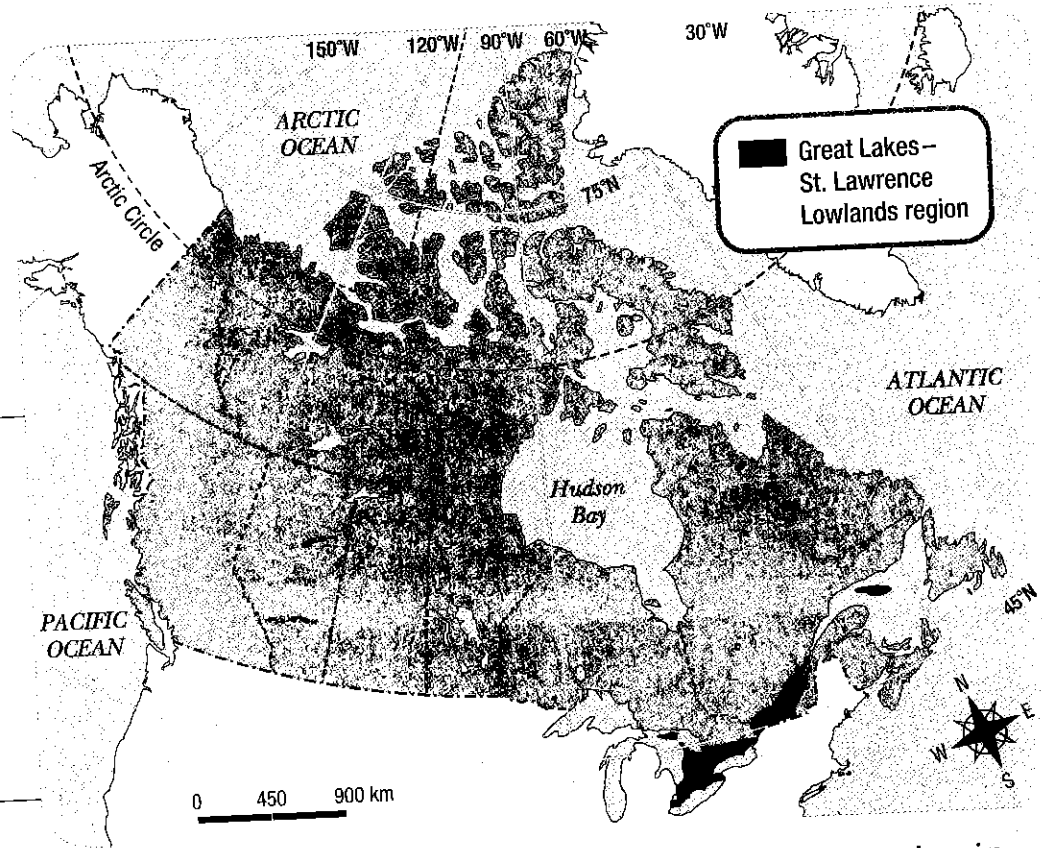


The Great Lakes–St. Lawrence Lowlands Region— a Changed Landscape

Predict

How have people changed the landscape of this region?

The shaded area is the Great Lakes–St. Lawrence Lowlands region. Parts of which provinces are in this region?



The Great Lakes–St. Lawrence region is the smallest region in Canada, but it is also the most populated. At one time, this region was covered by forests. People like to say that a squirrel could travel all the way from the Atlantic Ocean to Ontario by jumping from tree to tree. That could no longer happen. People have changed the landscape here more than any other region of Canada. A squirrel would not make it very far today before coming to a city or town.

Chapter Focus

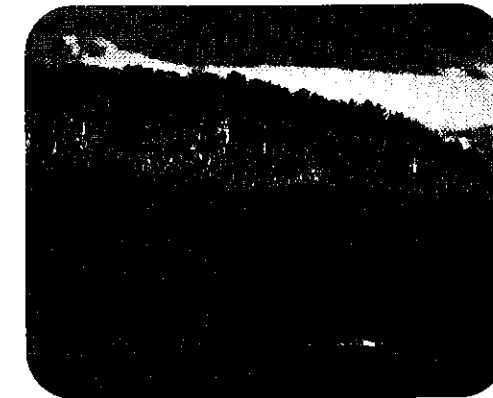
- What are some uses of land in this region?
- How does water shape ways of life?
- How does climate influence quality of life?
- How do natural resources shape ways of life?
- Why should we protect our environment?

What Are Some Uses of Land in this Region?

Most of the land in the region is flat, fertile lowlands and plains with rolling hills. A **lowland** is an area that is lower and flatter than the land around it. Plains surround the St. Lawrence River. There are no mountain ranges, although there are some free-standing mountains in Québec such as the Monteregian Hills, east of Montréal.



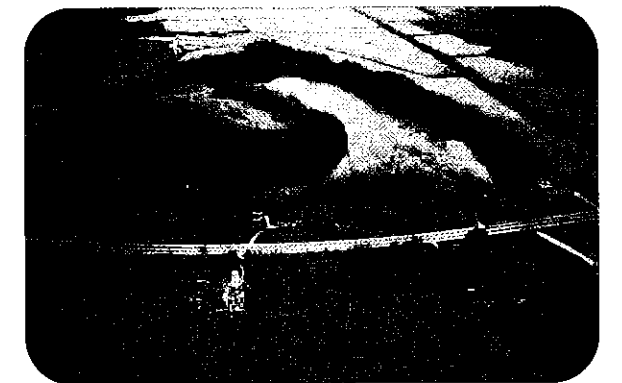
Many farmlands in Québec, such as this one in the village of Saint-André, border the St. Lawrence River. Why do you think people would want to settle in this area?



There are some high rocky areas, such as the Niagara Escarpment. An **escarpment** is a cliff or steep rise of rock that separates two areas of flat land. Use the map on page 34 to locate the Niagara Escarpment.

