# Harbours to Highlands

A Geography Manual

## Maps and More

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# Maps and More

The information for the following story is from *Reading in the Content Areas: Social Studies.*

| Words to Preview | | |
|---|---|---|
| aerial | equipment | atlas |
| traveler | mountain | |

## A Short History of Maps

There are many different types of maps. A road map shows the roads in a certain area. Fishermen use charts to find their way to the fishing grounds. A globe is a round 3-D map that shows the whole Earth and an atlas is a book of maps.

Maps have been made for more than 16,000 years. Before 1,000 BC, the Babylonians used stone tablets to make maps. These maps were not accurate since people only knew about their local area.

The Greeks' maps were made from information they got from travelers. They used the sun, stars, and moon to gauge directions. Their maps had mistakes.

Present-day map makers have special equipment to help them measure distances. They take aerial photographs, use compasses, and measure hills and mountains. They even get satellite pictures.

Maps have symbols that represent different things. They also have a scale and a legend. A legend lets you know what the symbols represent. The scale tells you the distance proportions. For example, one inch on the map may equal 3 kilometers in real life.

Maps are divided by grid lines. This looks like a pattern of boxes. Along the left are letters and along the top are numbers. When you look in a map's index, it tells you which box a certain place is in.

Open your Nova Scotia Touring map located in the pocket of this binder.* Halifax is in box K7. Find the K row and find the 7 column. Find the box where the row and column meet and Halifax is in that area. This system makes it fast and easy to find places on a map.

Maps make traveling a lot easier and make the world seem a whole lot "smaller."

A copy of this map can be obtained from the Nova Scotia Department of Tourism and Culture. See http://www.novascotia.com/

# "A Short History of Maps"

## Comprehension Questions

1. What did the Babylonians use to make maps?
2. What did the Greeks use to gauge directions?
3. What is a legend?
4. What is a scale?
5. How are maps divided and why are they divided this way?

(View answers)

## Reading Between the Lines

1. Present-day map makers have special equipment to help them measure distances. They take aerial photographs, use compasses, and measure hills and mountains. They even get satellite pictures. Which do you feel is the most important tool for making accurate maps?

# "A Short History of Maps"

Map Reading Exercise

***For the following exercises, you need to use the Nova Scotia Touring map located in the pocket of this binder.**
**(**To obtain a copy of this map see: http://www.novascotia.com/).

**Using the index on the map, give the location of each of the following places then find the place on the map.**

**For example: Halifax is K7.**

| | | | | | |
|---|---|---|---|---|---|
| 1. | Annapolis Royal | _____ | 11. | New Ross | _____ |
| 2. | Clark's Harbour | _____ | 12. | Peggy's Cove | _____ |
| 3. | Lawrencetown | _____ | 13. | Windsor | _____ |
| 4. | New Glasgow | _____ | 14. | Pugwash | _____ |
| 5. | Truro | _____ | 15. | Pubnico | _____ |
| 6. | Pictou | _____ | 16. | Goldboro | _____ |
| 7. | Sydney | _____ | 17. | Louisbourg | _____ |
| 8. | Yarmouth | _____ | 18. | Kingsport | _____ |
| 9. | Ingonish | _____ | 19. | Kentville | _____ |
| 10. | Antigonish | _____ | 20. | Springhill | _____ |

(View answers)

cont...

**Using a ruler and the scale in the legend, find the approximate distance between the following locations.**

| | | |
|---|---|---|
| 1. | Port Mouton to Liverpool | _____km |
| 2. | Bedford to Fall River | _____km |
| 3. | Clementsport to Bridgetown | _____km |
| 4. | Cambridge to Maitland | _____km |
| 5. | Liverpool to Hibernia | _____km |
| 6. | Sheet Harbour to Sheet Harbour Road | _____km |
| 7. | Moose River to Bass River | _____km |
| 8. | Big Pond to Sydney | _____km |
| 9. | Meteghan to Yarmouth | _____km |
| 10. | Shelburne to Lower Ohio | _____km |

**Using the distance chart on the map, find the distances between the following locations.**

| | | |
|---|---|---|
| 1. | Halifax to Shelburne | _____km |
| 2. | Pictou to Sydney | _____km |
| 3. | Yarmouth to Sydney | _____km |

