The Adventure Begins

Studying a territory helps us better understand the world around us. Do you know how to read and interpret a map? How familiar are you with the cardinal points? What do you know about Canada's other provinces and territories? What is a natural hazard? You can find the answers to all these questions and more in geography.



Satellite images of North America and Canada

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Aerial view of the Canadian Prairies

The Canadian Prairies is a semi-arid region. It has enough humidity for different types of grass to grow, but not enough for forests. The ecosystem's flora and fauna have developed strategies for dealing with drought.



Moraine Lake in the Rocky Mountain region of Banff in Western Canada



0.1 Aerial view of the Canadian Museum of Civilization in Gatineau

INTRODUCTION AT A **GLANCE**

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The World Map

Geographic Coordinates and Cardinal Points

To help us figure out where we are on Earth, geographers have divided the planet with imaginary lines called parallels and meridians.

The parallels—also known as "lines of latitude" are horizontal lines that start at the equator. The equator is the line that divides the Earth into two hemispheres: the Northern Hemisphere and the Southern Hemisphere. The main parallels are numbered from 0° to 90° on both sides of the equator. The parallel at the equator is 0°. The distance between parallels is the same everywhere, but their circumference gets smaller as you get closer to the Earth's poles. Latitude is measured from 0° to 90°N in the Northern Hemisphere and from 0° to 90°S in the Southern Hemisphere.



120°

110°

100° 90° 80°

70° 60°

Greenwich Meridian

20

10°

The meridians—also known as "lines of longitude" are vertical lines that form half-circles connecting the North and South Poles. The Greenwich meridian, which runs through Great Britain, is considered 0°. The planet has 360 meridians in total. Because the planet is almost a perfect sphere, these meridians are all at equal distances from each other at the equator. The closer you get to the poles, however, the smaller the distance between the meridians becomes. Longitude is measured from 0° to 180°E to the east of Greenwich and from 0° to 180°W to the west of Greenwich.

If you stand with one foot on either

A closer look

50° 40° 30° 20° 10°

side of the Greenwich meridian, you would literally be standing where East meets West.



Geographic coordinates for North and Central America

- Geographic coordinates, which are determined by the latitude (parallels) and the longitude (meridians), tell us where places are located on the planet. The latitude coordinate is always given first, followed by the longitude coordinate. For example, Montréal is located at 45°N and 73°W.
- A compass rose shows the cardinal points: north, south, east and west. North is always at the top on a map, but should still be indicated for good measure. South is therefore at the bottom (at the opposite end); east is on the right and west is on the left. Maps often have only one arrow indicating north.



Use the political map of North America on page 7 of your Mini Atlas to answer the following questions.
 a) In which hemisphere is Canada located?

The Northern Hemisphere.

b) Circle the geographic coordinates for Montréal.



b) 48°N 54°W

c) 45°N 73°W

c) Write the name of the cities located at the following geographic coordinates.

49°N 123°W	Vancouver.
41°N 74°W	New York.
44°N 63°W	Halifax.
34°N 118°W	Los Angeles.
45°N 75°W	Ottawa.
33°N 112°W	Phoenix.

d) Determine the approximate geographic coordinates for your town or city.

Answers will vary.

e) What is the name of the axis that separates the Northern and Southern Hemispheres?

The equator.

2. Complete the compass rose by filling in the missing abbreviations for the cardinal points. Write the main cardinal points in red and the secondary cardinal points in green.





3. Examine the map above and answer the following questions.

a) Which continent is located:

• southeast of North America?	Africa.
• north of Oceania?	Asia.
• east of Asia?	North America.
• south of South America?	Antarctica.
b) Which ocean is located:	
• in the north?	Arctic Ocean.
• north of Europe?	Arctic Ocean.
• east of Africa?	Indian Ocean.
• west of North America?	Pacific Ocean.

Time Zones

Our planet is divided into 24 different time zones. Canada has a total of six time zones.