The plains, with their fertile soil, are ideal for farming. The Haudenosaunee (how-den-o-show-nee), or Iroquois, grew crops in this region. European settlers farmed as well. Before these settlers could farm, they had to clear the trees from the land. Over the years, more and more land has been cleared for farming. Today, few forests remain.

There is debate about how land should be used near cities. For example, north of Toronto, there is a line of rolling hills called the Oak Ridges Moraine. A **moraine** is a ridge of sand, dirt, and rocks carried and left behind by ancient glaciers. People who study and protect the environment, or **environmentalists**, want to preserve this area because it is an important source of fresh water. It is also home to many plants and animals. However, developers want to build houses for the many people moving to this region.



The Oak Ridges Moraine is just north of Toronto, Ontario. What is the debate on the uses of the moraine? Where would people live if this area were protected? What does this issue tell you about decision making?

SKILLS at Work

Look at the map on page 30. Describe this region's location in relation to the Appalachian region. Use cardinal directions (north, south, east, west).



CONNECT

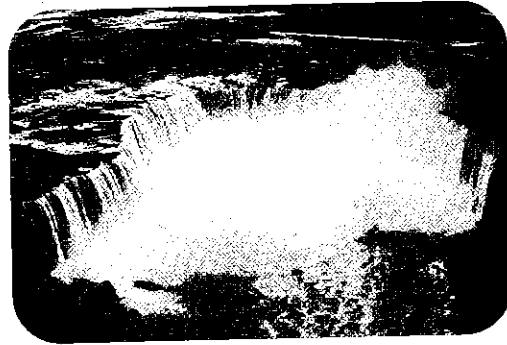
What do you know about landmarks? Break the word into two: "land" and "mark." Does that help you with your understanding? Can you think of a landmark that makes you think of "home"?

Landmarks

For many people, the land on which they live means home. The land gives them a sense of belonging and identity. Because of this, people often use an aspect of the land—a landmark—as a symbol of their identity.

Niagara Falls

The Niagara River flows over the edge of the Niagara Escarpment, creating the famous plunging falls. Many people think of the falls as a Canadian landmark and symbol. Many people rely on the falls for jobs. The Niagara Falls attracts visitors from all over the world, creating a very important tourist industry. The powerful waters are also an important source of hydroelectricity. **Hydroelectricity** is electricity produced from flowing water.



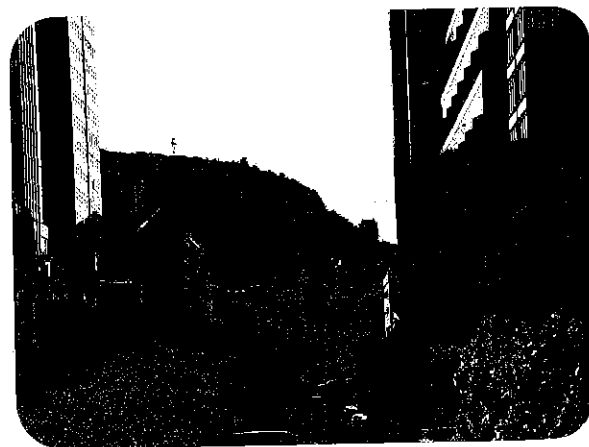
Niagara Falls is a world-famous landmark. Do you know another well-known Canadian landmark? What has made it well known?

Mount Royal

Mont Réal, or Mount Royal, is the largest of the Monteregian Hills. Mount Royal is in the middle of Montréal and an important landmark of the city. The French explorer Jacques Cartier gave this mountain a Latin name, Mons Regius.

Mount Royal Park is open to visitors and residents to explore and enjoy.

There are activities year round. In winter, skiers make use of the park's cross-country ski trails. In summer, hikers and cyclists take in the sights and smells of its lush forest. In autumn, people go to admire the bursts of fall colours as the leaves turn to shades of gold, orange, red, and yellow.



Mont Réal is in the background of this photograph. For many residents of Montréal, this large hill is a symbol of their home.