(View answers)

cont...

| | | |
|---|---|---|
| 4. | Antigonish to Baddeck | _____km |
| 5. | Halifax to Springhill | _____km |
| 6. | Digby to Truro | _____km |
| 7. | New Glasgow to Pictou | _____km |
| 8. | Peggy's Cove to Annapolis Royal | _____km |
| 9. | Windsor to Bridgewater | _____km |
| 10. | Tidnish to Maitland Bridge | _____km |

(View answers)

**Find some of the following attractions by looking using the symbols in the legend and the map.**

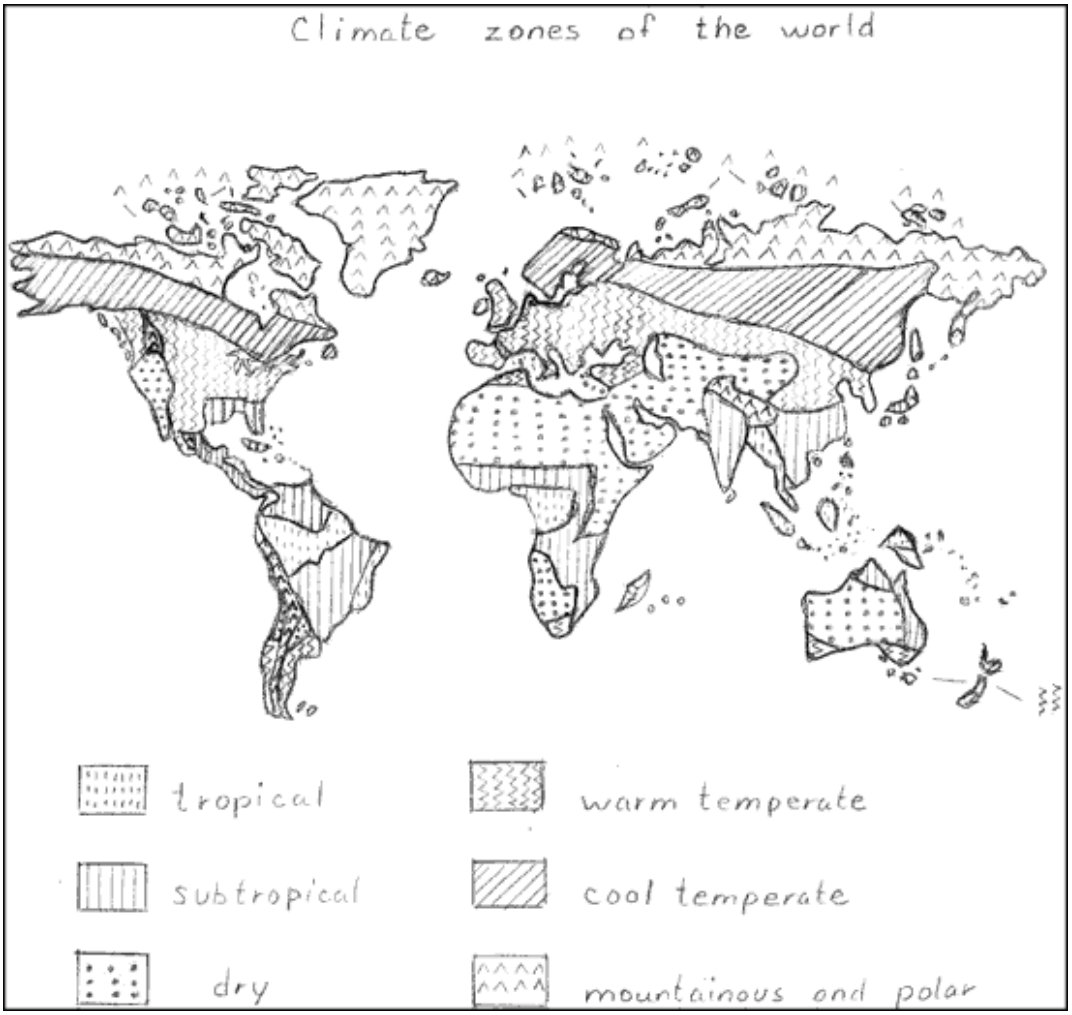
| | | |
|---|---|---|
| 1. | National Park/Historic Site: | _____ |
| 2. | Downhill skiing: | _____ |
| 3. | Golf Course: | _____ |
| 4. | Museum: | _____ |
| 5. | Campground: | _____ |
| 6. | Marina: | _____ |
| 7. | Hospital: | _____ |
| 8. | Boat Tours: | _____ |