- When we travel east from a specific point of origin, the time advances by one hour for each time zone crossed.
- When we travel west from a specific point of origin, the time goes back by one hour for each time zone crossed.
- ▶ For example, if it is 1 p.m. in Paris, it is 7 a.m. in New York. In other words, there is a six-hour time difference between Paris and New York.



d) A seven-hour flight to Paris leaves Montréal at 8 p.m. What time will it be in Paris when the plane lands? <u>9 a.m.</u>

Types of Maps

There are different types of maps to help us determine where we are or to calculate the distance between where we are and where we want to go. The most common ones are topographical maps, thematic maps and road maps.

Topographical Maps

This type of map includes contour lines to show the shape and elevation of ground relief. The closer the contour lines (brown lines on the map) are together, the steeper the slope of the land. These maps are used to create thematic maps.



- **1.** Use this map of Saint-Donat-de-Montcalm to answer the following questions.
 - a) What is the title of the map?

Detail of a topographical map of Saint-Donat-de-Montcalm.

- b) What is the scale of the map? <u>1 cm equals 500 metres.</u>
- c) What is the highest mountain? Mont Garceau.
- d) How does the map show a high elevation?

The closer the contour lines are together, the steeper the slope of the land.

TΒ

Thematic Maps

This type of map highlights the features of a city, such as its road networks, pedestrian and bike paths, residential neighbourhoods, commercial and industrial areas, parks, municipal buildings, public transit networks, etc.



- **1.** Examine the map above and answer the following questions.
 - a) Who is this map intended for? Cyclists.
 - b) What town is located west of Bromont? Saint-Alphonse.
 - c) What town is located east of Bromont? Waterloo.
 - d) What town is located north? Roxton Pond.
 - e) What national park is shown on the map?
 - Parc national de la Yamaska.

TΒ

Road Maps

This type of map shows the man-made features of a territory, such as cities and towns and the roads that serve them. It can also be used to calculate distances between places. The map's scale is very important for calculating the number of kilometres to travel between places. This type of map makes travelling by car much easier.



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- 1. Examine the map above and answer the following questions.
 - a) Which highway goes from Drummondville to the city of Québec?

Autoroute 20.

b) List five highways shown on the map.

Sample answers. 55, 30, 20, 40, 15, 10, 73, 25, 31, 50, 640, etc.

c) What is the scale of the map?

1 cm equals 50 km.

d) What symbol is used to identify airports?

A picture of an airplane.

e) Name one town in the Lanaudière tourist region.

Sample answer. Joliette or Saint-Lin–Laurentides.

Climatic Maps

From its poles to the equator, the Earth is a mosaic of climates. There are three main climatic zones: the hot zone, the temperate zone and the cold zone. Each zone has its own unique climates.



- 1. Examine the map above and answer the following questions.
 - a) What colours represent cold zones?

White and turquoise.

b) Indicate the climate or climates:

• of Canada	The continental climate, subarctic climate, polar climate and	
	mountain climate.	
• of Egypt	The desert climate.	
• of Italy	The Mediterranean climate.	
of Saudi Arabia	The desert climate.	

c) Near which parallel are the following located:

- Antarctica
 Near the Antarctic polar circle.
- the equatorial climate *Near the equator.*

Canada

Canada has 10 provinces and three territories. Its 9 984 670 square kilometres make it the secondlargest country in the world.



Political Canada

1. Complete the blank map of Canada. Use your Mini Atlas to help you.

a) Colour the bodies of water in blue.

b) Colour the territories and provinces in different colours.



c) Locate the capitals, provinces and bodies of water listed below on the map. Enter each number in the correct location.

