this one in British Columbia warn people that they are in a low-lying coastal area that could be affected by a tsunami. Evacuation routes are also marked.

Did You Know...

Oral histories of some coastal First Nations, such as the Quileute and the Cowichan, tell that a major earthquake occurred in 1700. A great shaking of the land and huge waves hitting Vancouver Island are described. An entire village of the Pachena Bay First Nation was destroyed by the wave. Japanese reports of a tsunami in the same year agree with this oral history.

ACTIVITIES

1. Draw a chart that compares and contrasts the six physical regions of Canada. Points of comparison may include geological features, climate, vegetation, and geological process.
2. Explain how the location and abundance of certain resources affected the history of each region.
3. Use a population map of Canada to determine which physical region has the largest population. Which region has the smallest? Give two reasons for the difference.
4. Use one of the five themes of geography to create a short presentation on the physical regions of Canada.
5. Based on what you have learned about the physical regions of Canada so far, predict why people might be drawn to live and work in those regions. Check your answers and modify them if necessary as you continue in this chapter.

The Climates of Canada

What creates different climates in Canada, and what impact does climate have on human activity?

On a daily basis, we pay attention to wind, clouds, rain, and sunshine. These changing conditions, from day to day and month to month, are what we call weather. In fact, most Canadians would agree that weather is what we tend to talk about the most.

Weather patterns seen in an area from year to year are known as the **climate** of that area. Knowing the climate of a region helps us to answer questions that may arise as you use this text. How have the climates of Canada affected where people live? Why do people choose one area over another? How is a region affected by climate change?

Most of Canada lies above 49 degrees latitude. Inland areas experience a **continental climate**, with some extreme temperature changes and low **precipitation**. Coastal areas are moderated by a **maritime climate**, with mild temperatures and high precipitation. The Atlantic coast has a harsher climate than coastal British Columbia. In that region, wind blowing off the land creates greater differences in temperature, rain, and snow than on the west coast.

Did You Know...

The lowest temperature recorded in Canada was -62.8 degrees Celsius in Snag, Yukon Territory, in 1947. The highest temperature was 45 degrees Celsius, recorded in Yellow Grass, Saskatchewan, in 1937.

climate the temperatures, humidity, rainfall, and atmospheric conditions of a region over long periods of time

continental climate the climate of a continent's interior

precipitation climate rain, snow, hail, and fog

maritime climate a coastal climate

Temperature

Conditions that can affect temperature in Canada's regions are explained in the table below.

Latitude	The higher the latitude, the lower the intensity of the sun's rays. As a result, there is a greater seasonal variation in the length of day and night. These conditions can affect farming, since crops need long days and warm seasons.
Altitude	The higher the altitude, the colder the temperature. Mountainous or hilly areas generally experience colder temperatures, which is why snow can still appear on mountains in the summer.
Distance from the sea	The surface of land heats and cools more quickly than water. A large land mass such as Canada can be very hot in summer and very cold in winter. By contrast, temperatures in areas such as the west coast of Canada are moderated by the ocean, creating less of a difference between summer and winter temperatures.
Wind direction	In Canada, prevailing winds (those that usually come from one direction) are from the west or the north. West coast communities have the mildest winter temperatures as a result of warm westerly winds coming off the ocean.
Ocean currents	Ocean currents are either warm or cold, depending on where they come from. Ocean currents warm or heat the air, which is then blown onto land. The west coast, with a warm current, has a mild climate. Newfoundland and Labrador, next to a cold ocean current, has much harsher winters.

Precipitation

Did You Know...

Medicine Hat is the driest city in Canada, averaging 271 days of a year without measurable precipitation.

Canada's precipitation—rain, snow, hail, and fog—varies by region. The amount of precipitation received by an area is largely determined by its distance from the sea and by the prevailing winds. Precipitation is also affected by temperatures, topography, and masses of cool and warm air. Heavy precipitation is often seasonal, as shown by Figure 1–31 below.

Changes in Canada's precipitation levels are attributed to climate change. Some areas of Canada have seen an increase in rain and snow, which can lead to flooding, while other areas have experienced drought.

