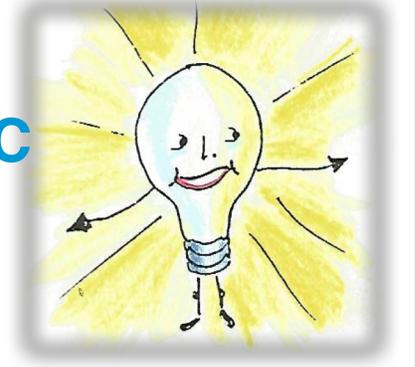


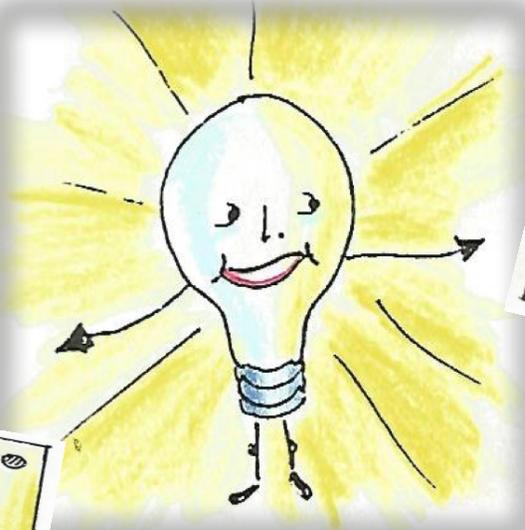
Section B3

THE DEVELOPMENT OF HYDROELECTRIC POWER IN QUEBEC



THE IMPORTANCE OF ELECTRICITY IN OUR LIVES

You are sitting in your living room from where you can see your kitchen, dining room, and bedroom. Which electrical appliances can you see in each?

A yellow notepad with horizontal lines. In the bottom right corner, there is a small illustration of a red armchair with a blue lamp on top of it. The notepad has a small circular icon in the top left and bottom right corners.A yellow notepad with horizontal lines. In the bottom right corner, there is a small illustration of a blue coffee maker with a white cup of coffee next to it. The notepad has a small circular icon in the top left and bottom right corners.A yellow notepad with horizontal lines. In the bottom right corner, there is a small illustration of a dining table with a white plate, a glass, and a fork. The notepad has a small circular icon in the top left and bottom right corners.A yellow notepad with horizontal lines. In the bottom right corner, there is a small illustration of a stove with a red flame. The notepad has a small circular icon in the top left and bottom right corners.

THE IMPORTANCE OF ELECTRICITY IN OUR LIVES *(Continued)*



Imagine a young girl in the 18th century, like you in the previous slide, sitting in her living room looking at the same house divisions as you.

What did she see that lit the various rooms?



On which occasion(s) do we still use today the 18th century lighting devices?

B3 a. HOW HYDROELECTRIC ENERGY IS GENERATED AND DISTRIBUTED

Consider the image and place the correct numbers in the appropriate place.



(1)

(2)

(3)

