

Geography

LESSON1: Location and Position of the Great Lakes and St. Lawrence Seaway

Learning Outcomes

By the end of this lesson, you should be able to:

- i) list the Great Lakes of North America.
- ii) describe the location of the St. Lawrence Seaway.
- iii) locate the Great Lakes and St. Lawrence Seaway on a map.
- iv) draw a map to show the Great Lakes and St. Lawrence Seaway.

Materials you need:

- a map showing the countries of North America
- a notebook
- a pen
- a pencil
- an eraser

Instructions

- You will be studying one lesson each day. Try to do all activities programmed for each day.
- Remember that some activities may take you more than one hour to complete.
- Read the instructions carefully before you begin doing each activity.
- In case you find an activity difficult, ask an older person around you to assist you.

Introduction

In Senior One you learnt about the major lakes and rivers of North America. In your notebook, write two lists; one of the major lakes and the second one of the major rivers of North America. Do you remember how important these lakes and rivers are to USA and Canada? In this lesson you are going to learn more about the Great Lakes and St. Lawrence River and how the two have been developed for transport.

Activity 1

Look at Figure 1 which shows the map of USA and Canada and use it to do the tasks that follow.

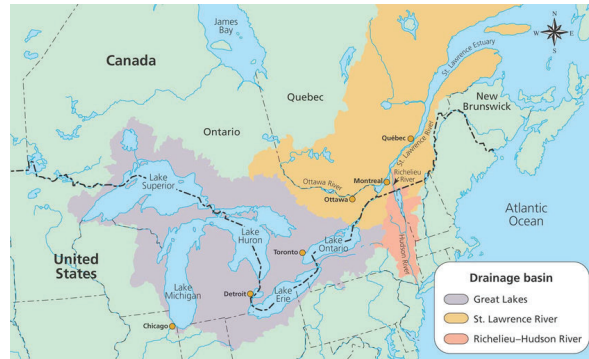


Figure 1: Map showing part of USA and Canada

1. Identify the lakes which are crossed or lie close to the border of USA and Canada.
2. Copy the map into your notebook and on it mark and name the:
 - i) lakes which you have identified in step 1 above.
 - ii) St. Lawrence River and its tributaries.
 - iii) towns and ports along the lakes and St. Lawrence River.
 - iv) estuary at the mouth of the St. Lawrence River.
 - v) ocean in which the St. Lawrence River pours its waters.
3. When the school re-opens, hand in your work to your teacher of Geography for comments and further assistance.

The five lakes which you have marked and named on your map are called the Great Lakes of North America. You can always remember them from the west to the east by the statement "**Some Men Have Eaten Oranges**" or "**Sister Mary Hates Eating Oranges**". The first letter on each word in the statement represents the first letter of the name of a lake. Such a statement is called a mnemonic.

In your notebook, list the Great Lakes following the order given by one of the above mnemonics. Try to create your own mnemonic for these lakes.

Activity 2

Using the sketch-map you have drawn in your notebook:

1. write two paragraphs to describe the location of the Great Lakes and St. Lawrence Sea way.
2. determine which of the Great Lakes is:

- o the largest
- o the smallest
3. explain why St. Lawrence River is called a Seaway.

Summary

In this lesson you have learnt that:

- the Great Lakes and St. Lawrence River form a natural boundary between the United States of America and Canada.
- the Great Lakes, the St. Lawrence River and its tributaries form the most important water way in North America - the St. Lawrence Seaway.
- many cities and ports have grown up along the shores of the Great Lakes and in the St. Lawrence valley. This has been due to the presence of plenty of fresh water for domestic and industrial use, fertile soils which support farming, numerous industries and businesses which employ many people.
- the Great Lakes region and St. Lawrence valley is one of the most densely populated areas in North America.