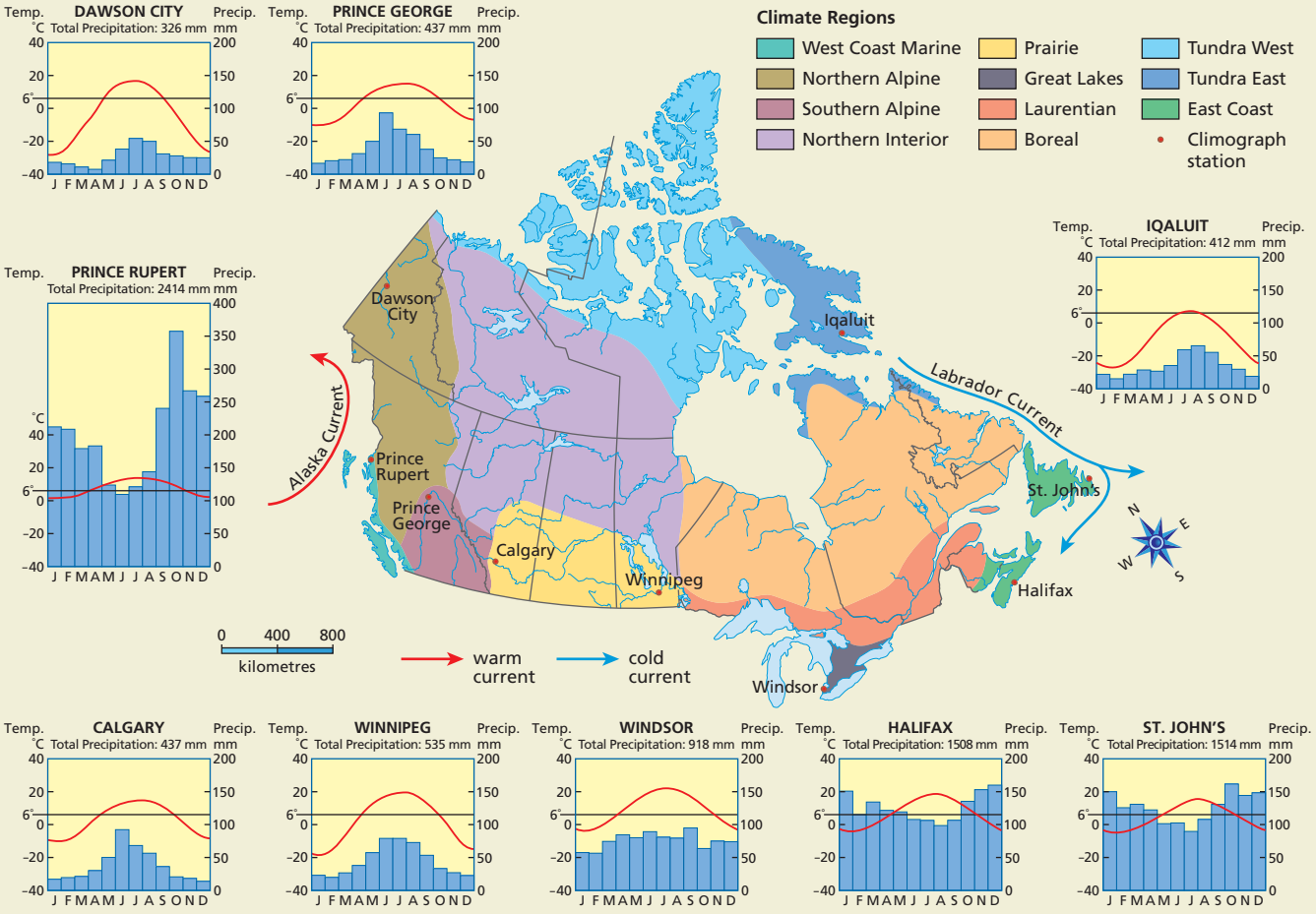


FIGURE 1–31 The climate regions of Canada. The climographs included show average monthly temperature with a line graph, and average monthly precipitation with a bar graph. Discuss the relationship between location and temperature and precipitation levels for Calgary, Windsor, and Iqaluit. Can any of the locations shown on the map be described as having a typically Canadian climate? Why, or why not?

FIGURE 1–32 While heavy rain or hail can cause great damage, a lack of precipitation can be a serious problem as well. This farmer in Alberta cannot grow hay to feed his cattle, and watering holes in pastures have dried out. Dry conditions can also increase the risk of forest fire, and low water levels in rivers and lakes affect fish and other wildlife. What could be the long-term effect of less rain in Canada? More rain?

WEB LINK

Natural Resources Canada and Environment Canada have information on Canada's climate. Check the Pearson Web site.

Climate Change

Over the past 200 years, the world became more industrialized and burned massive amounts of fossil fuels—coal, oil, and natural gas—which then trapped greenhouse gases in the atmosphere. The "greenhouse effect" is now seen as the cause of the overall warming of the earth's climate. The rate of warming also seems to be increasing. The Intergovernmental Panel on Climate Change, established by the World Meteorological Organization and the United Nations Environment Programme, is the main world body studying the science of climate change. According to the panel's 2007 report, 11 of the last 12 years have been among the warmest years since 1850. Climate change affects the world's temperature and precipitation patterns, and because of our northerly location, will especially affect Canada.

The rise in temperature is being seen in all parts of Canada, and each year brings more evidence of the effects of climate change, particularly in the Arctic region. Melting and crumbling permafrost has damaged homes, buildings, and roads. Ice roads, commonly used in the winter months to truck supplies to isolated communities, are melting earlier in the spring than they used to. An increase in melting sea ice means that polar bears will spend more time on land and less time travelling and hunting on pack ice. Therefore, their contact with humans will increase, perhaps with devastating results. Also, without ice to hunt on, the bears could starve.