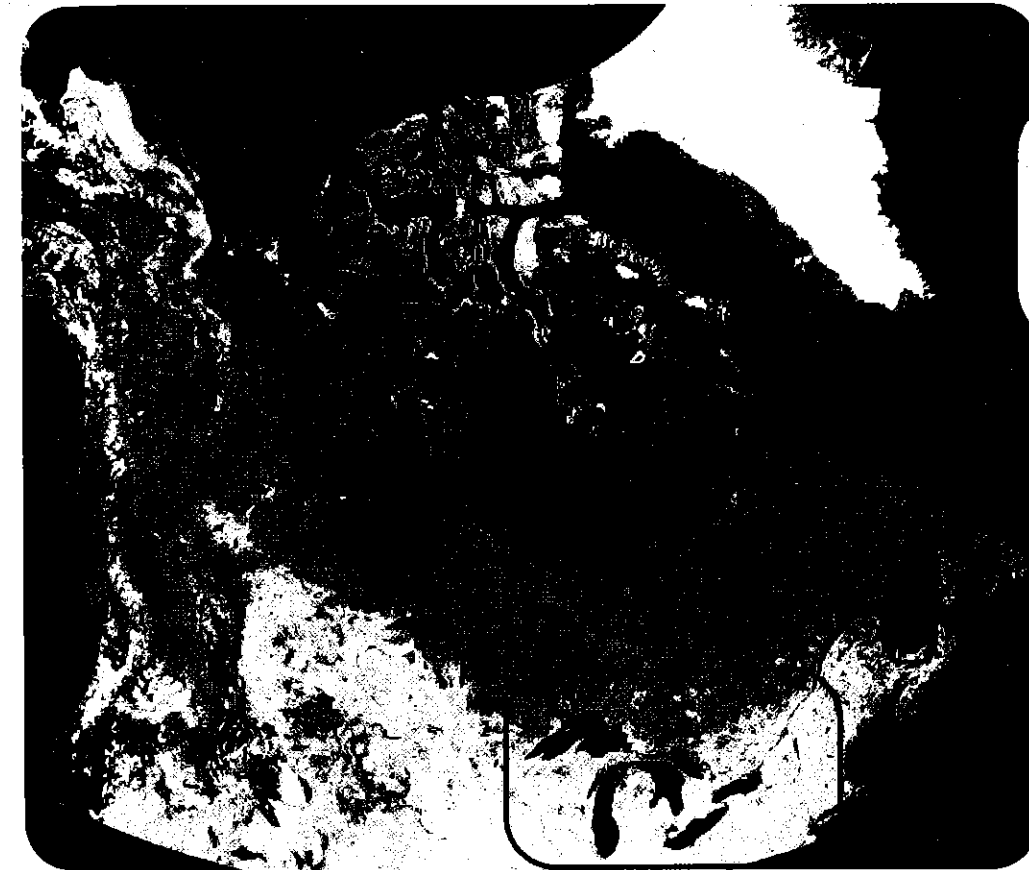
Pause

1. In what ways do you think Niagara Falls and Mont Réal affect people's ways and quality of life?
2. What natural landmark might you use to represent yourself, your school, or your community? Why?

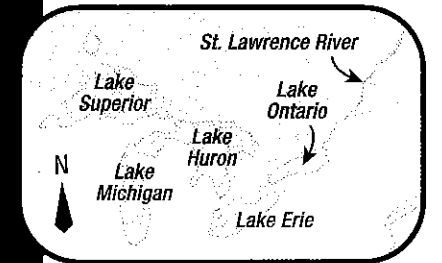
How Does Water Shape Ways of Life?

From the name of this region, what would you expect the major bodies of water to be? If you said the Great Lakes and the St. Lawrence River, you are right. How have these bodies of water been important to this region?

The Great Lakes and the Mighty St. Lawrence River



The Great Lakes

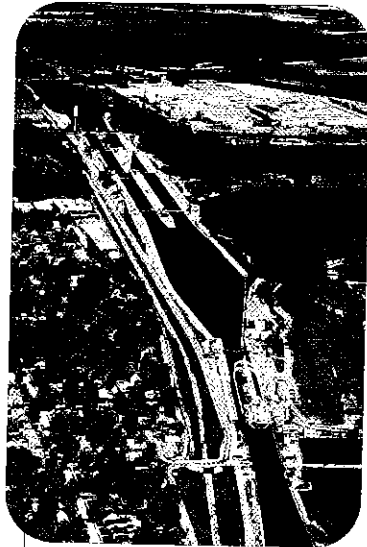


This is a satellite image of Canada and part of the United States. A **satellite image** is a photograph taken by a satellite orbiting, or moving around, the Earth. What does this image tell you about the size of the Great Lakes and the St. Lawrence River? How is this map different from other maps you have seen in this book?

The Great Lakes drain into the St. Lawrence River, which flows to the Atlantic Ocean. A large portion of Canada's industry and agriculture is found in the area around the Great Lakes and St. Lawrence River. As a result, these connected bodies of water have always been a very important route for travel and shipping goods.

The Great Lakes and St. Lawrence River form a waterway that runs 3700 km from the interior of Canada to the Atlantic Ocean. Large numbers of rivers run into this waterway. These rivers are called **tributaries**. People and goods can travel down the tributaries into the Great Lakes or St. Lawrence River. From there they can reach ports in Canada, the United States, and around the world.

The Great Lakes–St. Lawrence Seaway

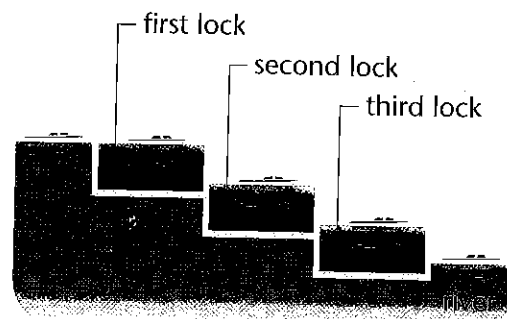


This is an overhead view of the Welland Canal, which is part of the Seaway.

In 1954, the United States and Canada worked together and started building the Great Lakes–St. Lawrence Seaway. The Seaway allows ships to travel down the St. Lawrence River and through the Great Lakes.

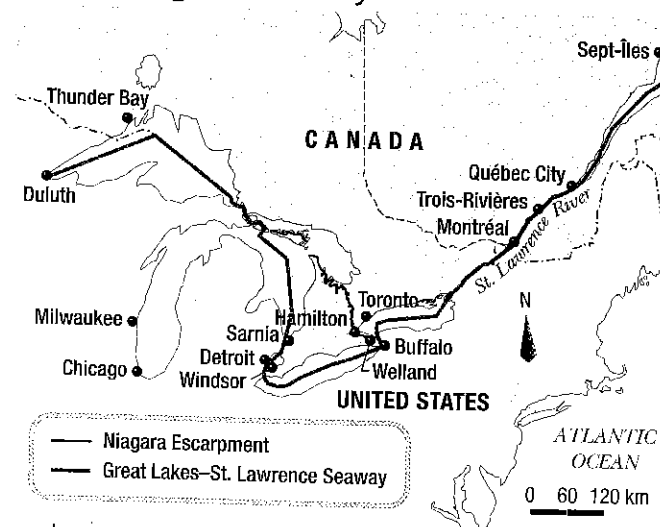
At one time, ships travelling on the St. Lawrence River from the Atlantic Ocean could not sail past Montréal because of the shallow water and the Lachine Rapids. A channel, called a **canal**, was dug around these and other similar areas. The Seaway builders also had to solve the problem that Lake Erie is on the top of the Niagara Escarpment and Lake Ontario is at the bottom of it. This means that Lake Erie is about 100 metres above Lake Ontario. To solve this problem, they built **locks**, which are sections of canals where ships can be raised and lowered.

How Locks Work



One way to understand how locks work is to imagine trying to get a cork from counter level to the bottom of a sink. Fill a sink with water. Then push the cork into the sink. When you slowly drain the water, the cork will lower to the bottom of the sink with the water. How do you think you can then raise the cork from the bottom of the sink to counter level?