Follow up Activity

1. Use the atlas/a textbook on North America or ICT tools to find out the positions of the following:
 - Cities and ports: Thunder Bay, Duluth, Superior, Cleveland, Sault Ste. Marie, Buffalo, Milwaukee
 - Gulf of St. Lawrence
2. Mark and name the cities and ports, and the gulf you have identified in (1) above on the sketch map which you drew in **Activity 1**.
3. Why do you think there are many towns and cities along the shores of the Great Lakes and the valley of the St. Lawrence River?

LESSON 2: Problems that faced water transport on the Great Lakes and St. Lawrence River before the Seaway project

Learning Outcomes

By the end of this lesson, you should be able to:

- i) describe the problems that affected

transport in North America before the Seaway project.

- ii) identify areas which had bottlenecks on a map.

Instructions

- Try to do all activities programmed for this topic.
- Remember that some activities may take you more than one hour to complete.
- Read the instructions carefully before you begin doing each activity.
- In case you find an activity difficult, ask an older person around you for assistance.

Materials you need:

- atlas
- textbook
- photographs
- a notebook
- a pen
- a pencil
- an eraser

Introduction

You now know the Great Lakes of North America. You also know that one can sail along the Great Lakes and St. Lawrence River from the interior of North America to the Atlantic coast; and to overseas countries. This is a 3,700km journey. It takes only about 8 sailing days. In this lesson you are going to learn why in the early times, before 1959, it was not easy to use the Great lakes and St. Lawrence River as one waterway.

Activity 1

Read the passage and do the tasks that follow.

The Great Lakes and St. Lawrence Seaway is a 3,700 km route from the Atlantic Ocean to Lake Superior in the American interior. Sometimes it is called a “marine highway”. The Great Lakes and St. Lawrence River have served as major North American trade routes since long before the US or Canada became an independent nation. Today, more than 200 million tonnes of cargo are transported on the seaway every year.

In 2020, it is expected that the St. Lawrence Seaway will reach a total of three billion tonnes of cargo since it was opened in 1959.

The cost of constructing the Seaway from 1954 to 1959 was over a thousand million US dollars (about 2,800 billion Uganda Shillings). It was shared between the governments of USA and Canada through international agreements which are still respected up to today.

However, before 1959 it was not possible for large ocean-going ships to sail from Atlantic coast to Duluth on Lake Superior. Large ships had only been able to sail either on the Great Lakes or from the Atlantic Ocean along the St. Lawrence River up to Montreal.

The St. Lawrence rapids had always been a major barrier along the water high way between Lake Ontario and Montreal. There were numerous sections with under-water rocks which used to affect navigation. Only small ships could sail along the shallow canals which had been constructed to by-pass the rapids. There were lots of delays as it took a whole week for these ships to sail from Montreal to Lake Ontario! The Niagara water falls between Lakes Erie and Ontario, which is almost 100 metres (300ft) high, was another barrier to navigation.

There was a conflict of development if these water falls were destroyed. They were, and still are, an important tourist attraction for USA; attracting over 2million visitors each year. Again, they were needed for producing hydroelectricity. In fact, the greatest concentration of developed hydroelectric power in the world is around Niagara Falls.

Though the idea to construct the Seaway had been discussed for many years, it faced strong opposition, especially from USA. The American railways, New York Port and other Atlantic ports, Montreal and Buffalo, New Orleans and other Gulf ports all opposed the seaway project.

A new era in marine transportation was made possible by construction of the 306-kilometer stretch of the St. Lawrence Seaway between Montreal and Lake Ontario during the mid to late 1950s.

- Describe at least six problems that faced transport in North America before the St Lawrence Seaway project was undertaken.
- Identify one problem which used to affect navigation on the Great Lakes and St. Lawrence River which is shown on the map but not mentioned in the passage.
- Draw a diagram and use it to explain how waterfalls can affect the movement of boats and ships on a river.
- Do you think ships can sail along river Nile from Lake Victoria to the Mediterranean Sea? Give reasons to support your opinion.

Activity 2

Suggest reasons why the following had strongly opposed the Seaway project thereby delaying it:

- The American railways
- New York Port
- Montreal and Buffalo
- The Gulf ports

The difficulty to sail along the Great Lakes and St. Lawrence River was worsened by the fact that the Great Lakes lie at different heights. So it was not easy to sail from one lake to the other.