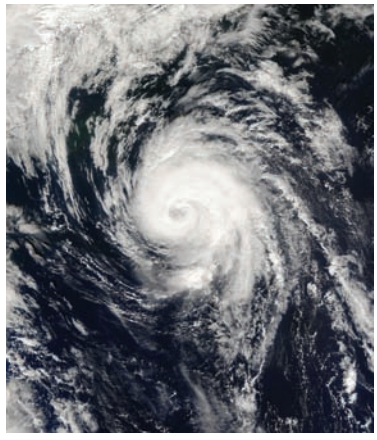


FIGURE 1–33 This satellite image shows Hurricane Juan approaching the coast of Nova Scotia in September 2003. Juan was one of the most powerful and damaging hurricanes to hit Canada. Some scientists believe that increased warming of ocean waters and air will result in more hurricanes every year. How might this affect people in the Maritime provinces?

WEB LINK

For information on climate change and the threats to Canada, visit the Pearson Web site.

Along with changes in the Arctic, drier summers on the Prairies, flooding and storms in eastern Canada, plunging survival rates for spawning salmon in British Columbia, unusual weather conditions, and an increase in pests such as the mountain pine beetle are just some of the threats this country faces. However, Canada also remains on the list of countries that are the highest global emitters of greenhouse gases. While there are differences of opinion among governments and organizations as to the best ways to reduce global warming, all agree that targets must be set. You will learn more about the effects of climate change and threats to Canada's environment and economy in later chapters of *Horizons*.

FIGURE 1–34 Quickly melting snow and rain causes rapid rises in river levels. In Golden, British Columbia, this farm was flooded by the rising waters of the Columbia River. The B.C. provincial government announced in 2008 that it would spend $16 million on flood protection measures. Do you think these precautions are necessary? Why?

ACTIVITIES

1. Examine the climographs in Figure 1–31 to identify and explain which locations have the following: highest rainfall, lowest precipitation, lowest monthly temperature, highest monthly temperature, and the greatest range in temperature between summer and winter.
2. Explain in what ways, and why, the east and west coasts of Canada have different climates. Theorize how these different climates affect daily life in those regions.
3. Prince Rupert, Edmonton, and St. John's are at approximately the same latitude, yet have different climates. What are the main reasons the climate of each city is different from the other two?
4. Which of the five conditions that affect temperature do you think has the greatest impact on your community? Explain your thinking.
5. List three impacts climate change has had on your community. In what ways has it affected you and your family?
6. In groups, discuss possible solutions to prevent further global warming. Think about what you could do at the local level, and explore what local organizations may already be doing. Present your best solution to the class.
7. Use an organizer to explore how the study of climate might relate to each of the five themes of geography.

Canada's Natural Regions

How do people affect the natural regions of Canada?

Natural regions are areas where animals and plants live in relation to each other and to the non-living parts of the environment. The natural environment of Canada is made up of a number of these large **ecosystems**, or biomes, each with its own type of vegetation and animal species.

A biome contains smaller ecosystems—natural areas where the life cycles of plants, animals, and other organisms are linked to each other and to their physical surroundings. Smaller ecosystems are in turn made up of habitats, or places where plants and animals have adapted to certain conditions (for example, a wetland). Because all elements in the ecosystem are dependent on each other, altering one part of the system or introducing something new sets off a chain reaction. For example, draining a wetland has a dramatic impact on the plants and animals that exist in that habitat.

ecosystem an ecological community of plants and animals together with its environment, extending over an area

Did You Know...

Rats were introduced into Haida Gwaii (Queen Charlotte Islands) in the last century by coastal trading ships. The rats quickly reduced the number of nesting birds, forcing the government to introduce a control program.

FIGURE 1–35 Much of Canada is covered by boreal forest. Natural vegetation is determined by temperature and precipitation, soil, the slope of the land, and drainage. Why do you think grasslands and lowlands, in particular, might show the effects of human activity?

The Natural Regions of Canada	
Subarctic	Many swampy areas of scattered coniferous trees mixed with tundra vegetation. Along with some Arctic wildlife are caribou, lemmings, and snowy owls.
Tundra	A treeless landscape of permafrost with mostly low shrubs, mosses, and lichens. Polar bears, seals, walruses, muskox, and Arctic foxes survive in this harsh climate.
Open woodland	An area of scattered evergreen trees, shrubs, and grass. Animal species living in this region can include caribou, martens, bears, geese, beaver, and lynx.
Coniferous forest	Evergreens such as spruce, fir, pine, and aspen are the most common. This region has deer, moose, black bears, and many fur-bearing animals, as well as hawks, eagles, and various types of wild ducks. Soils are not very fertile.
Coast and interior forest	This is primarily a coniferous forest region. The coast region trees show greater growth because of a wet and mild climate. The higher slopes of mountains above the treeline have tundra and Arctic vegetation. Some southern interior valleys have short grass and plants. Unsettled areas are home to abundant wildlife: cougars, mountain sheep, bears, moose, and birds.
Mixed forest	Made up of softwood trees, such as hemlock and cedar, as well as hardwood trees such as maple, birch, oak, and ash. This region has the same wildlife as the coniferous region. Soil is more fertile in mixed forests than in coniferous forests.
Parkland	A transition zone between the dry southern prairies and the coniferous forest, this region has long grasses and clumps of aspen and cottonwood trees. Wildlife from the coniferous forest and grasslands are found here.
Grassland	This is an area of short grasses with not enough moisture for trees. Antelope, gophers, and wild fowl are the main animals. Bison, until hunted to near extinction, were the largest animals. Soils are far more fertile than in the forest regions.