(View answers)

# "A Short History of Maps"

Supplementary Exercise

**Climate Zones of the World**




1. List some of the areas of the world that are:
   a) tropical areas _____
   b) subtropical areas _____
   c) dry areas _____
   d) warm temperate zones _____
   e) cool temperate zones _____
   f) mountainous and polar areas _____

(View answers)

The information for the following story is from the Internet sites accessed 06/06/02:
http://www.funsocialstudies.learninghaven.com/articles/compass.htm
http://www.chasetrek.org.uk/tutorial/compass.html
http://www.pickatrail.com/jupiter/features/navigation/using_a_compass.html
http://www.compassupplier.com/use1.htm
http://www.scoutingresources.org.uk/compass_index.html

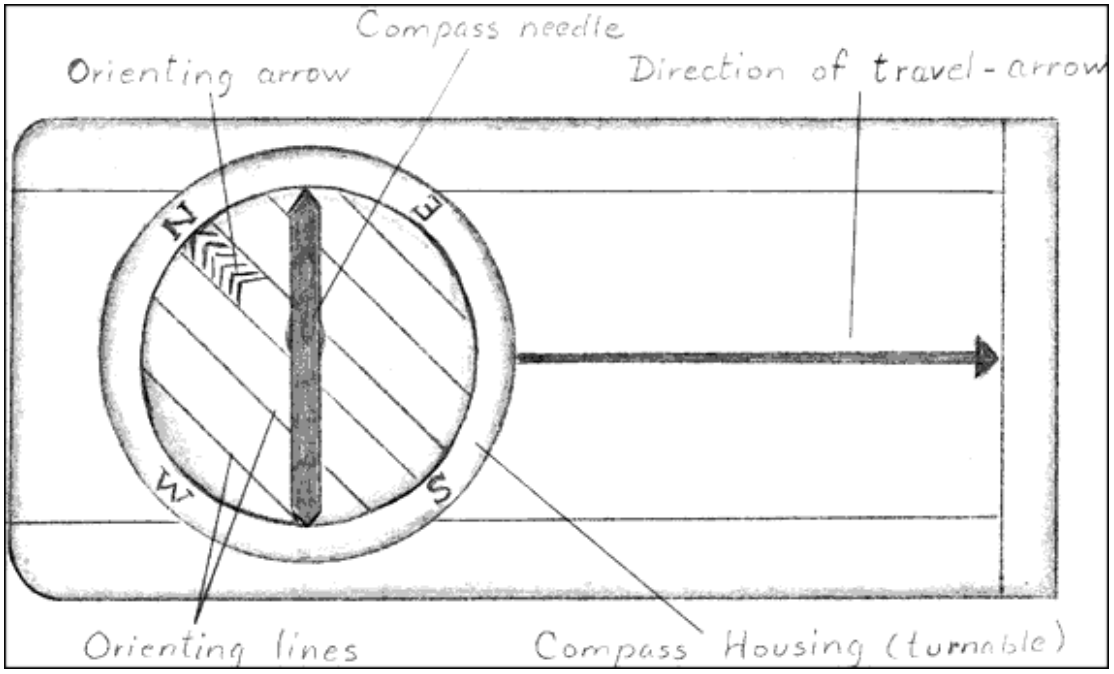
| Words to Preview | | |
|---|---|---|
| magnetic strip | azimuth | destination |

# How to Use a Compass

This is a very basic description of how to use a compass.

There are many different kinds of compasses.

There are compasses that strap to your thumb and some that are placed on a map.




A compass has four marked directions on it, North, East, South, and West.

When using a compass, always hold it flat in your hand.

This way the compass needle does not touch the top of the glass or bottom of the compass, and it can turn freely.

The most common compass uses a magnetic strip or compass needle that points to magnetic North.