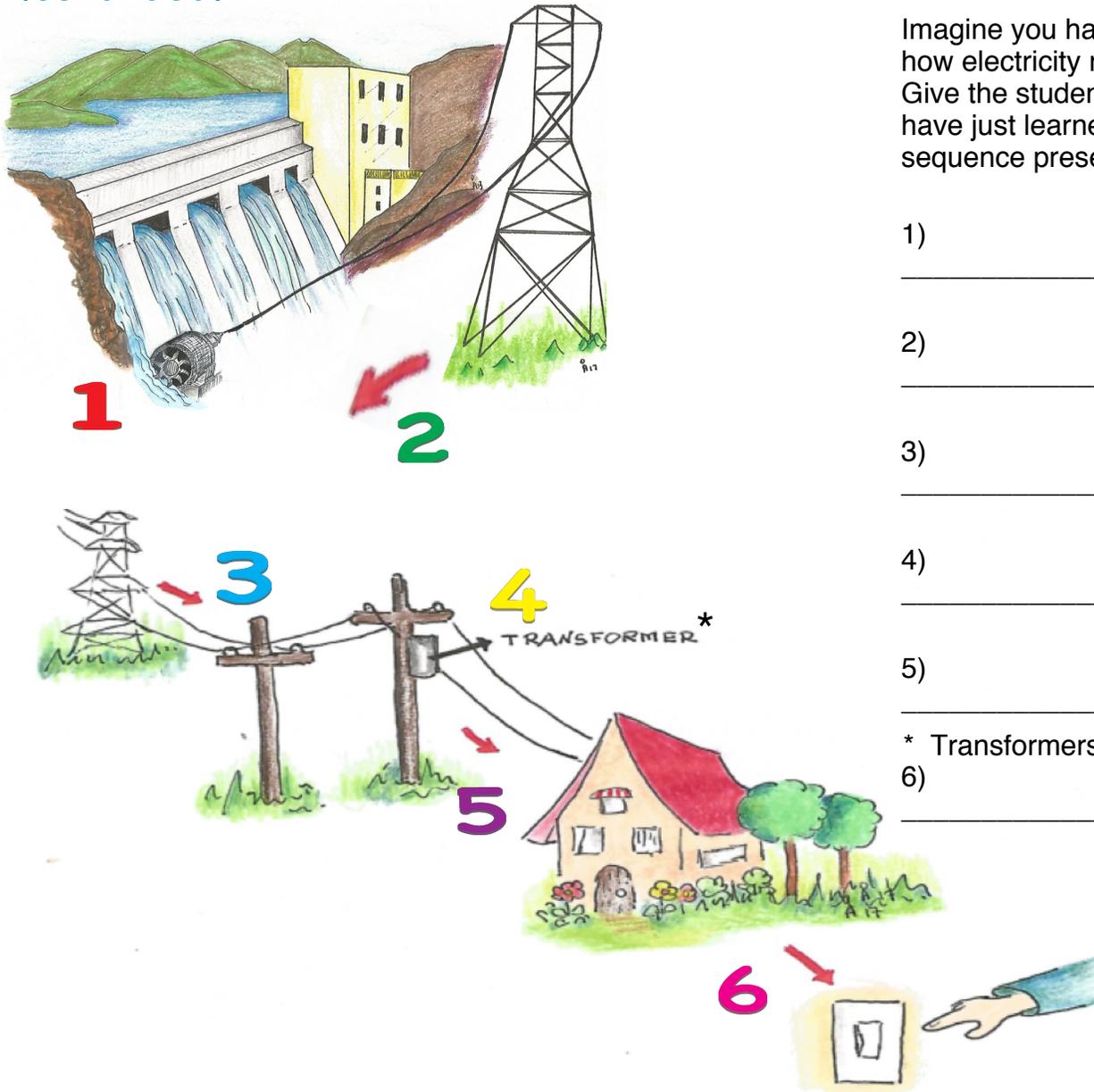
(4)

(5)

(6)

Dams are built ideally where the river is at its narrowest and its banks at its greatest height **(1)**. The water accumulated in a dam is called a **reservoir (2)**. The water comes out with great force through narrow passages **(3)** which then makes machines, called **turbines (4)**, rotate very fast producing electricity **(5)**. The electricity is then transported to places far away through **aerial cables** supported by **towers (6)**.

B3 a. HOW HYDROELECTRIC ENERGY IS GENERATED & DISTRIBUTED (continued)



Imagine you had to explain to grade 4 students how electricity runs from turbines to our homes. Give the students a simple summary of what you have just learned. Make it fascinating. Use the sequence presented in the above drawing.

1)

2)

3)

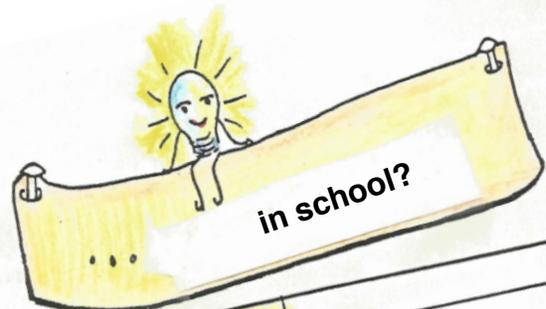
4)

5)

* Transformers increase or reduce electrical power

6)

B3 b. WHERE IS HYDROELECTRICITY USED ...



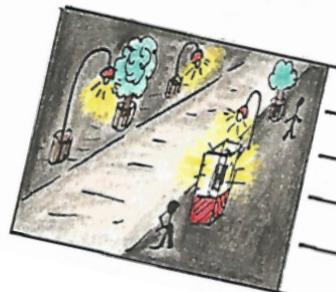
in school?