FIGURE 1–36 The Athabasca River is fed by melting glaciers, and areas of Alberta rely on the meltwater during dry summers. What might happen as climate change shrinks the glaciers?

The Effect of Human Activities

Are there places in Canada where it is possible to see how the land looked before European colonization? This may be true for some parts of northern Canada, but it is not for many of the natural regions of eastern Canada and the southern Prairie Provinces. Although First Nations living in these regions did little to alter the ecosystems, the arrival of Europeans, and later immigration and industrialization have at times drastically altered natural regions.

Enjoying an abundance of water in most parts of Canada, many Canadians are unconcerned about threats to water quality and quantity. However, a growing number of people are taking an interest in the health of this vital resource—particularly due to the effects of climate change on stream flows and the water levels in lakes.

Water quality is becoming a major issue in both southern and northern Alberta. In southern Alberta, most of the natural prairie has been replaced by grain farming and cattle operations. **Runoff** from farms and pollution from animal **feedlots** are a threat to soil and water quality. Feedlots also place a huge drain on local water supplies; one animal can drink up to 57 litres of water a day, and there are thousands of animals in feedlots.

runoff pesticides, herbicides, and other materials that drain from fields into rivers, lakes, and groundwater

feedlot an enclosed area where large herds of cows are fed and raised

Northern Alberta has had massive development of oil and gas deposits, particularly in the oil sands. As the world demand for oil increases, so has the expansion of this project, leading to a booming economy and great wealth for Alberta. In fact, including the Alberta oil sands, Canada's oil reserves are the second-largest in the world—second only to Saudi Arabia.

Did You Know...

The United Nations Environment Programme has identified Alberta's oil sands as one of the 100 key global environmental "hotspots."

However, with the boom comes the burden of dealing with the environmental costs and health risks to people. Effects on land and water are on a large scale, with acres of muskeg and boreal forest transformed into open pit mines in order to expose the layers of oil-laden sands. To produce one cubic metre of oil, about 4.5 cubic metres of water must be used. This water is diverted from the Athabasca River, and in a year, the oil sands production will consume more water than a small city. During this process, the water becomes contaminated and must be stored in ponds. In 2008, more than 500 ducks died in a storage pond when the system that was designed to keep them away failed.

While all residents in the region are exposed to health risks, it is the Cree, Dene, and Métis whose health is most at risk due to their traditional reliance on fish, moose, and other local foods. Toxic materials released in the mining process accumulate and become concentrated in the flesh of animals. Balancing the costs to the environment with the economic benefits from the tar sands is a problem for Albertans.

WEB LINK

On the Pearson Web site, read about other perspectives on the Alberta oil sands.

FIGURE 1–37 The Athabasca oil sands in northern Alberta are expanding. If the planned projects are completed, nearly 3000 km^2 of forest could be cleared, and roads and pipelines will be built. Do the economic benefits of the oil sands outweigh the environmental costs? Why or why not?

Viewpoints in Conflict

Oil and Water Don't Mix

CRITICAL INQUIRY Judgements

The people of Fort Chipewyan, a tiny community on the shores of Lake Athabasca, are particularly vulnerable to pollutants travelling down the Athabasca River and settling in the fine sediment of Lake Athabasca. The lake is a traditional place for hunting and fishing, and the communities of Cree, Dene, and Métis live mostly on a diet based on local wildlife and fish. They have noticed an alarming increase in fish with severe mutations downstream from the oil sands. First Nations communities in this area have expressed concern about how development is affecting their drinking water. People have complained to government and health authorities about an alarming increase in a variety of cancers and other diseases.

The Alberta government and the corporations involved say that the rapid increase in development has made it difficult to control the growth of projects and provide protection for the environment. Take a look at two different views on the development of the tar sands.

Year round water quality and quantity as well as aquatic habitats will be maintained in the Athabasca River. This includes the critical spring floods in the Athabasca River Delta that directly benefit fish and wildlife populations. The proposed MOSS (Mineable Oil Sands Strategy) allows for rerouting of some tributaries of the Athabasca River under certain conditions, which include ensuring that water quality is maintained within the remainder of the altered stream; water quality from altered drainage meets environmental standards before the water enters the Athabasca River;... the loss of fish habitat is properly replaced.