Ports along the Seaway



This map shows some of the ports along the Seaway.

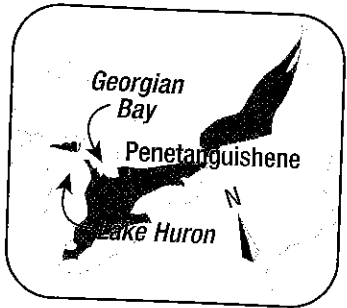
The Seaway has had a major impact on people's ways of life. Cities, such as Welland, developed around the locks. (See the map on this page.) Other cities along the shores of the Seaway have become busy ports where goods are loaded and unloaded. People have jobs at these ports. Tourists can ride cruise ships along the Seaway to enjoy the region's natural beauty.

Pause

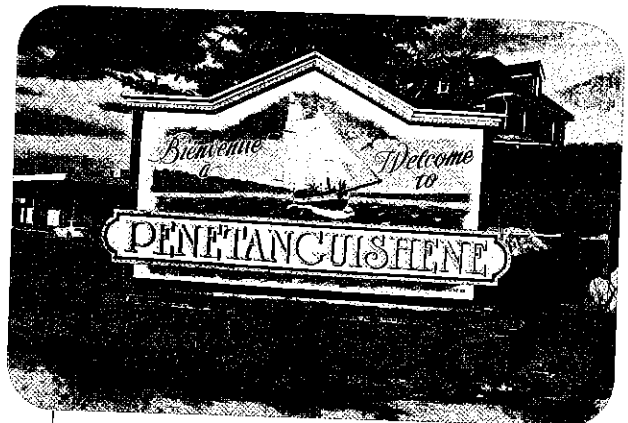
1. What effects do you think building the Seaway might have had on the environment and communities?

Penetanguishene: A Diverse Town

The eastern part of Lake Huron is a large bay—Georgian Bay. On the southeasterly tip of this bay lies Penetanguishene (*pen-et-ang-wish-een*), a town of diverse people. It is a town with two main languages: English and French.



The town's history has been shaped by the many different people who have lived there. The Ouendat (*wen-dat*), or Huron, were the first inhabitants. Before the Europeans came, the Ouendat lived in villages along the bay. Around the early 1610s, a French fur trader, Étienne Brûlé (*brew-lay*), came to live with the Ouendat. He had been sent by Samuel de Champlain, an explorer who was helping France expand its fur trade. (We will learn more about the fur trade in Chapter 8.) Brûlé is believed to be the first European to see all of the Great Lakes. He lived with the Ouendat people until his death in 1633.



What does Penetanguishene's "welcome" sign tell about its town's history and identity?

More than 150 years later, a British official, John Graves Simcoe, came to the area. He was so impressed by the well-protected harbour at Penetanguishene that he planned to build a base for British warships there. He believed that these ships would be able to protect the trading and exploration routes that were developing in the region. The British base was built in 1817, bringing British sailors and soldiers there.

The diversity of the area continued as more settlers arrived. In the 1840s, families mainly from an area just east of Montréal came to farm. They were attracted by the fertile soil. In the early 1900s, the town boomed because of the growing logging industry in the area.

Modern-day Penetanguishene attracts many tourists. Some people come to learn about the town's rich history and cultures. They can visit the British navy base. Other visitors come to enjoy the harbourfront, boat, fish, and tour the 30 000 islands of Georgian Bay.

Pause

1. How do the ways of life in the town today reflect its unique history?

CONNECT

What things do you do each season that you enjoy?

How Does Climate Influence Quality of Life?

The Great Lakes–St. Lawrence Lowlands region usually has milder winters than most other areas of Canada. This is because it is the most southerly part of Canada. Also, warm air from the Gulf of Mexico often moves over the area.

The southern and western areas of the region are generally warmer than other parts. The summers in the lowland around the Great Lakes can be long, hot, and humid. This area also tends to have much milder winters than the land around the St. Lawrence because water from the Great Lakes moderates the temperature. The influence of a large body of water on surrounding area temperatures is called a **lake effect**. The long, hot summers and milder winters mean that this area has the longest frost-free season in eastern Canada.



Maurice

Québec City, Québec

Kids Speak

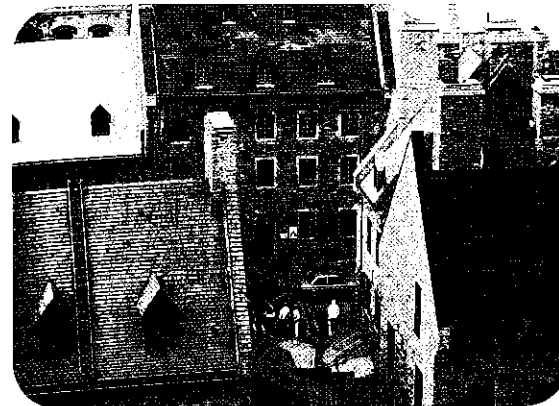
“Many people don’t like winter, but it’s my very favourite season. There are so many things to do. Skiing, ice fishing, skating, and tobogganing. The thing I love the most is skiing. We have a great ski hill near here—Mount Sainte-Anne, and I am lucky enough to be able to go skiing every weekend. It gets pretty cold at the top of the hill, but I can go into the lodge and drink hot chocolate to warm up.”

In winter, the water of the Rideau Canal in Ottawa freezes over and becomes a long skating rink. It brings thousands of skaters and tourists to Canada’s capital city. How do you think activities, such as skating, contribute to people’s quality of life?



Living with the Climate

The area around the Great Lakes gets a great deal of precipitation. The summer rains are needed for farmers’ crops. Thunderstorms are quite common in the summer. In the winter, it is snowy, and there can be ice storms, blizzards, and thick fog.



What does the shape of the roofs of these buildings in Québec City tell you about the precipitation that this area gets in the winter?