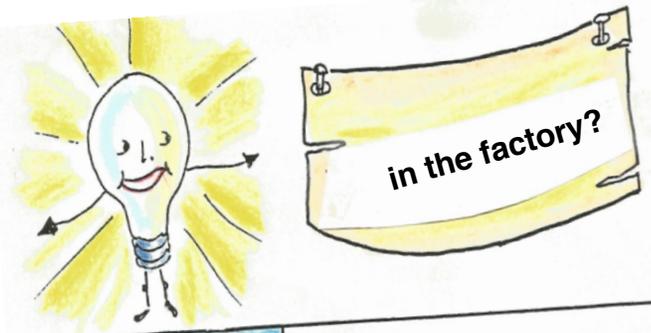
Four horizontal lines for writing.



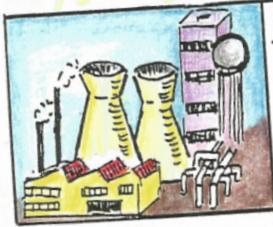
... in the street?



Four horizontal lines for writing.



in the factory?



Four horizontal lines for writing.

B3 c. BE AN ENERGY PLANNER



The image represents a mountainous region deeply cut by rivers.

- 1) Drag the windmill to an ideal place.
Justify your choice.



- 2) Drag the dam to the best location.
Give reasons for your choice.



- 3) Drag the watermill to an appropriate place and explain your choice.



- 4) Which three energies are depicted in the image

a. _____ b. _____ c. _____

B3 d. DID YOU KNOW ...

**that Hydro-Quebec is the second largest producer of hydroelectricity in the world?
Let's study how it all came about.**

The further we go into the 20th century, the more technology advanced and the more the need for electricity increased.

Since the late 19th century, many hydroelectric dams were built on different rivers in Quebec. However, quite a number of these dams belonged to American companies that did not invest the profits in Quebec. Also, they failed to distribute electricity fairly while electrical fees varied from region to region. The hardest hit areas were the rural regions.



Make a list of complaints the Quebec farmers might have delivered to the provincial government.

1. _____

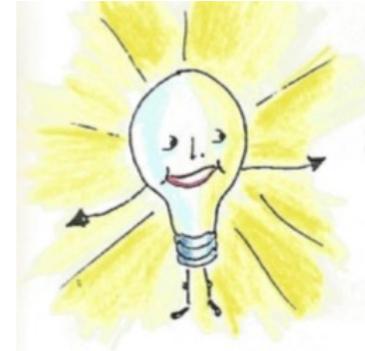
2. _____

3. _____

4. _____

B3 d. (continued)

Complete the following by writing the correct word on each dotted line.



1 **M**

2 **O**

3 **N**

4 **T**

5 **R**

6 **E**

7 **A**

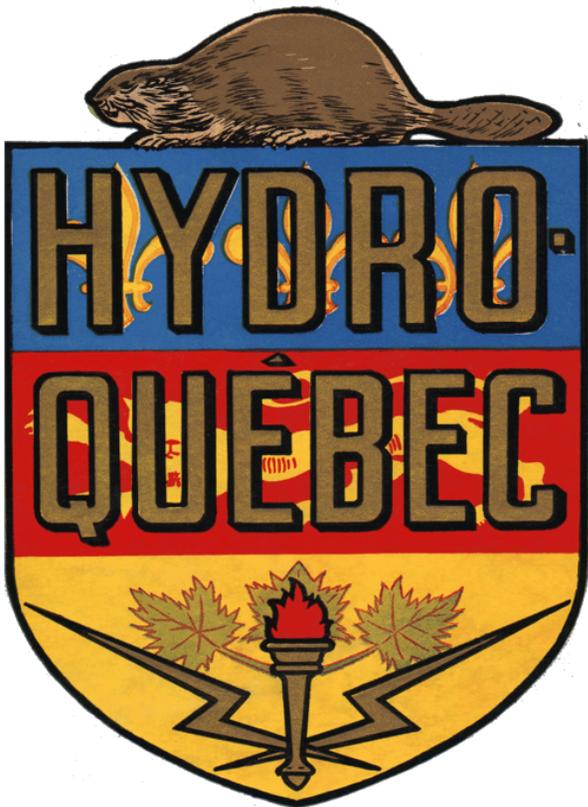
8 **L**

1. They owned most of the dams in Quebec.
2. Electrical fees differed from _____ to _____ .
3. To put money on something to make a profit.
4. It is produced by the river dams.
5. Type of electricity produced in dams.
6. Amount paid by the users of electricity.
7. A big wall constructed on a river to produce electricity.
8. Region(s) that were badly served by hydroelectricity.