—Alberta Government Mineable Oil Sands Strategy, 2007

The Mikisew Cree have asked many questions during the hearing for oil sands projects. The concern... has been the quality and quantity of water in the Athabasca River. The Mikisew Cree have noted that prior to the 1960s, one could drink the river water, but now no one would consider the thought. After participating in... hearings since 2003... (we) still do not know the cumulative impacts of oil sands mining on the Athabasca River water quality. The panel have concluded that the impacts of each project will be negligible, but the First Nations realize that the incremental impacts of each successive project are significant. Community knowledge suggests that contaminants from oil sands' facilities extend to Lake Athabasca.

—Mikisew Cree First Nation submission to Alberta Government Oil Sands Consultation, 2007

WHAT DO YOU THINK?

1. Do you accept the government's assurances regarding water quality and quantity? Why, or why not?
2. What advice would you give the Mikisew First Nation in responding to the Alberta government's assurances?

ACTIVITIES

1. Make a list of the possible impacts of one of the following on an ecosystem: a road built through wilderness; a music festival held in a rural, agricultural area.
2. Write a report card on Canada's land-use policy. Think of climate change, water use, and other issues you consider important.
3. Use the information from the table on page 30 to describe the biome in which you live.
4. How does the theme of human/environmental interaction help us understand aspects of the natural regions of Canada?

WHO Owns the Arctic?

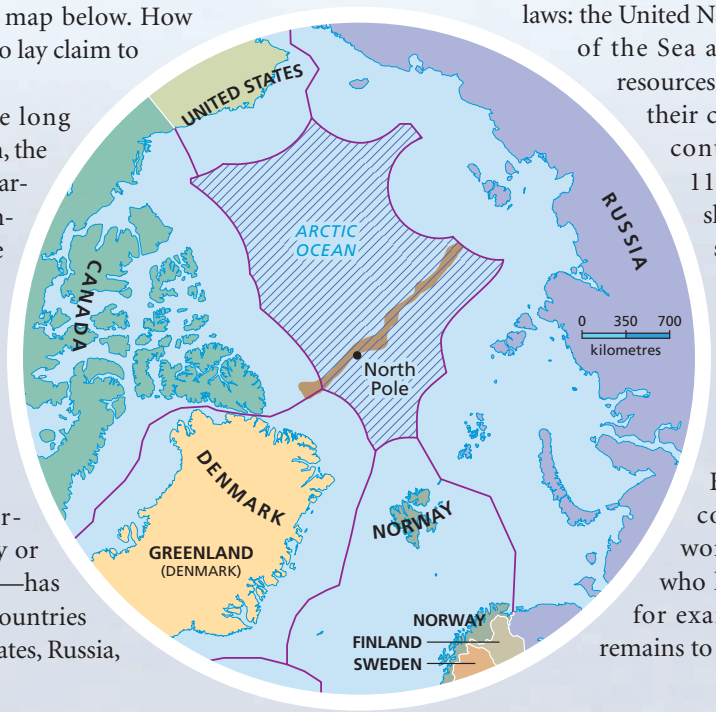
Some countries… see these passages as international waters and challenge Canada's claim that the Northwest Passage is part of our territorial waters.

by John Dwyer

If someone asked you who owned the Arctic, what would your answer be? Many assume that Canada's northern boundaries include the high Arctic, as well as the North Pole. Some Canadian maps even show this. But is this accurate? Take a look at the map below. How many other countries may also lay claim to the Arctic?

Although the Inuit have long made their home in this region, the Arctic has also been seen as a barren wasteland. In the 21st century, this has changed, as more sea ice begins to melt. Water that is usually blocked by ice year round is now open. This has cleared the way for ships and people, and the discovery of oil and valuable minerals is making the world take notice.

Now, this issue of sovereignty—a country's authority or power within its boundaries—has been opened in the Arctic. Countries such as Canada, the United States, Russia, Denmark, and Norway all lay claim to territory in the Arctic Circle—territory that includes the sea bed, a potentially rich source of oil and natural gas.



What should be considered? There are international laws: the United Nations Convention on the Law of the Sea allows countries to control resources in waters up to 370 km from their coast. It also grants countries control of territory extending 111 km off their continental shelf. Canada has until 2013 to submit its claim to seabed territory to the UN.

Who should decide? In a matter of international concern, the UN will probably take a lead role in deciding what each country may claim. Each country will bring its concerns and claims to the world. Will the voices of those who live in the region—the Inuit, for example—also be heard? That remains to be seen.

The Cultural Landscape

How have people shaped the land?

cultural landscapes landscapes that have been changed by human societies

culture the behaviour, arts, beliefs, and institutions of a particular community or population

As you read earlier in the chapter, **cultural landscapes** are a part of the geographical study of place. How might **culture** and attitudes influence how people view and use the land? The Cree of the Interior Plains did not view the land and its resources in the same way as European fur traders and settlers. Today, as you have learned, the Mikisew First Nation is concerned about the effects the oil sands have on their way of life, while others see economic benefit. Opposing attitudes often result in crisis. You will read more about these conflicts in later chapters.