The winter in Montréal can be cold with a great deal of snow. Large snowplows like this one are used to clear the streets. The city spends more than \$50 million each year on snow removal. What do you think might happen if communities did not have snowplows? How do services such as snow removal affect quality of life?



A Salty Challenge

What do you use salt for? Most of you would probably say “to make food tastier.” However, did you know that there is a type of salt that is sprinkled on roads to melt snow and ice? Cities in the Great Lakes–St. Lawrence Lowlands region use a great deal of salt after a snowstorm.

This method of melting snow, however, is causing some challenges in the region. When the snow melts, streets become a

slushy mess. Moving vehicles splash salty water on lawns, harming any vegetation it hits. The salt damages roads and vehicles. After a walk on a salted street or road, people would usually find white residue from the salt caked on their shoes and coats.

Some people are questioning the use of salt, but others support its use. Why do you think people would support it?

SKILLS at Work

Create a cause-and-effect chart to show how bad weather could affect agriculture, tourism, and transportation.

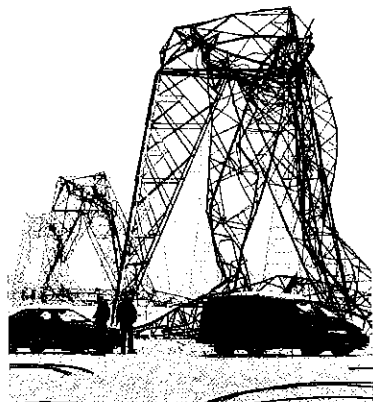


Draw conclusions

A Unique Ice Storm



www.nelson.com/albertasocialstudies



Power-cable towers buckled under the weight of the ice.

Ice Storm Causes Severe Damage

In January 1998, freezing rain poured down on western Québec and eastern Ontario for more than a week. By the time the rain stopped, a coat of ice nearly 5 cm thick blanketed the region.

- At least 25 people died.
- The heavy ice toppled millions of trees, power lines, and telephone cables.
- About one million households lost power, forcing many residents to leave their homes.
- About 100 000 people went to shelters.
- Residents had to boil water before using it because the water treatment plants were not working.
- Many maple syrup producers were ruined.
- Dairy and pig farmers shared generators to run milking machines and care for newborn piglets.
- Airlines and railways could not travel into the area.
- 14 000 troops from the army came to help.

What would it have been like to live through the ice storm? Below is a fictional journal entry written by a grade 5 student who lived in Montréal at the time. It re-creates some of the experiences of the people who were affected by the ice storm.

Reflections

January 28

Mom and Dad are still really upset by the ice storm. The first few days, we used our woodstove to cook and to keep warm. Then we ran out of food and drinking water and had to go to the community centre. The army brought the food in, as well as jugs of water for drinking and washing ourselves. They also gave us flashlights and candles.

After a few days, I realized how dependent we are on electricity. It's been so cold.

We started getting news about what had happened to other people. So many things had been destroyed. The neighbourhood is never going to look the same again because all the trees are broken. But we also heard many stories of people helping each other out—some families opened their homes to those whose houses got flooded, and some shared food and clothing.



The army was called in to provide support.

Pause

1. Compare the ice storm to Hurricane Juan in the Appalachian region (page 20). In each case, what gave people a sense of belonging and community?

How Do Natural Resources Shape Ways of Life?

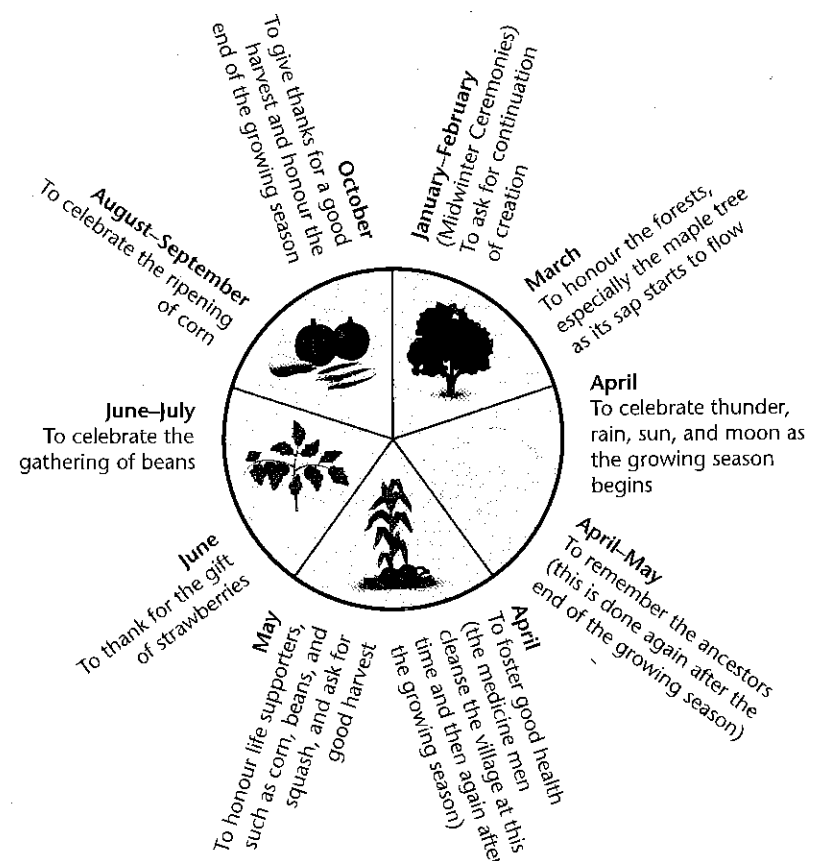
The natural resources of this region include rich soil, thick forests, and plentiful water.

Farming the Fertile Plains

The flat plains, rich soil, and long hot summers have made the Great Lakes–St. Lawrence region the most fertile agricultural region in Canada. It also has one of the longest growing seasons.