1 Prince Edward Island	8 British Columbia	15 Nova Scotia	22 St. John's	29 Baie d'Hudson (Hudson Bay)
2 New Brunswick	9 Yukon	16 Victoria	23 Whitehorse	30 Beaufort Sea
3 Québec	10 Northwest Territories	17 Charlottetown	24 Yellowknife	31 Baffin Bay
4 Ontario	11 Nunavut	18 Halifax	25 Iqaluit	32 Lake Superior
5 Manitoba	12 Newfoundland and Labrador	(19) Québec	26 Regina	33 Pacific Ocean
6 Saskatchewan	13 Ottawa	20 Fredericton	27 Winnipeg	34 Atlantic Ocean
7 Alberta	14 Toronto	21) Edmonton	28 Labrador Sea	35 Baie James (James Bay)

ID Cards of the Canadian Provinces and Territories

British	Columbia

PROVINCE British Columbia
CAPITAL Victoria
AREA 987 800 km ²
POPULATION 4 510 900 inhab.
OFFICIAL LANGUAGE English
NATURAL RESOURCES Forestry (timber), market gardening, fishing, mining.
UNIQUE FEATURES Presence of the Western Cordillera.
OFFICIAL FLAG

	PROVINCE Alberta
	Alberta
	CAPITAL Edmonton
	AREA 661 190 km ²
	POPULATION 3724 800 inhab
	OFFICIAL LANGUAGE English
	NATURAL RESOURCES hydrocarbons (oil sands, oil
	UNIQUE FEATURES Presence of the second secon
1	OFFICIAL FLAG
	<u></u>

Saskatchewan

PROVINCE Saskatchewan
CAPITAL Regina
AREA 652 330 km ²
POPULATION 1 041 700 inhab.
OFFICIAL LANGUAGEE English
NATURAL RESOURCES Agriculture (wheat, soybean), potash mining.
OFFICIAL FLAG

ROVINCE Manitoba
CAPITAL Winnipeg
AREA 649 350 km ²
POPULATION 1 232 700 inhab.
OFFICIAL LANGUAGE English
NATURAL RESOURCES Agriculture (wheat, soybean), filling.
OFFICIAL FLAG

Manitoba

Ontario

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PROVINCE Ontario
CAPITAL TOPONIO
AREA 1 068 580 km ²
POPULATION 13 167 900 inhab.
OFFICIAL LANGUAGE English
Agriculture (dairy farming,
NATURAL RESOURCES nig farming, poultry farming,
market gardening),
forestry, mining

Ouébec
PROVINCE Québec
CAPITAL Québec
AREA 1 540 680 km ²
POPULATION 7 886 100 inhab
OFFICIAL LANGUAGE French
NATURAL RESOURCES Hydroelectricity, agriculture (dairy farming, pig farming, poultry farming, corn), forestry (pulp and paper), mining (iron, gold, copper)
OFFICIAL FLAG

New Brunswick

PROVINCE New Brunswick	
CAPITAL Fredericton	Nova Scotia
AREA 73 440 km ²	CADINCE Nova Scotia
POPULATION 751 300 inhab.	CAPITAL Halifax
OFFICIAL LANGUAGES English and French	AREA 55 490 km ²
NATURAL RESOURCES Fishing, forestry, market	POPULATION 940 500 inhab.
gardening, hydrocal boils (oil and natural gas).	LANGUAGE English
	NATURAL RESOURCES Fishing forestry model
OFFICIAL FLAG	gardening, hydrocarbons
IT AL	OFFICIAL FLAG
	SI
Newfoundland and Labrado	
PROVINCE Newfoundland and Labrador	
CAPITAL St. John's	
AREA 405 720 km ²	heland
POPULATION 510 900 inhab.	Prince Edward Island
LANGUAGE English	-
NATURAL RESOURCES Fishing mining hydroelectricity	PROVINCE Prince Edward Island
hydrocarbons (oil and	CAPITAL Charlottetown
natural gas).	AREA 5560 km ²
OFFICIAL FLAG	POPULATION 141 600 Inhab.
	LANGUAGE English
	NATURAL RESOURCES Fishing, Market garden e
	OFFICIAL FLAG
Yukon	
TERRITORY Yukon	
CAPITAL Whitehorse	State of the second sec
AREA 483 450 km ²	
POPULATION 34 246 inhab	
OFFICIAL LANGUAGES English and English	
NATURAL RESOURCES Mining	Northusset
OFFICIAL FLAG	TERRITORY North
x	CAPITAL Vollenders
	AREA 2.402 possi
Nunavut	
	OFFICIAL LAND
TERRITORY Nunavut	NATURAL CARGUAGES English and French
CAPITAL Iqaluit	OFFICIAL RESOURCES Mining
AREA 1936 113 km ²	
POPULATION 32 900 inhab.	
OFFICIAL LANGUAGES English, French and Inukutut	
NATURAL RESOURCES Mining.	
OFFICIALITY	