FIGURE 1–38 The diversity of Canada's population can often be seen in its buildings. Some are a combination of the many cultural backgrounds of Canadians.

Settlement and Population

At the beginning of the 20th century, only eastern Canada had seen the effects of large-scale settlement. Before the building of a railway to the West, great distances and the rugged landscape of the Shield restricted settlement to the St. Lawrence Lowlands. Only in the north and the west, apart from some small communities, did the landscape remain mostly in its natural state. The prosperity of the Laurier era, which will be described in Chapter 7, brought large-scale settlement to western Canada and changed the physical and cultural landscapes.

The cultural background of newcomers generally determined where they settled. English and Chinese immigrants tended to move to cities to work in industries. People coming from farming communities in Europe were attracted to the grasslands of the Prairies. Immigrants from regions of Eastern Europe with similar extremes of climate were better able to survive the first hard years as homesteaders on the Prairies.

Even dividing the land was based on cultural background. Métis farmers in Manitoba followed the French practice of setting up farms in long narrow

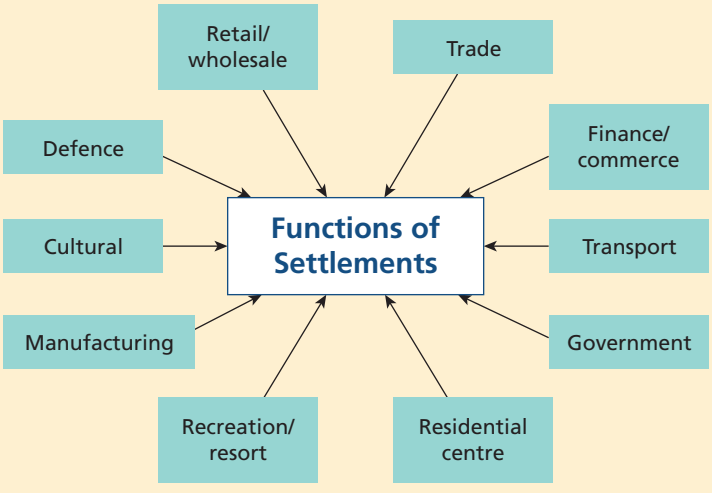


FIGURE 1–39 All settlements have functions, or activities responsible for economic and social development. Places with a large population are able to support many functions. For example, Victoria has more functions than Nanaimo but not as many as Vancouver. However, with the growth of the Internet, people in smaller centres now have access to many services formerly restricted to those living in larger cities.

strips along rivers. However, the Canadian government followed the English grid system when it surveyed the west. These differences, as you will see, brought English and French ways into conflict in Manitoba's Red River area.

Aboriginal peoples view the land without artificial boundaries. Aboriginal concepts of the land as a place owned by the community and coexisting with the environment were shattered by the European idea of surveyed areas owned and sold by individuals.

Where people decide to settle depends on several factors, but the most important are the physical environment, the climate, and economic possibilities. Landforms and climate play a key role in determining how many people will permanently settle in an area. A combination of flat land, mild winters, adequate rain, and good soil are some of the factors that draw people to an area. These advantages can also lead to **urbanization**. Agricultural communities on the Prairies and in British Columbia follow this pattern.

Places that lack the benefits of good land and fair weather can still experience population growth in brief spurts. This is because people almost always live where they can find work, and many are willing to move to work in harsh environments far from home. For example, many people from Newfoundland and Labrador have moved to Fort McMurray in Alberta to work in the oil sands.

Many resource towns in Canada still go through cycles of **boom and bust** as a resource is developed and then depleted. Communities such as Barkerville, British Columbia, were built around a single resource such as gold and were dependent on that resource for survival. Today the trend is to build temporary settlements in remote areas to extract a resource with a short life. The northern diamond mines in the Northwest Territories and Nunavut are examples of this new trend.

FIGURE 1–40 On the Prairies, cities such as Edmonton grew rapidly in areas with water and flat land.

urbanization the process of becoming an area with a large, concentrated population

boom and bust words used to describe a healthy (booming) economy and/or one that is failing (bust)

FIGURE 1–41 Canada's resource towns do not employ as many people as do the industries centred in larger cities. That is one reason why two-thirds of Canada's population is concentrated in major cities. Compare this map to the maps of physical and natural regions seen earlier in this chapter. What other reasons account for the patterns evident on this map?

Cross Currents

Aboriginal Maps and Cultural Landscapes

CRITICAL INQUIRY Perspectives

Aboriginal peoples regard the land in a way that is different from Western attitudes. Their relationship to the land is spiritual, rather than economic. Life is shaped by a traditional knowledge of the environment, shared through songs, stories, rituals, places that have special meaning, and an understanding of the ecosystem. Such knowledge is passed on by oral tradition.

This tradition forms a "mental map" of a cultural landscape. These maps contain a great wealth of experience and culture—they are more like "pictures of experience." When colonization created new boundaries and divisions, oral tradition preserved the Aboriginal cultural landscape.