Around the outside of the compass glass is called the compass housing.

You are able to turn the compass housing.

Around the compass housing is a scale from 0-360 degrees or the *azimuth*, and also known as the bearing.

Letters are labeled on the housing, N, E, S, W, for *North, East, South*, and *West*.

If your destination is between South and West, this is called *Southwest*.

To get Southwest, you would turn the compass housing between South and West.

Then turn yourself, not the compass housing, until the compass needle is in line with the travel arrow.

When the lines are pointing in the same direction, straight ahead is the direction you want to get to!

## "How to Use a Compass"

Comprehension Exercise

1. When you use a compass, you always hold it flat in your hand. Why?
2. What does the magnetic strip or compass needle point to?
3. What is the range of the degree scale around the compass housing?

(View answers)

Reading Between the Lines

1. How would you get to a destination that is northeast?

Trivia Question

**Do a bit of research.**

What is the orienting arrow on a compass used for?

(View answer)

**"How to Use a Compass"**

Prior Knowledge Exercise

| Before reading the story, write what you know about reading a compass. | Now that you've read the story, what else can you add to the list? |
| --- | --- |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

The information for the following story is from Scholastic Canada's *Atlas of the World* and the following Internet site accessed 12/05/02:
http://geography.miningco.com/library/misc/blequator.htm

| Words to Preview | | |
|---|---|---|
| imaginary | horizontal | vertical |
| hemisphere | equator | longitude |
| latitude | Prime Meridian | |

# Lines of Longitude and Latitude

## What is the Equator?

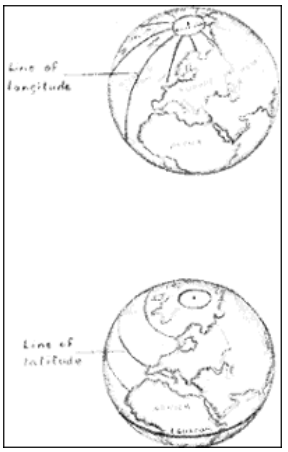
The equator is an imaginary horizontal line that runs across the surface of the earth. It divi des the world in half. The northern hemisphere is on the top and the southern hemisphere is on the bottom. The equator passes through northern Brazil, Kenya, Ecuador, and other countries. It is 40,075.16 kilometers long. Areas close to the equator are very hot since the sun shines directly overhead.

## What is the Prime Meridian?

The Prime Meridian is an imaginary vertical line that runs across the surface of the earth. It also divides the world in half -- the western hemisphere and the eastern hemisphere. The Prime Meridian passes through Greenwich, England.

## What are Lines of Longitude and Latitude?

Maps are also divided by other lines. These lines are used to locate places.




Lines of latitude are horizontal lines that circle the world. The distance between these lines is measured in degrees. Each degree is divided in minutes and seconds. By using lines of latitude, you can tell how many degrees north or south an area is from the equator. The equator is at zero degrees latitude.

Lines of longitude are vertical lines that circle the world. By using lines of longitude, you can tell how many degrees east or west an area is from the Prime Meridian. The Prime Meridian is at zero degrees longitude. Lines of longitude are also called meridians.

## What are the Tropic of Capricorn and the Tropic of Cancer?

The Tropic of Capricorn is an imaginary line of latitude that is 23.5 degrees south of the equator.

The Tropic of Cancer is an imaginary line of latitude that is 23.5 degrees north of the equator.

The area in between these two lines is called the "tropics."

# "Lines of Longitude and Latitude"

## Comprehension Questions

1. What is the equator?
2. Does the Prime Meridian run horizontally or vertically? What place does it run through?
3. What are lines of latitude?
4. What are lines of longitude?
5. The distances between lines of latitude and longitude are divided into what?
6. What are lines of latitude and longitude used for?
7. What is the area between the Tropic of Cancer and the Tropic of Capricorn called? Why are places close to the equator very hot?

(View answers)

## Reading Between the Lines

1. The equator passes through northern Brazil, Kenya, Ecuador, and other countries. Find these places on a map.

## Trivia Question

**Do a bit of research.**

The sun shines directly overhead at noon on the Tropic of Cancer on one day of the year. Which day is it? On what day does it shine directly overhead on the Tropic of Capricorn?