The Ouendat and the Haudenosaunee were some of the first farmers of this region, and many are still farmers today. They grew three main crops: beans, corn, and squash. Because they grew crops, they did not move around as much as other First Nations peoples who moved to hunt and gather food. They built villages and homes, called longhouses. Every 10 to 20 years, when the soil became less fertile because of use, the people moved and cleared new land. Over time, the land they had moved from returned to the way it once was.

Cycle of Thanksgiving Ceremonies



The Haudenosaunee view the natural resources that surround them as gifts from the Creator. In ceremonies held throughout the year, the people thank the Creator for these gifts. They also pray for renewal and continuation of creation. How is the farming life of the Haudenosaunee reflected in this cycle?

This diagram was created with the advice of Hohahes-Leroy Hill, Traditional Leader, Cayuga Nation of the Haudenosaunee.

SKILLS at Work

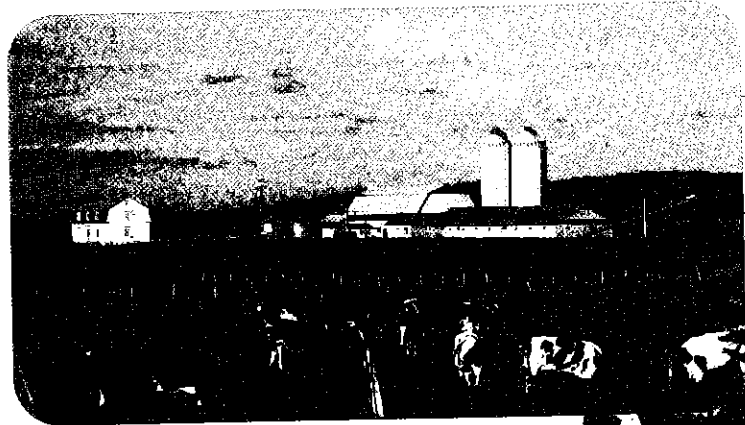
Look at the photographs on this page. What types of farms do you see?



Types of Farms

When European settlers came to this region, they brought new crops, including a variety of grains, vegetables, and fruits. They also kept pigs, cattle, oxen, and horses.

Today, more than half the land in the region is used for farming. About 37 per cent of all agricultural production in Canada comes from here.



This is a farm in the Eastern Townships in Québec.

Farms in the southern tip of Ontario thrive because the Niagara Escarpment protects this area from freezing winds. Visitors driving through farming communities in late summer or early fall can stop at farms to buy sweet corn, juicy peaches, and tangy cherries.



Some parts of Ontario have the warmest year-round climate in eastern Canada. This area produces much of Canada's greenhouse cucumbers and tomatoes. **Greenhouses** are glass or plastic buildings that are kept warm year round for growing plants.

Pause

1. Describe how farming has been an important industry in this region.
2. Describe one way Ouendat and Haudenosaunee farming was similar to or different from European farming.

Maple-Syrup Industry

Do you eat your pancakes with maple syrup? Chances are the syrup that you use comes from the Great Lakes–St. Lawrence Lowlands. The Anishinabe, Ouendat, and Haudenosaunee collected sap from maple trees and made it into sugar syrup. They taught the Europeans how to make this popular food sweetener.

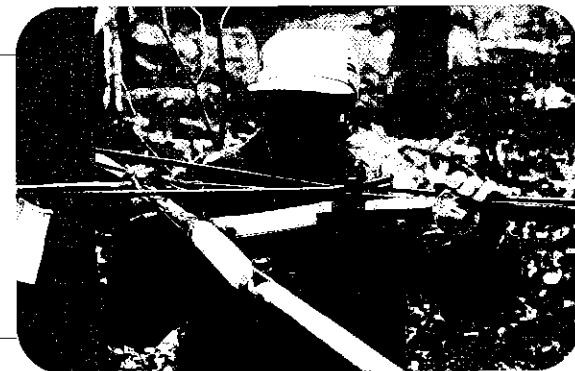
Today, Canada is the world's largest producer of maple syrup. Québec alone produces 85 per cent of the world's maple syrup and makes more than \$100 million a year from this industry. Many Anishinabe, Ouendat, and Haudenosaunee are still active in this industry, using both traditional knowledge and new technology.

Maple syrup has also become an important part of Francophone celebrations. Every year, communities across Canada have festivals, such as *cabane à sucre* (kah-ban ah sewkr) in the spring in Alberta. For many people, it is a chance to taste *la tire* (la teer), or taffy.



Visitors to the Kortright Centre for Conservation, just north of Toronto, watch a man use the traditional way of making syrup. The sap is boiled in a big pot for a long time to change it to syrup.

This worker at a maple-syrup farm is checking the plastic pipelines that are used today to collect the sap. The sap runs through the pipelines to a shack. There it is boiled in an evaporator, or a large open pan, for hours before it becomes syrup.



Pause

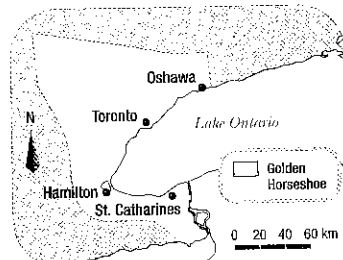
1. If the Haudenosaunee and the Mi'kmaq met to trade, what types of food items do you think they might trade with each other?

SKILLS at Work

Create a mind map to show how you think factors such as location, climate, and transportation affect why people move to this region.



The Golden Horseshoe



The Golden Horseshoe is about 150 kilometres wide.

Providing Many Goods and Services

The Great Lakes–St. Lawrence Lowlands region is the smallest region in Canada, but it has the largest number of factories and industries. The factories in Ontario produce over 40 per cent of Canada's goods, while those in Québec produce 22 per cent. As we have seen, there are excellent transportation routes in this region. These routes enable companies to easily ship their goods.

The people of the Great Lakes–St. Lawrence region use the natural resources of other regions in Canada, especially the Canadian Shield region (Chapter 3). The resources of the Shield region, such as gold, copper, zinc, and nickel, are transported to the Great Lakes–St. Lawrence region to be made, or manufactured, into products and then shipped across the country and around the world. These products include airplane parts, computers, vehicles, and textiles.