B3 e. HYDRO-QUEBEC

In 1944, the Quebec government decided to privatize some small electric companies to form one big company – **HYDRO-QUEBEC**.

The first logo of Hydro-Quebec



Source: [https://commons.wikimedia.org/wiki/File:Hydro-Qu%C3%A9bec_logo_\(1944\).gif](https://commons.wikimedia.org/wiki/File:Hydro-Qu%C3%A9bec_logo_(1944).gif)

Name two elements from the logo that show that Hydro-Quebec was a Quebec company.

1. _____

2. _____

Name two elements from the logo that show that Quebec is a Canadian province.

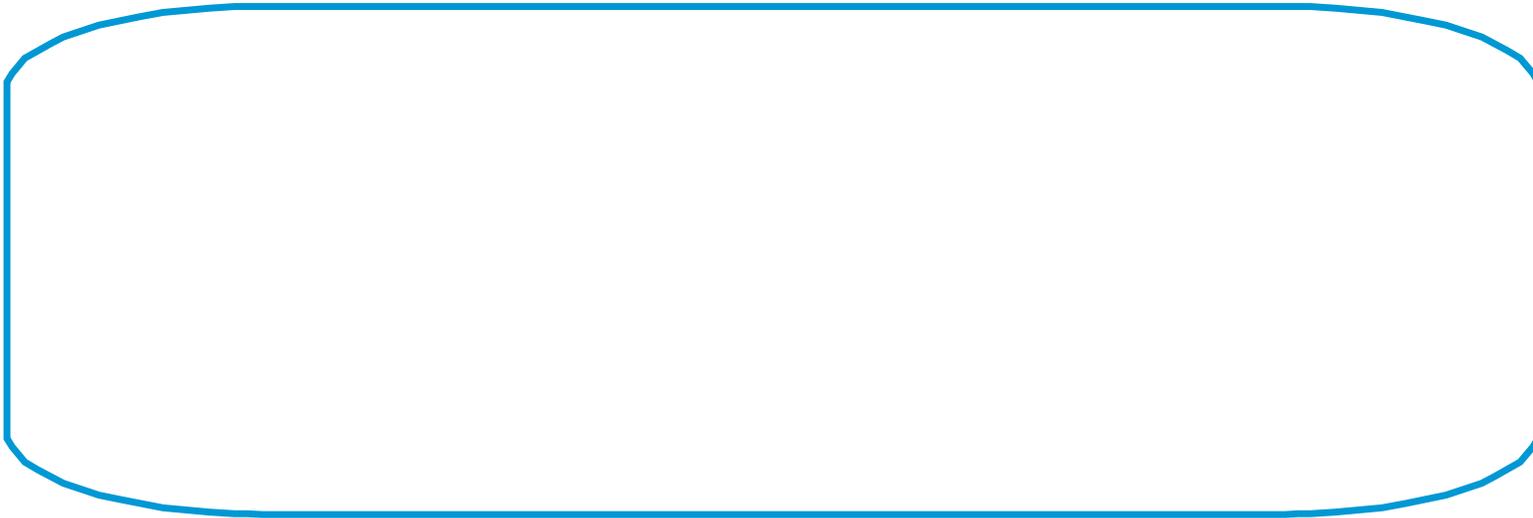
1. _____

2. _____

B3 f. TODAY'S LOGO

Find and draw today's Hydro-Quebec logo.

You can search the site www.hydroquebec.com or you can ask your parents for a Hydro-Quebec electricity bill. You will find the logo on the bill.



What message does the new logo give?

Curiosity Corner:

*To **nationalize** means that a government purchases an industry and becomes its owner.*

B3 g. THE NATIONALIZATION OF ELECTRICITY IN QUEBEC

Almost twenty years later, in 1963, the Minister of Natural Resources, **René Lévesque**, nationalized all Quebec electric energy supply companies.

i) What is to nationalize an industry?

ii) How did nationalization enrich the provincial government?