(View answer)

# "Lines of Longitude and Latitude"

## Rhyming

Rhyming words are words that sound the same.
Example: and, band, hand, land, sand

**Find the word/words in the story that rhymes with each of the following.**

| | | | |
|---|---|---|---|
| fun | _____ | song | _____ |
| mop | _____ | free | _____ |
| brother | _____ | dose | _____ |
| fines | _____ | well | _____ |
| lead | _____ | hero | _____ |
| hate | _____ | beast | _____ |
| topic | _____ | pan | _____ |

(View answers)

## Hard C

The letter "c" can make two sounds -- a hard sound and a soft sound. The letter "c" has a hard sound in words like "car" and "cat." It has a soft sound in words like "cent" and "face."

**Circle words that have a hard "c."**

| | | | |
|---|---|---|---|
| surface | distance | country | across |
| locate | can | vertical | Greenwich |
| place | close | topic | Capricon |
| circle | cancer | second | Canada |

(View answers)

The information for the following story is from the following Internet sites accessed 05/03/02:
http://www.ns.ec.gc.ca/pollution/index.html
http://www.foecanada.org/safewater/execsummary.htm
http://library.thinkquest.org/C0111401/land_pollution.htm
http://www.eagle.ca/~matink/themes/Environ/pollute.html
http://www2.lungusa.org/air/envmajairpro.html

| Words to Preview | | |
|---|---|---|
| pollutants | carbon dioxide | environment |
| contaminated | nitrogen dioxide | dredging |
| ozone | incineration | ecosystems |

# Earth and Pollution

Most people agree that there is too much pollution in the world. While watching the daily news or listening to the radio we hear of pollution harming the earth and all living things.

## Air Pollution

There are six air pollutants in the world today that cause serious problems. Below, is a brief description of each one.

**1. Carbon Dioxide**

Carbon Dioxide is a harmful, odorless gas. Carbon Dioxide is the more serious polluter as a greenhouse gas.*

**2. Ozone**

Ozone is the largest and most harmful part of "smog." It's known as *"ground-level ozone."*

**3. Nitrogen Dioxide**

This is produced when fuels are burned, especially by power plants and motor vehicles.

**4. Sulfur Dioxide**

This is found when fuels containing sulfur are burned by power plants and diesel engines.

**5. Particulate**

This is millions of small particles that come from the burning of fuels by diesel and industry vehicles and from the blowing dust of mining and construction.

To read more on greenhouse gases, see: "In the Sky Above" - *The Greenhouse Effect - What is it?*

**6. Lead**

At one time harmful lead was found in gasoline. Most gasoline is now made without lead. Lead is mainly found with the burning or incineration of lead batteries and contaminated oil waste. Indoors, we find lead in old paint and soil.

## Health Problems

All of the above pollutants can cause people and other living things serious health problems. These range from breathing problems to making it difficult for blood to carry oxygen to the body's brain, heart and other tissues. It can cause serious damage to the unborn and newborn.

## Land Pollution

Every day, many of us see examples of land pollution. One of the most obvious forms of land pollution is littering. Too much litter, or wrongfully disposed of garbage, seems to be cluttering our ditches, coastlines, streams, etc. This is bad for our environment, wildlife, and humans. It also looks terrible!

Some garbage is properly disposed of. Recyclable items are being recycled while some things are incinerated. But many areas have large dumping grounds with every type of domestic garbage in it. Nothing is sorted out, and these fill up quickly!

Other forms of land pollution are pesticides. These are used by farmers, forestry companies, and individuals. Pesticides kill insect pests and keep them away from the crops. Herbicides keep away weeds, and they can prevent soil erosion and water loss.

Some industrial activities can cause land pollution. An example of this is open cast mining. Large holes are dug in the ground and what is left behind in these holes are deep mining pools. Mining waste is left in these holes and some of the wastes can be poisonous and seep into the soil.

## Water Pollution

There are many different types of pollution in Canadian waters. Some of Canada's water pollution comes the pulp and paper industry. Canada has 157 mills across the country and all of them draw water from lakes and rivers for the pulp and paper making process. After the water is used, the leftover water is released back into the rivers, lakes, and oceans with harmful substances in it.