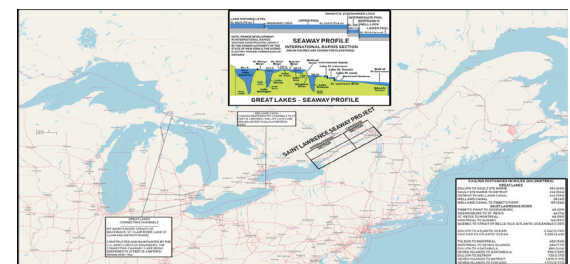
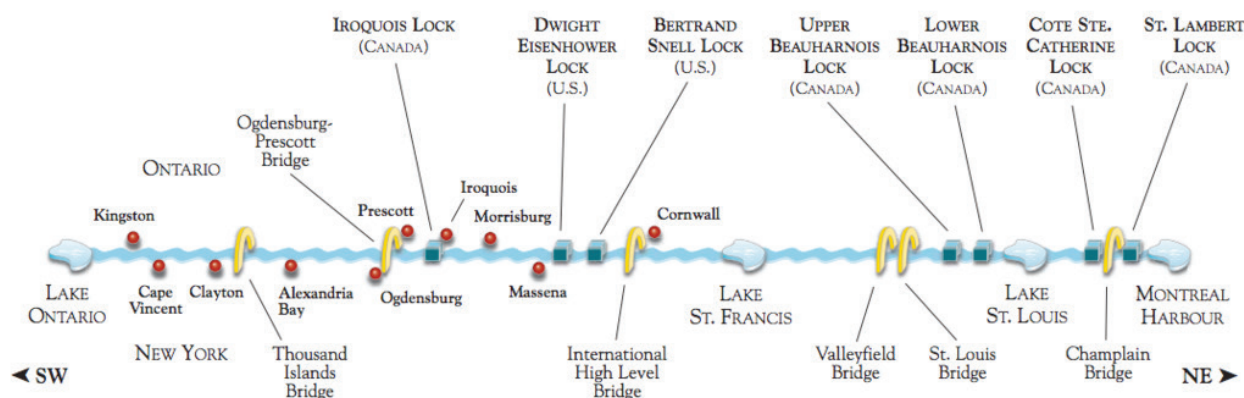
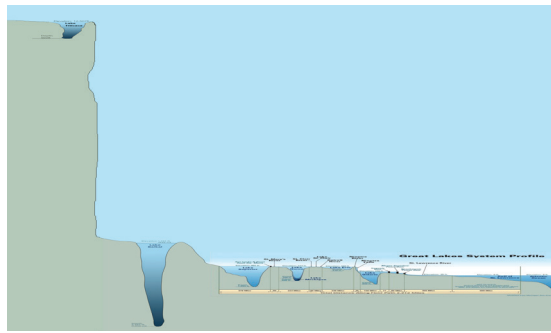


Figure 3: A Cross section through the Great Lakes and St. Lawrence Seaway





Activity 2

- Copy Figure 3 in your notebook and on it mark and name the:
 - Great Lakes and their heights in metres
 - St. Lawrence River and Atlantic Ocean
 - Welland Canal
- Identify the points at which navigation was very difficult. Give reasons to support your suggestions.

Summary

In this lesson you have learnt that:

- the Great Lakes and St. Lawrence River form a natural boundary between the United States of America and Canada.
- the Great Lakes, the St. Lawrence River and its tributaries form the most important water way in North America - the St. Lawrence Seaway.
- many cities and ports have grown up along the shores of the Great Lakes and in the St. Lawrence valley. This has been due to the presence of plenty of fresh water for domestic and industrial use, fertile soils which support farming, numerous industries and businesses which employ many people.
- the Great Lakes region and St. Lawrence valley is one of the most densely populated areas in North America.

Follow up Activity

- Copy the table below in your notebook and use it to classify the problems which used to affect transport in North America before the Seaway project.