The Earth's Internal Structure

The Earth is made up of several layers of varying thickness and composition.

The Lithosphere (or Crust)

This is the thinnest layer. It is between 0 and 70 km thick and is made up of solid materials. It represents 1% of the Earth's total mass. The lithosphere contains the tectonic plates that float on the Earth's mantle. Its temperature varies from -89° C to 58° C.

The Mantle

This is the layer beneath the lithosphere. It is between 70 and 2900 km deep.

The mantle represents 80% of the Earth's mass. It is made up of a viscous substance called magma. Temperature variations in the mantle cause the tectonic plates on the Earth's crust to shift. Its temperature is around 3000°C.

The Inner Core

This layer is made up of solid materials. It is between 5200 and 6370 km deep. Its temperature is around 4200°C.

The Outer Core

This layer is made up of a liquid substance. It is between 2900 and 5200 km deep. Its temperature is around 3500°C.

1. Indicate the Earth's different layers in the illustration below.



The Solar System and Our Changing Seasons

The Earth is part of a solar system that contains a star—the Sun—and eight planets. And the solar system is part of something even larger: a galaxy. Our galaxy is called the Milky Way. It is just one of the billions of galaxies in the universe.



Note: This representation of the solar system has been simplified to facilitate understanding.

A closer look



It takes the Earth 24 hours to make a complete rotation on its axis. While one half of the planet is facing the Sun (day), the other half is in complete darkness (night).

0.10 Day turning into night As the Earth rotates on its axis, it is also orbiting around the Sun. It takes the Earth 365 days—or one year—to complete one full revolution around the Sun. Due to the Earth's inclination on its axis, not all countries have the same seasons at the same time of the year. For example, when it's summer in Canada, it's winter in Australia.

In the Northern Hemisphere, the four seasons begin on the following days:

- Summer solstice: June 20 or 21 → the longest day of the year (brightness).
- Winter solstice: December 21 or 22 → the longest night of the year (darkness).
- Spring equinox: March 20 or 21 → day and night of equal length.
- Fall equinox: September 22 or 23 → day and night of equal length.

1. a) What do we call the time of year when night is the longest?

The winter solstice.

b) What season is it in Canada when it is winter in Australia?	Summer.
c) How long does it take the Earth to make a full revolution around the Sun?	365 days.
d) How long does it take the Earth to make a full rotation on its axis?	24 hours.
e) What do we call the times of year when day and night are of equ	al length?

The fall equinox and the spring equinox.

2. Do all countries have the same seasons at the same time? Justify your answer.

No. Countries do not have the same seasons at the same time because the Earth is tilted on

its axis.

Natural Hazards

Natural hazards are natural phenomena that occur in inhabited places and cause human and material damage. People have to learn how to deal with natural hazards and take preventive measures to avoid disasters.

1. Use the bank of answers to complete this diagram on the different parts of an earthquake.



2. Examine the illustration below and answer the questions that follow.



- a) Give the illustration a title.
- b) Explain what the illustration is showing in a few sentences.

Sample answer. A tsunami is created by an underwater earthquake. It generates huge

waves. The height of the waves increases as they approach the coast.