Another form of water pollution in Canada is marine debris. Too many boats in our oceans and lakes choose to throw their garbage into the water instead of disposing of it properly. A wide variety of garbage can be found floating around or sitting on the ocean floor -- anything from pop cans to motor oil bottles to old rubber boots!

Ocean disposal and dredging are other forms of pollution. Ocean disposal refers to things dumped into the ocean. An example of ocean disposal is an old ship, damaged and ruined, sunk to the ocean floor instead of removing it from the ocean.

Dredging is the removal of built-up mud, often containing contaminants, on a harbour's ocean floor. This is done to make sure ships can sail in and out of the harbor without hitting the bottom. However, dredging can disturb the ecosystem and can kill aquatic life.

Oil spills have caused a lot of problems to our ocean and lake ecosystems. Some ships have run aground or even dumped the oil into the water intentionally. This causes an oil slick resting on the water's surface. Oil spills made by ships transporting oil have caused many of the ocean's aquatic creatures, fish, birds, and seals to die. However, most of the oil spills come from land-based spills and discharges.

## Conservation of our Earth

There is so much pollution on earth and so many things need to be done. Stricter regulations have to be set on how much industries can contaminate our waters with waste water. We all need to take action against the constant pollution that is slowly ruining the earth. Some of the obvious things we can do are to not litter and to dispose of garbage and compost properly. We should think about what we buy, if we really need it, and is all that packaging really necessary? And, of course, Recycle!

# "Earth and Pollution"

## Comprehension Questions

1. What is carbon dioxide?
2. Which air pollutant makes up the largest and most harmful part of smog?
3. How is nitrogen dioxide produced?
4. What type of health problems can air pollutants cause?
5. Give one example of land pollution.
6. Where does most of Canada's water pollution come from?
7. What is dredging? How does dredging affect the environment?

(View answers)

## Reading Between the Lines

1. What forms of pollution do you find in your local area? Discuss with your class or teacher.
2. How much wastewater do you release in your household? (water taps, washing machines, toilet use)

## Trivia Question

**Do a bit of research.**

How much wastewater does the average Canadian pulp mill release per day?

(View answer)

# "Earth and Pollution"

## Synonyms

Synonyms are words that have the same meaning. Example: fast and quick

**Find a synonyms in the story for each of the following.**

1. scent-free _____
2. severe _____
3. biggest _____
4. automobiles _____
5. garbage _____
6. little _____
7. rapidly _____
8. places _____
9. kinds _____
10. sea _____

(View answers)

## Long Vowel Sounds

The vowels can have a long or short vowel sound. Examples of words with long vowels sounds are: cake, eat, idea, over, use.

**Circle the words that have a long vowel sound.**

| | | | |
|---|---|---|---|
| agree | gas | fuel | are |
| too | smog | one | mine |
| come | time | brain | can |
| most | old | was | hole |
| slow | other | keep | mud |

(View answers)

# Pollution

There is a lot of pollution in our world.

Three forms of pollution are air, land, and water pollution.

There are six air pollutants in the world today that cause serious health problems.

One example of an air pollutant is the carbon monoxide from our cars' exhausts.

Kinds of land pollution are litter, garbage, pesticides and herbicides, and industrial activity.

Water pollution is also a problem.

Garbage in our oceans, waste from the pulp and paper industry, and oil spills cause water pollution.

A lot needs to be done to take action against the constant pollution on our Earth.

1. Three forms of pollution are _____.
2. Air pollutants cause _____.
3. Garbage in our oceans, _____, and _____ cause water pollution.

* For sources to this article, see *Earth and Pollution.*

The information for the following story is from these Internet sites accessed 04/14/03:
http://www.geog.ouc.bc.ca/physgeog/contents/2c.html
http://www.sunearth.gsfc.nasa.gov/eclipse/SEhelp/TimeZone.html
http://wamadesign.virtualave.net/canadaeh/about/timezone.html
http://greenwichmeantime.com/

| Words to Preview | | |
|---|---|---|
| citizen | longitude | standardized method |
| nineteenth | rotates | Greenwich |

# How The World Became "On Time"

Before the nineteenth century, people set their clocks according to the sun. Noon was when the sun was at its highest peak during the day. Each town would have its own clock, placed in the middle of town and citizens would set their clocks according to the official town clock.