The Golden Horseshoe

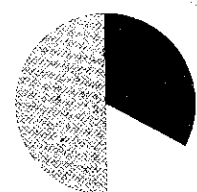
One of the areas with a large number of factories is the "Golden Horseshoe." Almost five million people live in this 150 kilometre wide area. This is more people than the total population of the Interior Plains region. This area is called "golden" because of its many industries, businesses, and banks that provide jobs for people.

A Large Population

These are a few facts about the population in this region:

- 12, or nearly half, of Canada's 27 metropolitan areas are in the Great Lakes area and along the St. Lawrence River.
- **Metropolitan areas** are urban areas with more than 100 000 people.
- More than 93 per cent of Ontario's 12 million people live in the Great Lakes area.
- About 80 per cent of Québec's population is in Montréal, Trois-Rivières, and Québec City.

Populations in Canada's Geographic Regions



- Great Lakes–St. Lawrence Lowlands 50%
- Canadian Shield 10%
- Appalachian 8%
- Arctic 2%
- Cordillera 13%
- Interior Plains 17%

Pause

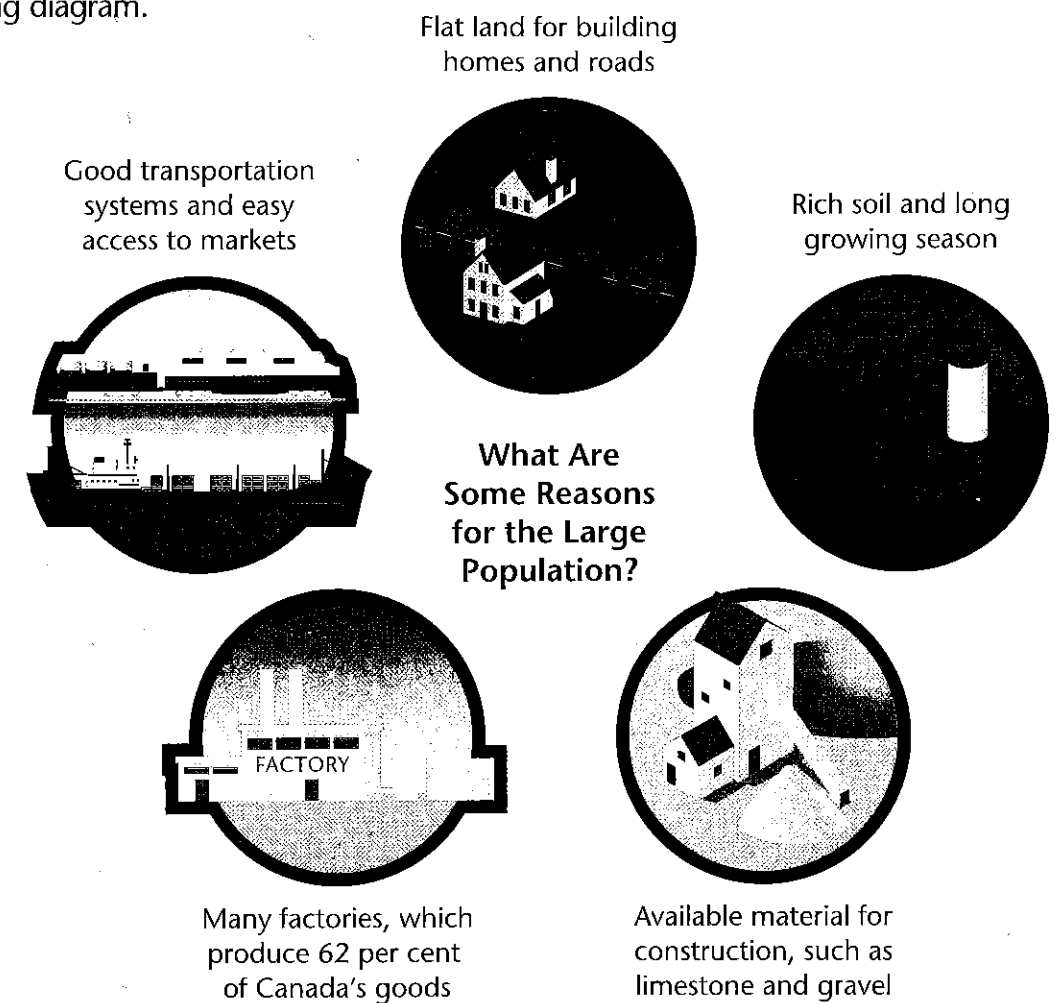
1. How do you think a large population might affect quality of life? What opportunities and challenges do you think a large population and many industries might create?

Thinking Like a Geographer

Why Does This Region Have the Largest Population in Canada?



Geographers study populations of communities to understand why people move to certain areas. Even though the Great Lakes–St. Lawrence Lowlands region is the smallest in Canada, more people live here than in any other region in the country. In fact, more than half of Canada's population lives in this region. The country's two largest cities, Toronto and Montréal, are both here. Why do so many people live in this region? Geographers have identified a web of factors, some of which are shown in the following diagram.



Thinking Like a Geographer

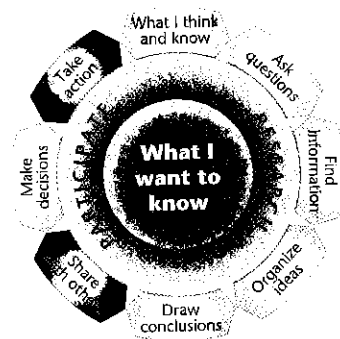
1. Why do you think that more and more people keep coming to settle in this region? What is it about a large population that would bring even more people?
2. This region has some of the oldest European settlements in North America. How do you think this region's history and geography might have contributed to its large population?

Why Should We Protect Our Environment?

With large numbers of factories and people, this region is faced with environmental challenges, such as air pollution.

Inquire

How Does Smog Affect Quality of Life in this Region?