With the nationalization, Lévesque solved many of the complaints the people of Quebec had in relation to the acquisition, distribution and price of electricity. He introduced new regulations.

Pretend you were Lévesque, what regulations would you introduce?

1. _____
2. _____
3. _____
4. _____



Pull

Pull

Pull

Pull

B3 g. THE NATIONALIZATION OF ELECTRICITY IN QUEBEC

(continued)

Where, do you think, would the Quebec government invest the profits (money) from electricity?

- i. _____
- ii. _____
- iii. _____



Image source

© Library and Archives Canada/Duncan Cameron/Duncan Cameron fonds (Negative no. PA-115039 via Britannica at <https://www.britannica.com/topic/Parti-Quebecois>)



B3 h. MORE DAMS

In 1971, the government led by **Prime Minister Henri Bourassa** continued the work that was started by **René Lévesque**, the Minister of _____ and the **Prime Minister Jean Lesage**. The most well-known project, the 'James Bay Project' with its La Grande Complex, was renamed 'the Project of the Century' due to its magnitude. It is still the biggest hydro-electrical complex in the world!



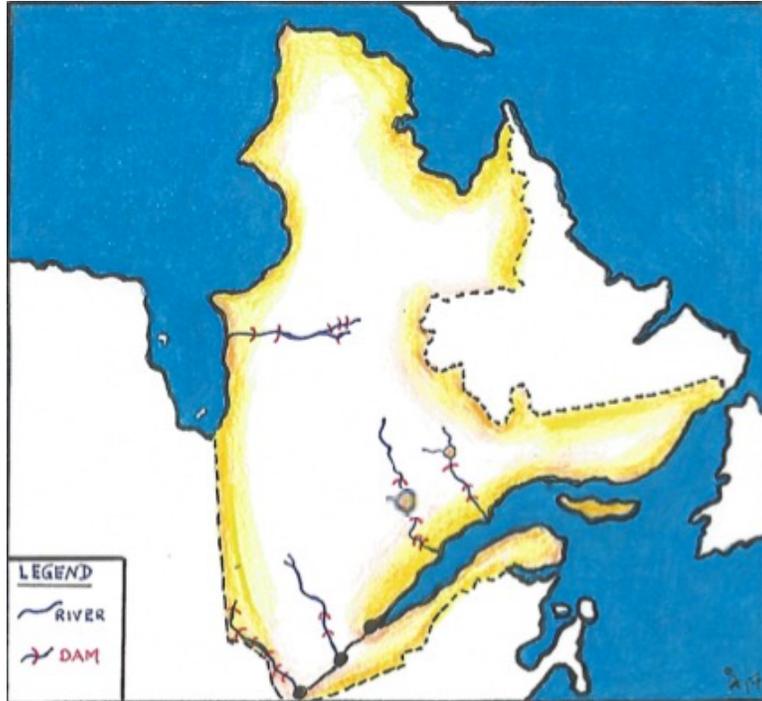
Daniel Johnson Dam

B3 i. DAMS IN QUEBEC

Quebec has more than 200 dams.

The map shows some rivers where the most important dams were built.

