

# CANADIAN GEOGRAPHIC IN THE CLASSROOM

Article A plan comes together  
Issue December 2015



## The Saskatchewan River Delta - Background

The Saskatchewan River Delta is the largest inland delta in North America. Deltas are important because they act as networks of wetland areas that provide extensive habitat for wildlife and serve to mitigate flooding downstream. Recognizing the abundance of wildlife in the area, the Saskatchewan River delta area has long been home to First Nations people and is the location of the oldest permanent settlement in western Canada. This delta is currently faced with numerous challenges. The removal of water from irrigation and other industrial purposes means that the delta is no longer flooding, causing the wetlands to starve and risking the loss of habitat for wildlife and altered lifestyles for people dependent on this ecosystem.

There are numerous ways to bring rich geographic inquiry into your classroom with this topic.

## Explore

The article starts by describing the water's route as it flows from the eastern slopes of Canada's Rocky Mountains. Students can do the same, finding familiar city and town names along the way to help anchor their geographic learning and get a sense of the length of the rivers and the size of delta area. It is also useful to start at the delta itself and trace a route upstream, retracing the route of early explorers and trappers.

- On [Google Earth](#), students can move up or down the river, following the flow of water, listing the towns and cities along the way and any other impact they see on the river. Students can work in groups to look at different sections or "reaches" of the river and report back their findings to build an understanding of the whole river system.
- Students can create a fly-through "Tour" of any section of the Saskatchewan River to better understand the terrain and population impacts. Students can use online tools such as [Google Tour Builder](#) or [Arc GIS- story maps](#).

## Scale and Distance

Understanding the concept of scale and being able to determine distances from scale are key to geographic literacy, the ability to read geographic representations.

- With a paper map, measure the approximate length of the Saskatchewan river. Using the scale on the map, determine the actual length in kilometers. *Tip for calculating scale:* The scale is simply the fraction of the size of a feature on the map to the size of it in reality. For example if a map has a scale of 1:1,000,000, a 2 cm feature on the map would be 2,000,000 cm in reality.
- Students often relate to distance better through time. Knowing the length of the river or a reach of the river, how long would it take to float that distance? (eg. velocity of the North Saskatchewan in Edmonton varies between 2km/h and 8 km/h). On a paper map, ArcGIS Online or Google Earth, use the line tool to measure the river as it meanders and flows, from one point to another. Afterwards, measure the straight line distance between these two points. The ratio between these numbers is called the **sinuosity index** and it is a measure of how straight the river is (see image below).

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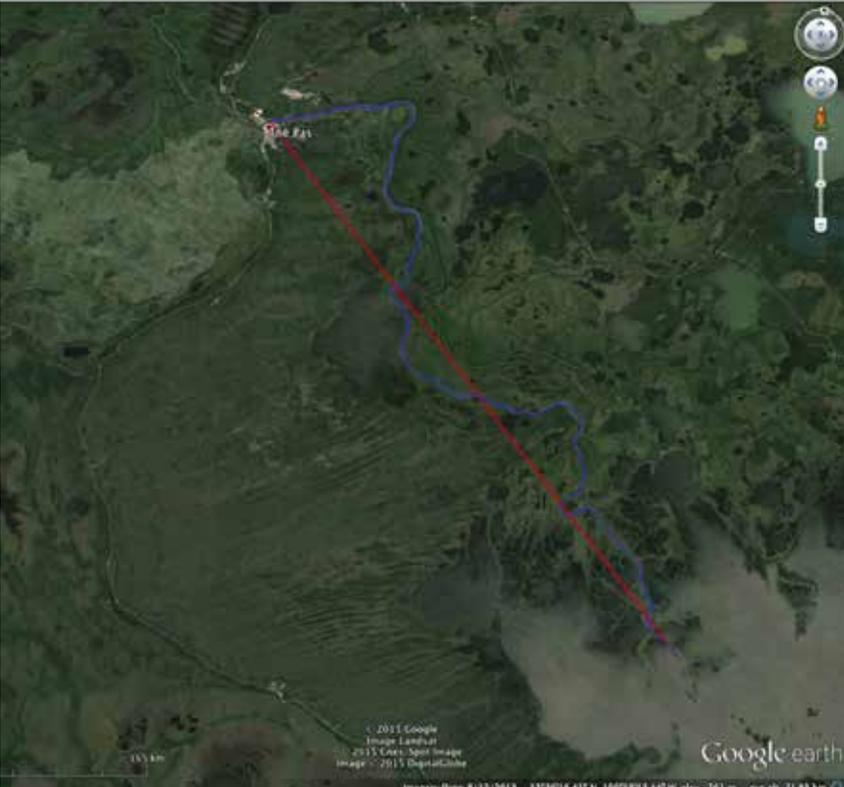


Figure 1. The actual river distance (blue) versus the straight line distance (red) of the Saskatchewan River in the Delta, downstream from The Pas.

### Looking for patterns

Have students access the ArcGIS Online map: <http://arcg.is/11J7VGc> and explore the Saskatchewan Delta, populated areas and rail lines. Ask what patterns students see. Explain that straight flows are often faster and found higher up in the watershed. More meanders happen when the river is on a gentler slope. It is particularly helpful to know the sinuosity of a river than to know the actual distance you or your supplies have to travel. Using the online map, the reach of the river in the delta downstream of The Pas is 94.4km, but over a straight line distance of 64 km. Imagine those who used this river as a vital link to transport goods. That's 94 km of paddling to move goods a distance of 64 km!

### Other topics to explore

- Learn about the Canadian Boreal Forest Agreement, their big-picture plan for the Saskatchewan Delta and why it is important [here](#).
- Biodiversity - what types of wildlife can you find there?
- Human impact - how many people live in the delta? How has human settlement impacted the delta?
- Delta structure and distribution - how is a delta formed? What does the Saskatchewan look like? Where are Canada's other deltas located?