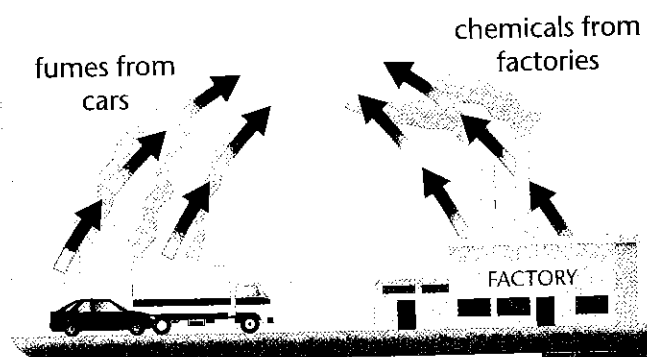
Ingrid

Toronto, Ontario

“On some hot summer days, smog covers the city and makes it very difficult to breathe. I have asthma, so on these smoggy days, I have to stay inside our house. Smog can cause lung disease. Smog is caused by air pollution, which comes from all the cars and factories. I know that cars help people get around, and factories produce many goods that people need, but I think we should do something about the problem of air pollution. Mom says that each of us can do our part by making good choices in the things we buy and use.”

How Is Smog Caused?

The heat of the sun on these fumes and chemicals creates harmful pollutants, causing smog.



A brown haze fills the air in Toronto. Smog can spread outside cities to rural areas as well.

What Can We Do to Prevent Air Pollution?



This region has one of the busiest highways in the world—Highway 401. The busiest sections of the highway, in the Toronto area, carry more than 400 000 vehicles each day. Vehicles are one of the largest sources of air pollution. Around the world, about 500 million vehicles are on the road every day—that is more than six times as many as in 1950. Every year millions of cars and trucks are built and added to our roads.

Today's cars run on gasoline, which is made from oil. There are two problems with gasoline-burning cars. The first is that these vehicles produce tonnes of fumes that harm the environment and our health. The second is that oil is a non-renewable resource.



Researchers are working to make cars that run on other fuels, such as hydrogen. Hydrogen-powered cars would only give off water, not fumes. They would not dirty the air like gas-burning cars. Also, we can make hydrogen, so it is a renewable resource. But a cheap, efficient way to make hydrogen has not been found yet. Scientists are working on it. In Mississauga, Ontario, a company is working on a new type of gas station that will move us closer to the use of hydrogen-run vehicles, like the one in Munich, Germany, shown in the above photograph.

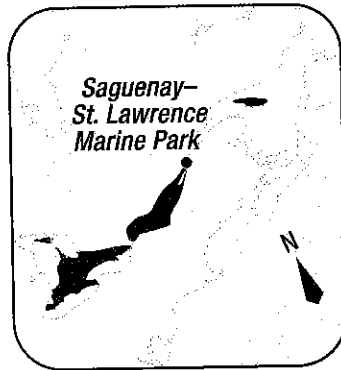
? Inquire

1. What can you do in your daily life to reduce pollution?
2. Work with a partner or in small groups to create an ad that informs people about the three most negative aspects of air pollution. Present your work to the class.
3. Do you have other questions about air pollution? What are you curious about? How might you plan an inquiry?

Why Do We Create National Parks?

As we have seen, humans have had a great impact on the environment of the Great Lakes–St. Lawrence region. Parks have been established to protect some of the region's natural features.

People and Places



Saguenay–St. Lawrence Marine Park

The mix of fresh and salty waters of Saguenay–St. Lawrence Marine Park has created a rich feeding ground for whales, seals, and fish. The Canadian government created this park to protect the diverse life of these waters.

Before making this a national park, the government wanted to make sure that no historical sites were disturbed. The government consulted with the Kichesipirini (*kich-eh-sip-py-ree-nee*), or Algonquin (*al-gon-kin*), who have lived in this area for thousands of years. The government also consulted with the Francophones of the area. Their history in this area dates back to the 1500s when the first French people arrived to hunt whales and fish.

Tourists from all over the world come to this park to see the rich marine life. They ride sightseeing boats to catch glimpses of seals or paddle kayaks to get close to the white beluga whales. Tourists who go to places to see unique wildlife and to learn more about the environment are called **eco-tourists**. “Eco” is short for “ecology.” Ecology is the study of the relationship between plants and animals and their habitat.

Tourism is important to this area. When growing boat traffic began to harm the marine mammals, communities of the area, tourism businesses, and the government worked together to find ways to protect the environment and the businesses that depend on it.



Saguenay–St. Lawrence Marine Park is one of Canada's best places to watch belugas.

Pause

1. Why do you think it is important to create parks?
2. How do parks add to people's quality of life?

← Looking Back

The Great Lakes–St. Lawrence Lowlands region is an interesting one because of its size, its population, and its industry. It is the most changed region in all of Canada from its natural state. What has caused these changes? How have these changes shaped ways of life?

On your own, with a partner, or in a small group:

- Review the Predict question at the start of this chapter: *How have people changed the landscape of this region?* What predictions did you make? What new things did you learn that you could add to your predictions?
- Choose one of the following to express what you have learned about the activities that have changed this region's landscape:
 - * Find three images and create a scrapbook page with an explanation for each image.
 - * Write a one-page travel journal.
 - * Create a poster.

In your work, discuss the effects of a changed landscape on quality and ways of life. What are the benefits? What are the challenges?

Building the Travel Canada Tour



We started to collect ideas for the *Travel Canada* tour in Chapter 1. Based on your learning in Chapter 2, continue to add ideas to help you build the tour. Were there communities that you found especially interesting in the Great Lakes–St. Lawrence Lowlands region? Why did you find them interesting? Jot down your ideas. Save any work that you did in your study of this region that might help you generate new ideas or extend into the tour.

→ Looking Forward

We have explored a region that is the smallest in Canada, but the most populated. The next region we are going to learn about is the largest in Canada, but it has one of the smallest populations. What differences and similarities might we see between these two regions?