Natural/ Physical Problems	Human Problems

- Explain what Uganda can learn from the historical geography of the St. Lawrence Seaway.

LESSON 3: Steps taken to solve the problems that faced water transport on the Great Lakes and St. Lawrence River before the Seaway project

Learning Outcomes

By the end of this lesson, you should be able to:

- explain the steps which were taken to solve the problems that affected transport in North America before the Seaway project.
- identify areas of these solutions on a map.
- recognise the solutions on diagrams and photographs.

Instructions

- Try to do all activities programmed for each day.
- Remember that some activities may take you more than one hour to complete.
- Read the instructions carefully before you begin doing each activity.
- In case you find an activity difficult, ask an older person around you for assistance.

Materials you need:

- textbook
- photographs
- diagrams from the Great Lakes and St. Lawrence valley
- a notebook
- a pen
- a pencil
- a foot ruler
- an eraser

Introduction

Now that you know the problems that used to affect water transport on the Great Lakes and St. Lawrence River, think about how such problems could have been solved. In this lesson you are going to learn how the problems to navigation were solved, the steps involved and the difficulties which were faced by both governments and engineers.

Activity 1

Look at Figure 3 in Lesson 2 again.

Initiated in 1954 and completed in 1959, building the Seaway required:

- Some 22,000 workers
- Moving 210 million cubic yards of earth and rock

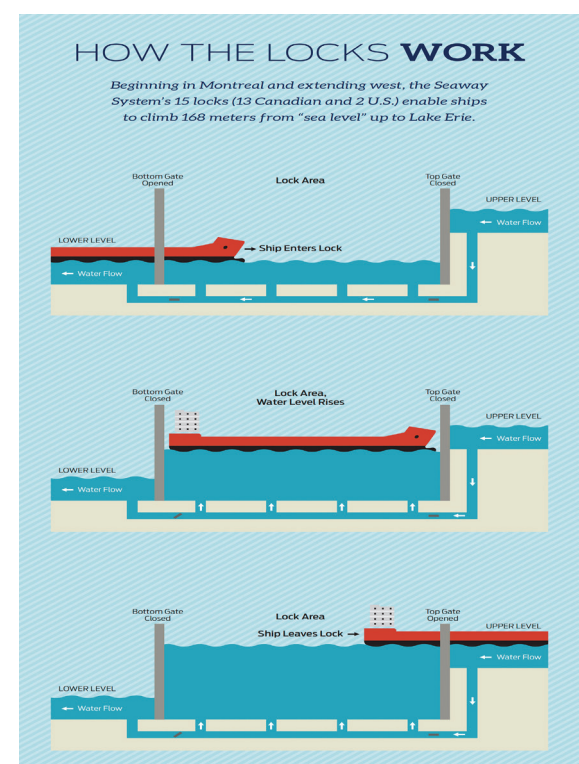
- Pouring over 6 million cubic yards of concrete

In 2020, it is expected that the St. Lawrence Seaway will reach a total of three billion tonnes of cargo having transited its locks since it initially opened in 1959. This rapidly approaching milestone serves as a strong testimony to the Seaway's ongoing role as a vital trading gateway connecting the heart of North America to over 50 trading nations across the globe.

In a typical year, about 25% of Seaway traffic travels to and from overseas ports, especially in Europe, the Middle East, and Africa.

Administration of the St. Lawrence Seaway

The St. Lawrence Seaway was built as a binational partnership between the U.S. and Canada through international agreements that carry the weight of treaties, and continues to operate as such. Administration of the waterway is shared by two entities, the Saint Lawrence Seaway Development Corporation in the US, a federal agency within the US Department of Transportation, and the St. Lawrence Seaway Management Corporation in Canada, a not-for-profit corporation established by the Government of Canada.



Over the last 200 years, navigation improvements in both the U.S. and Canada have enhanced the waterway. The resulting deep-draft inland navigation system is the longest in the world, extending 3,700 kilometres (2,300 miles) into the North American heartland.