In North America people started moving "out west" in the late nineteenth century. New settlements and railroads were being built. People realized their way of keeping time was not working well. Each town was on a different time schedule, and it was hard to keep scheduled railway stops in all the towns. Being off a few minutes here and there caused a lot of problems.

In 1878, a Canadian man named Sir Sanford Fleming came up with a time zone system. Mr. Fleming's idea was that the world be divided up into twenty-four time zones. Each time zone would be fifteen degrees of longitude in width. Mr. Fleming said the world rotates once every 24 hours, and the earth has 360 degrees of longitude, so every time the earth rotated an hour meant 15 degrees of longitude.

In 1883, many railroad companies in Canada and the US began using Mr. Fleming's time zone system. In 1884, Sir Sanford Fleming's system was officially made the standardized method of keeping time in the world. Since 1884, Greenwich, England has been the home of Greenwich Mean Time sometimes known as Greenwich Meridian Time. At Greenwich, east meets west. The time zones to the east of Greenwich are ahead of Greenwich Mean Time and places to the west are behind Greenwich Mean Time.

## GMT and Canada's Time Zones

All Canadian time zones are behind Greenwich Mean Time. Canada is made up of five different time zones. Look at the diagram to see Canada's time zones. The most eastern province of Canada is Newfoundland. It has *Newfoundland Standard Time* which is 3 hours and 30 minutes behind Greenwich Mean Time or GMT.

Nova Scotia is on *Atlantic Standard Time*. Canada's most westerly time zone is *Pacific Standard Time*, which is 8 hours behind GMT.

Thanks to Sir Sanford Fleming the world has been "on time" ever since!

### "Going south this winter?"

Many Canadians like to escape Canada's cold winters and head for the beach down south. It seems like a whole world away but the time zone in the Caribbean is only one hour behind Atlantic Standard Time. Funny how two areas so close in time zones can be so different!

## "How The World Became 'On Time'"

### Comprehension Questions

1. How did people set their clocks before the nineteenth century? What problems were they having with this system?
2. Who invented the time zone system?
3. When was the time zone system made the official standardized method of keeping time?
4. How many time zones does Canada have?
5. What is the time difference between Atlantic Canada and the Caribbean?

(View answers)

### Reading Between the Lines

1. What do you think would happen now if every town had a different time schedule?

### Trivia Question

**Do a bit of research.**

If you lived in India, would you be behind GMT or ahead of GMT?

(View answer)

# "How The World Became 'On Time'"

## Time Zone Conversions

**Use the Canada time zone map in the story for this exercise .**

**If the Atlantic Standard time is 2 pm, what time is it in the following locations?**

| | | | | | |
|---|---|---|---|---|---|
| 1. | Montreal | _____ | 7. | Winnipeg | _____ |
| 2. | Vancouver | _____ | 8. | St. John's, NFLD | _____ |
| 3. | Regina | _____ | 9. | Yellowknife | _____ |
| 4. | Thunder Bay | _____ | 10. | Calgary | _____ |
| 5. | Ottawa | _____ | 11. | Fredericton | _____ |
| 6. | Edmonton | _____ | 12. | Prince George | _____ |

(View answers)

## Extra Challenge

**Find a time zone map or chart of the world.**

**If it is 10 am Atlantic Standard time, what time is it in each of the following places?**

| | | | | | |
|---|---|---|---|---|---|
| 1. | Arizona | _____ | 10. | Madrid, Spain | _____ |
| 2. | Bangkok, Thailand | _____ | 11. | Manilla, Phillipines | _____ |
| 3. | Brussels, Belgium | _____ | 12. | Mexico City | _____ |
| 4. | Dublin, Ireland | _____ | 13. | Moscow, Russia | _____ |
| 5. | Fiji | _____ | 14. | Paris, France | _____ |
| 6. | Hawaii | _____ | 15. | Rome, Italy | _____ |
| 7. | Hong Kong, China | _____ | 16. | Singapore | _____ |
| 8. | Israel | _____ | 17. | Sydney, Australia | _____ |
| 9. | London, England | _____ | 18. | Tokyo, Japan | _____ |

(View answers)