Even by the late 1700s, the interior of North America was known to only a few Europeans. Early European explorers relied on traditional knowledge when they asked for guidance from Aboriginal peoples. While there were seldom permanent maps, a picture could be sketched in the snow or sand. Even maps on birchbark were only meant to guide those who followed or give directions and then be discarded.

Some of these maps were copied by explorers or traders. They provide evidence of the great knowledge contained in these cultural landscapes.

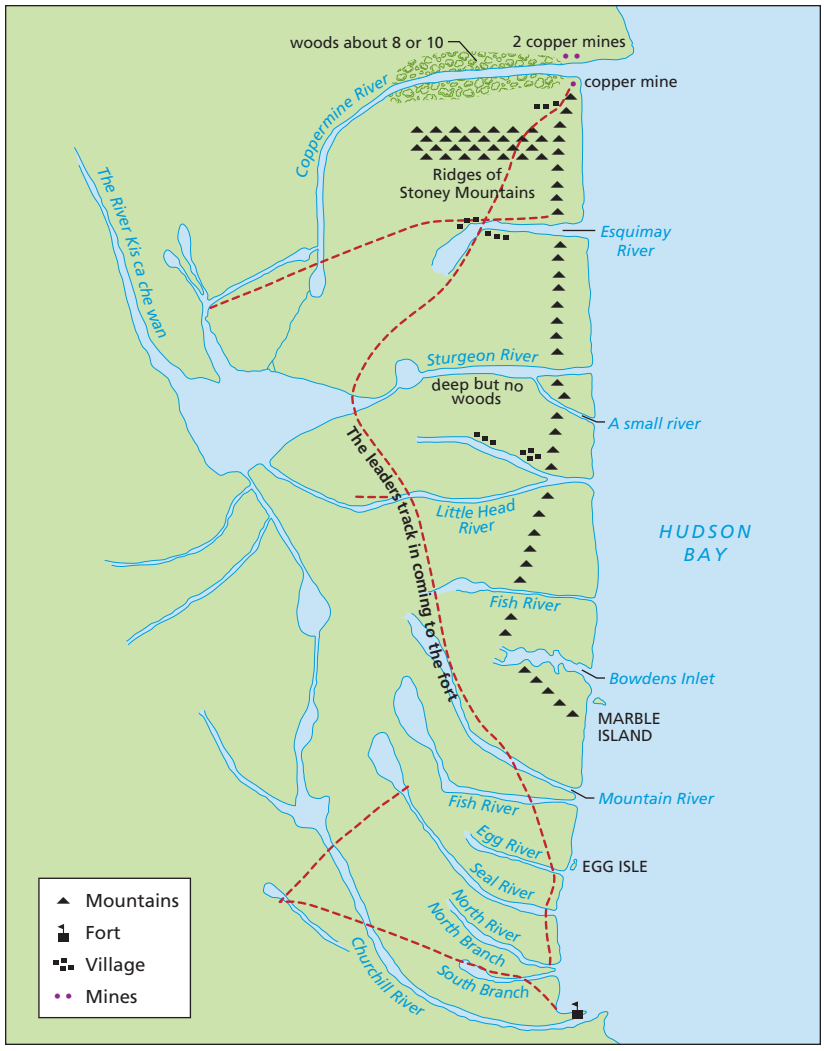


FIGURE 1–42 Europeans relied on men like Matonabbee, a Dene Suliné who led Samuel Hearne across most of the territory shown here. This map is a copy of a map drawn by Matonabbee at the request of the Hudson's Bay Company in 1767. The centre is Great Slave Lake. Rivers, lakes, and paths were part of the cultural landscape, since they were crossed by hunting parties every year.

WHAT DO YOU THINK?

1. Why is it important to include Aboriginal maps and cultural landscapes in textbooks and atlases?
2. How do Aboriginal maps differ from other maps? How do these differences show what people value, and what they believe in?
3. Using only memory, make a map of a place that has a special meaning to you. Explain what this map says about you.

Boundaries: The Lines on a Map

As people settle in a place for any length of time, they come to identify with the area, calling themselves New Brunswickers or British Columbians. The physical and natural landscape, together with climate, can shape people's lives and affect their identity. People in Saskatchewan identify with the big sky and open prairie, while those living in the Atlantic Provinces are affected by the ocean. In British Columbia, the mild climate, the mountains, and the ocean have an impact on people's lifestyles.

These provincial and territorial boundaries are familiar to us, and it is easy to forget that they are artificial. Before European settlement, the First Nations, Métis, Inuit, early explorers, and traders divided the land according to its natural boundaries—physical features of the Shield, lowlands, plains, mountains, rivers, and forests. While some political boundaries follow natural features, most do not.