Examine the diagram on the right and answer Volcanic projections the questions that follow. (ash, rocks and toxic gas) a) What natural phenomenon is shown in the Cone diagram? Craters Sample answer. A volcano, a volcanic eruption. b) Complete the diagram by entering the correct terms in the spaces. c) Name some other natural hazards. Sample answers. Earthquakes, floods, hurricanes, drought, ice storms, tornadoes, tsunamis, etc. Lava flows Chimney Magma chamber



- **1.** Examine the photo on the right and answer the following questions.
 - a) What natural phenomenon is shown in this photo?

A volcanic eruption.



b) Analyze the photo. Describe the essential elements of the following planes:

- Foreground: *Farm, road, trees and buildings.*
- Middleground: *Base of the volcano and snow near the volcano's summit.*
- Background: *Volcanic projections, smoke and ashes.*
- **2.** Make a geographical sketch of the main elements in the photo. Use simple symbols and identify them in a legend. Give your sketch a title.

Title: <u>A volcanic eruption in agricultural territory</u> Answers will vary.

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Legend

Interpreting Tables and Graphs

How Do We Interpret a Table?

1. Read the table below and answer the questions.

0.11 Agriculture in some of Québec's administrative regions

Administrative region	Number of farms	Number of jobs
Bas-Saint-Laurent	2193	3900
Estrie	2570	5100
Chaudière-Appalaches	5294	10 400
Lanaudière	1624	3200
Montérégie	7144	14 900
Centre-du-Québec	3489	6500

Source: Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (preliminary data for 2005).

a) What information is presented in the table?

This table shows the number of farms in some regions of Québec and the number of jobs created by these farms.

b) What is the source of the information in the table?

The Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec.

c) Which region has the most jobs?

Montérégie.

d) Which region has the most farms?

Montérégie.

e) What conclusions can you draw on agricultural production in these regions of Québec?

Sample answers. The most farms and jobs are located in the Chaudière-Appalaches and Montérégie regions. They are therefore important agricultural regions.

f) Use the information in the table to create a bar graph. Give your graph a title.

Title: <u>Agriculture in some of Québec's administrative regions</u>



Creating Circle Graphs

- **1.** Read the table on the right and answer the questions.
 - a) What information is presented in the table?

This table shows the production of pulp, paper

and paperboard in Québec in 2004.

b) What are the sources of the information in the table?

The Ministère des Ressources naturelles

et de la Faune du Québec and the Québec Forest

Industry Council.

- c) Use the information in the table to create a circle graph in the empty space on the right.
- d) What does each segment of the graph represent?

The percentage of pulp, paper and paperboard

production by region.

e) Which region produces the most? Justify your answer.

Mauricie, because it produces 19% of the

total production.

f) What conclusions can you draw on the production of pulp, paper and paperboard in these regions of Québec?

Sample answer. The Mauricie and Saguenay–Lac-

St-Jean regions are the biggest producers of pulp,

paper and paperboard because together they

produce 34% of Québec's total production.

0.12 Québec's production of pulp, paper and paperboard in 2004 (by administrative region)

REGION	Production of pulp, paper and paperboard in 2004
Outaouais	13%
Estrie	10%
Mauricie	19%
Saguenay-Lac-St-Jean	15%
Capitale-Nationale	10%
Other regions	33%

Source: Ministère des Ressources naturelles et de la Faune du Québec, 2006; Québec Forest Industry Council 2005.





Interpreting Visual Documents

1. Examine the following photo and answer the questions below.

W. **TB**

0.13

The port of Asahi, Japan, in the aftermath of the March 2011 tsunami (This photo was taken by Eiji Yamazaki.)



a) What is the title of the document?

The port of Asahi, Japan, in the aftermath of the March 2011 tsunami.

b) What type of document is this?

A photograph.

c) Indicate the origin, date, author and source of this visual document.

This photo was taken in March 2011 over the city of Asahi in Japan by photographer

Eiji Yamazaki.

d) What is the main subject of this document?

The tsunami that hit Japan in March 2011.

2. Describe the elements shown in the document.

We see the shore submerged in seawater, boats washed up on land, cars and debris.