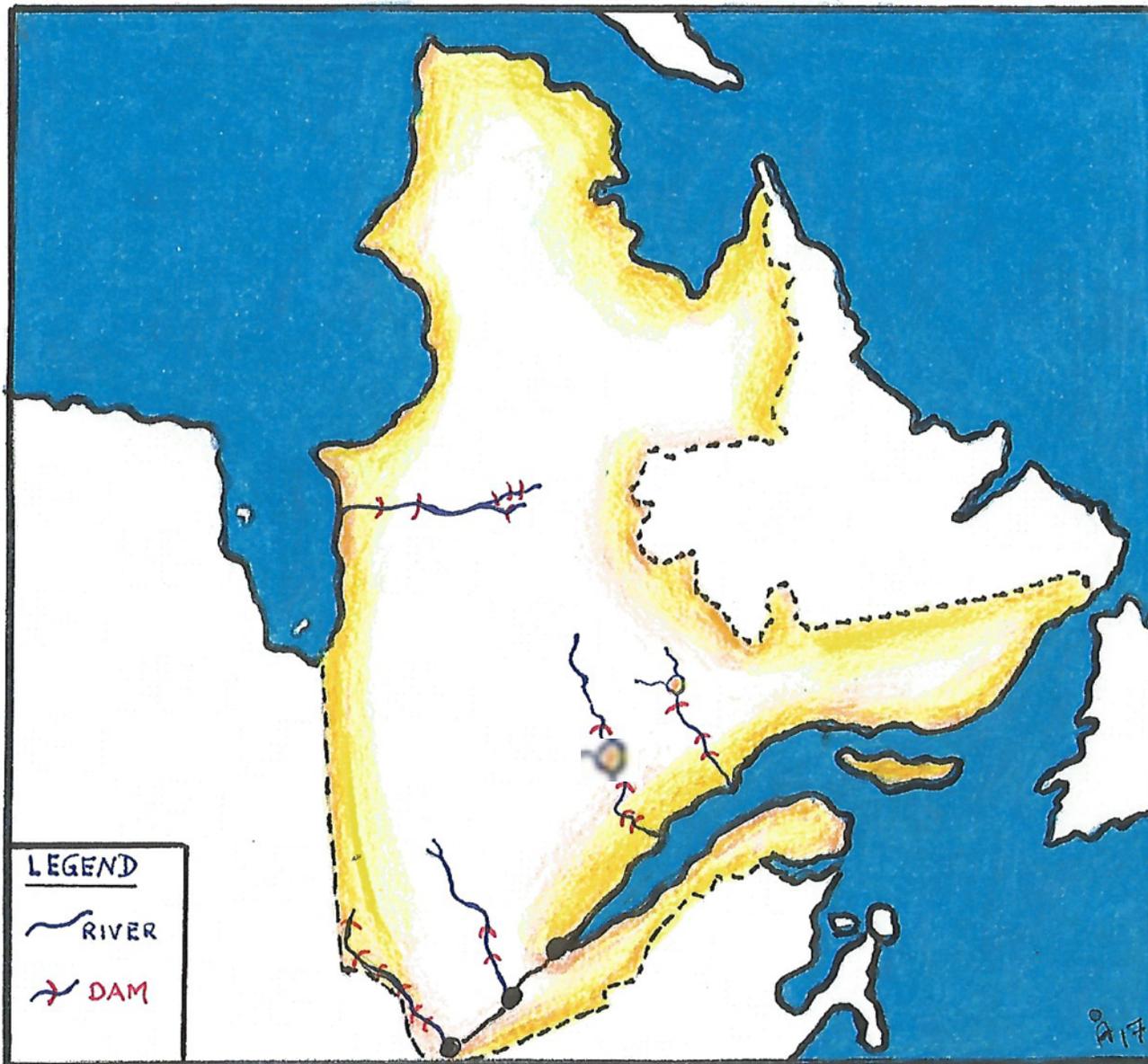
Remember that Quebec has many more rivers than shown on the map.



Write in the proper place (on the next slide):

- Atlantic Ocean
- Hudson Bay
- James Bay
- Montreal
- Trois-Rivières
- Quebec City
- The Ottawa River
(flows into the St. Lawrence River near Montreal)
- Manic River (the most eastern river on the map)
- Peribonka and Saguenay Rivers
(flows into the St. Lawrence River northeast of Quebec City)
- Saint-Maurice River
(flows into the St Lawrence River at Trois Rivières)
- La Grande River
(flows into James Bay)

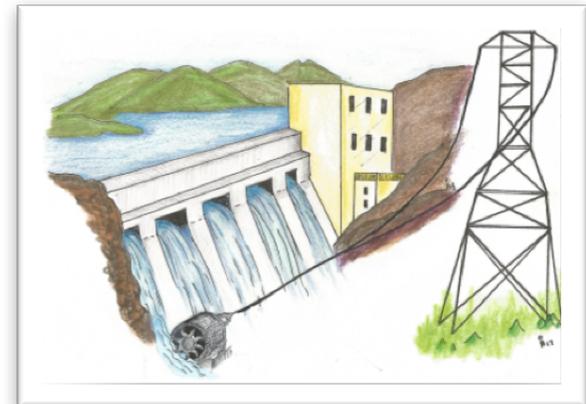
B3 i. DAMS IN QUEBEC (Continued)



B3 j. CHARACTERISTICS OF A TERRITORY

Write a paragraph on “How the characteristics of a territory can challenge or direct human activity”.

The case of hydroelectricity in Quebec.

