

The True North Strong and Free

Canada covers 9,984,670 km², and is the world's second largest landmass with a widely varied physical geography. The country also has the longest coastline in the world, and terrain that includes mountains, rivers, ice, forests, wetlands, lakes and prairies, making it a truly diverse and wonderful place to live in. We are fortunate to be able to visit Canada's many different landscapes and regions – sometimes from the comfort of our chairs!

A geographic feature can be either a land (such as a forest) or water (such as a reef) feature. Canada has many different types of both land and water features, several of which will be examined in this assignment.

Using your ArcGIS Online account, you are tasked with creating a map to investigate prominent geographic features from sea to shining sea in Canada, and to explore how these landscapes shape where humans and animals live in the true north strong and free.

The following tutorials should be used to help you complete the assignment:

- [Introduction to ArcGIS Tutorial](http://esri.ca/en/content/introduction-arcgis-online) - esri.ca/en/content/introduction-arcgis-online
- [Creating and Saving Features Video](http://esri.ca/en/content/creating-and-saving-features-arcgis-online) - esri.ca/en/content/creating-and-saving-features-arcgis-online
- [Measure Features Tutorial](http://doc.arcgis.com/en/arcgis-online/use-maps/measure.htm) - <http://doc.arcgis.com/en/arcgis-online/use-maps/measure.htm>
- [Perform Analysis Tutorial](http://doc.arcgis.com/en/arcgis-online/use-maps/perform-analysis.htm) (Buffer) - <http://doc.arcgis.com/en/arcgis-online/use-maps/perform-analysis.htm>
- [Data Enrichment Tutorial](http://support.esri.com/technical-article/000012140) - <http://support.esri.com/technical-article/000012140>

Lesson Tasks

Create a Map

A Web map has been created in ArcGIS Online, with bookmarks associated to the geographic features listed below, such as the Mackenzie River, to help you begin: <http://arcg.is/2aAdCjV>. In order to answer the questions below, save this map into your 'My Contents' folder and add map notes into the appropriate layers, such as 'Rivers'.

Each map note should include:

- An applicable **title**,
- Unique and appropriate **symbolology**,
- A **picture** (that you have found online) related to the geographic feature,
- And a **description**, written in paragraph form (at least 2-3 sentences).

Your map should include the following **associated datasets**:

- A. 'CanadaNaturalRegions_Web' and 'Canada's Ecology', both by EsriCanadaEducation.

Edit each layer in the Table of Contents to include the following **locations**:

B. Rivers

In the description of each feature, provide evidence of which life cycle stage the river is in, identify points of lateral and vertical erosion, any oxbow lakes you see, and the Ecoregion and Eco zone to which they belong:

1. **The St. Lawrence River** in Quebec and Ontario.
2. **The Mackenzie River** in the Yukon and Northwest Territories.
3. **The Madawaska River** in Ontario.

C. Deltas

In the description of each feature, provide evidence of what kind of delta you are looking at, how it was formed, which main river feeds into the delta, and the Ecoregion and Eco zone to which they belong:

1. **Saskatchewan River Delta** in Manitoba and Saskatchewan.
2. **Mackenzie River Delta** in the Yukon and Northwest Territories.
3. **The St. Clair River Delta** in Ontario.

D. Moraines

In the description of each feature, provide evidence of what kind of moraine you're looking at, how it was formed, any distinguishing features, and the Ecoregion and Eco zone to which they belong:

1. **Lake Louise Moraine** in Alberta.
2. **Oak Ridges Moraine** in Ontario.

E. Coastlines

The coastline features listed below are either a Sand Dune, Sea Arch, or Spit. In the description of each feature, identify which feature it is, include the points where dominant and secondary waves impact the feature, how it was formed, if/how tourist interactions affect the feature, and the Ecoregion and Eco zone to which it belongs:

1. **Long Point** in Ontario.
2. **Sable Island** in Nova Scotia.
3. **The Rocks Provincial Park** in New Brunswick.

F. Glacial Features

The glacial features listed below are either a Drumlin, Erratic, Rock Flour, or Esker. In the description of each feature, identify which landform it is, how it was formed, if/how tourist interactions affect the landform, and the Ecoregion and Eco zone to which it belongs:

1. **Big Rock** in Alberta.
2. **Lake Louise** in Alberta.
3. **Esker Provincial Park** in British Columbia.
4. **Citadel Hill** in Nova Scotia.

Our Home and Native Land

1. Now that you've explored the different types of geographic features that exist in Canada, identify the major land and water features that are in your community. Add a new map note layer and identify at least 2 features on the map. In the description of the location, identify what kind of feature it is, how it was formed, the Ecoregion and Eco zone, and if you've ever visited it.

From Far and Wide, Oh Canada

1. Based on what you now know about the many land and water features in Canada, choose an area which is at least 10 square kilometres, and explain in 3 paragraphs how the features could be used for an economic activity. Include relevant data with the Data Enrichment and Buffer tools in ArcGIS Online to gain information about population, income, and any other variables you think are applicable.