Eventually, frontier zones were replaced by political boundaries. Geographic knowledge of some remote areas was limited, which led to strange decisions and sometimes conflict. An example is the 49th parallel of latitude, which set the boundary between British and American territory in the West. People who had been accustomed to crossing a natural area were now hemmed in by lines on a map. Also, due to climate change and the loss of pack ice, Canadians now face a new problem in establishing political boundaries in the Arctic.

Did You Know...

The Territory of Nunavut was officially created in 1999, but discussions about the division of the Northwest Territories had begun as early as 1980. In 1992, a special vote was taken among residents of the territory to approve the proposed boundary lines. While some groups protested the division of traditional hunting lands, a majority approved the new boundary.

FIGURE 1–43 This map of the Canada/U.S. boundary shows how lines on a map pay little attention to natural features, as in the case of Point Roberts, or the route through the Gulf Islands.

FIGURE 1–44 How might future treaties change boundary lines in Canada?

Aboriginal Peoples and Boundaries

In the past, Aboriginal peoples did not have an influence on the drawing of political boundaries. In the last decades of the 20th century, this began to shift. The Inuit and First Nations have become more successful in reclaiming control of their traditional territories. In British Columbia, because the right of Aboriginal land title was recognized in the Constitution Act of 1982 and in later court decisions, new lines marking First Nations land claims have appeared on maps of British Columbia. The Nisga'a First Nation, for example, signed a treaty with British Columbia and Canada in 1998.

FIGURE 1–45 Which present Canadian boundary most closely follows the territory of a First Nations language group?

ACTIVITIES

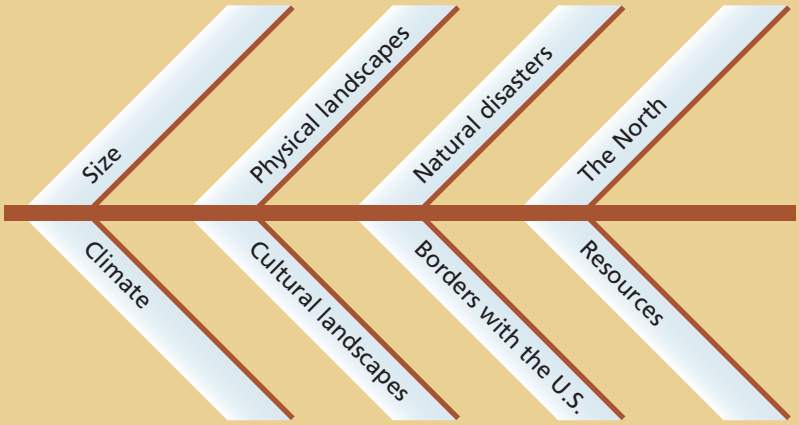
1. Do some research to determine the most and least urbanized provinces in Canada. Use a Venn diagram to compare and contrast the two provinces as a way of discovering the reasons for their differences.
2. Report on the cultural landscape in your community. What does it look like? How was it formed? Use text, images, or a recording to make your report.
3. Examine Figure 1–41 and refer to information in this chapter including the five themes of geography to explain
   - **a)** the small number of people living above 55 degrees north latitude
   - **b)** the distribution of population in the southern Prairie region
   - **c)** the concentration of population in the Great Lakes–St. Lawrence region

Explore the Big Ideas

Many say Canada's geography has influenced the way Canadians see themselves. People from different regions and provinces identify with where they live. People in the Yukon often think of themselves as hardier than Canadians living in the south. Maritimers feel that the Atlantic Ocean and fishing shape the way they see themselves. In British Columbia, the climate fosters an outdoor lifestyle that often determines how people think about leisure and work.

1. How has the land shaped us? How have we shaped the land?

a) Using an organizer like the one below, demonstrate your understanding of how each element of Canada's geography might shape the way Canadians think about themselves and Canada. Add your own ideas for elements as necessary.



b) Now approach the organizer from a different direction—explain how people have affected each element.

2. Choose a country with geography that is very different from Canada. Using the five themes of geography as a framework, compare and contrast that country with Canada. How has geography shaped the people and culture of your chosen country?

3. In a small group, discuss which of the elements shown in the organizer above have the greatest impact on people in your community.

a) Use the results of your discussion to imagine how your community would react to a proposed economic development that would have a significant impact on either the physical landscape, the cultural landscape, or both. Be sure to list pros and cons for the development.

b) Organize your findings and summarize them in a letter, a blog entry, or an interview with the local media.

4. You are a time traveller visiting Canada 100 years ago. Would Canada seem like a foreign country to you? Describe physical features and the cultural landscape. What features have remained the same? What has changed? Ask the same questions for 50 and 100 years in the future. Present your ideas in a travelogue, including maps or other images.

5. Canada is experiencing some of the early impacts of climate change. Compile a list of the ways global warming may change Canada by the year 2050, or 2099. Predict the biggest effect on the environment and human lifestyles as a result of changes in climate.

6. Find a map of the Nisga'a land claim. How do the boundaries of the land claim relate to natural and artificial boundaries? How might this add to the challenge of resolving Aboriginal land claims?