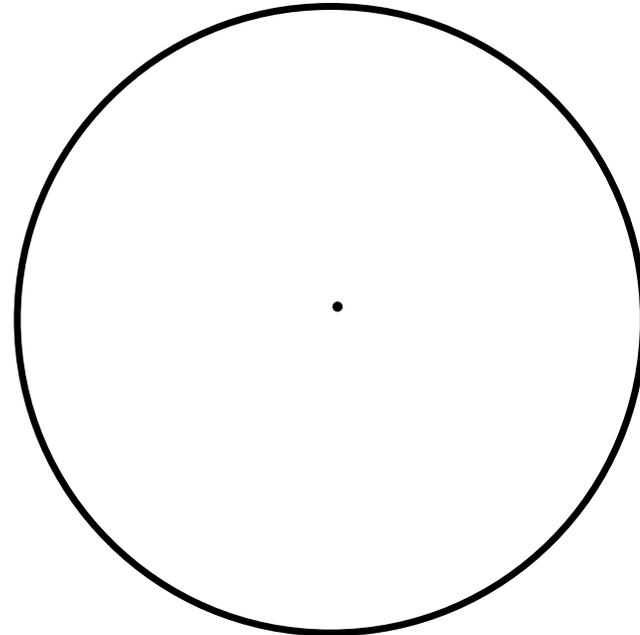


B3 k.

WHERE IS ALL THIS HYDROELECTRICITY BEING USED IN QUEBEC?

Make a pie chart using the given data. Analyze your completed chart and state your conclusions.

Hydroelectric	96.5%
Nuclear	3.3%
Fossil Fuels	0.2%



Define the three forms of energy

(consult the internet and/or books of reference)

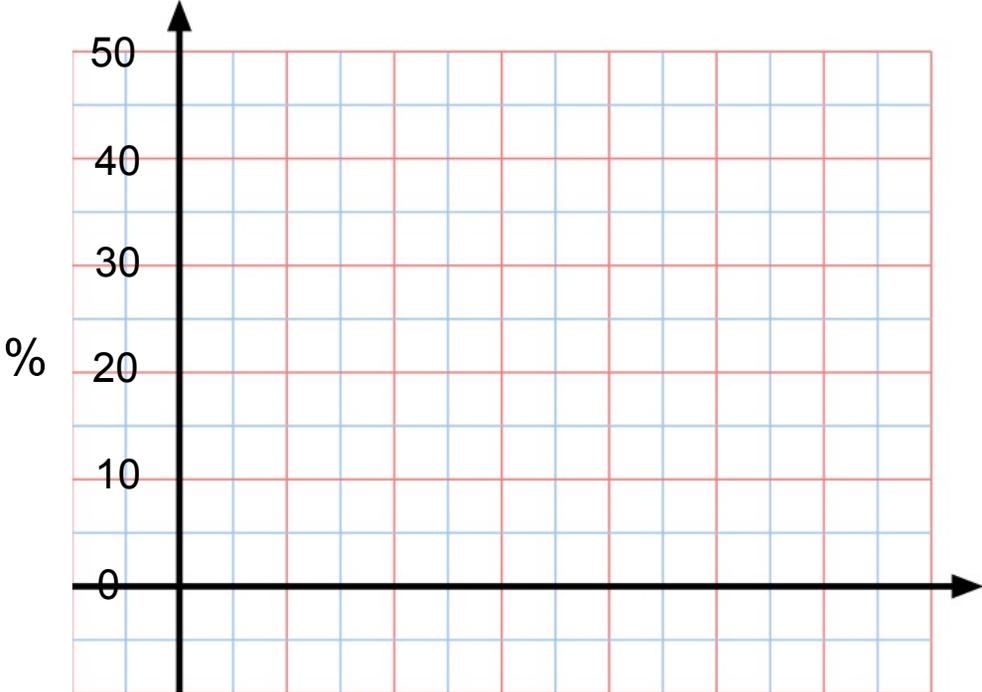
Hydroelectric energy _____

Nuclear energy _____

Fossil Fuel energy _____

B3 I. USES OF ELECTRICAL ENERGY IN QUEBEC

Mining and Manufacturing	43%
Residential	34.6%
Other	21.2%
Agricultural	1.2%



i) Draw a bar graph using the given data.
Once completed state your conclusions.

ii) What could be included in "OTHER" uses of electricity?

