**Activity to challenge misconceptions of land mass size on paper maps**

1. Open [Google Maps](https://maps.google.ca/) on your PC
2. Move around the map fully zoomed out
3. Get familiar with the location and relative sizes of the following land masses (continents, countries, US states, Canadian provinces and islands):
* Greenland,
* Africa,
* North America,
* South America,
* Antarctica,
* United States,
* Australia,
* Algeria
* Mexico
* Baffin Island (northern Canada)
* State of Texas,
* Province of Manitoba,
* Ellesmere Island (northern Canada)
1. Create a chart with three columns: Land Mass, Map Observation, Area (sq km)
2. In the “Land Mass” column add Greenland and list the other land masses above in the order given
3. With the visual size of Greenland as a reference in your mind, visually compare it to each of the land masses on the chart and make notes in the observation column about how they compare size wise. For example for Mexico your observation might state: Greenland appears many times larger, perhaps 10 times larger than Mexico.
4. Do this for all of the land masses.
5. Roughly rank the size of the different land masses from largest to smallest based on your observations
6. Also make additional notes at the bottom of the chart indicating anything that seems odd or out of place to the way you thought it looked.
7. Go to Wikipedia and search for country sizes, continent sizes, state sizes province sizes and island sizes – fill in the third column of the chart with this data (Area – sq km).
8. With the exception of Greenland, the land masses on your chart should be in order of size by area from largest to smallest. According to this data, how does this compare to your observations and rankings? Is there something wrong?
9. Double check the data you entered in the area column to make sure it is correct, double check your observation data – visual comparison of Greenland to each land mass.
10. All of this information has come from the Internet, are both sources reliable?
11. Visually compare the sizes of Texas, Manitoba and Baffin Island on the map, note the relative sizes to each other, do you see a pattern as you move north. According to the chart, all three are a similar size
12. Scroll down to Antarctica on Google Maps, Is it really that large? It appears to be the largest land mass on earth, even larger than Asia and Europe combined. Compare the area of Antarctica with Africa, North America and South America on your chart. Something is wrong with this map!
13. Add a fourth column to your chart, call it Globe Observation and find a standard globe or download the [Google Maps for Android](http://www.google.com/mobile/maps/) App onto your Android device.
14. Based on the relative size of Greenland to the other land masses on the globe or Google Maps for Android App, make your observations in this column – similar to what you did with Google maps.
15. Compare your globe/ Google Maps for Android App observations to the area column; are they now more representative of the relative sizes of each land mass area compared to the PC Google Map observations?
16. Hold the globe/ Google Maps for Android App up to PC-Google Maps and look at the differences, especially in the far north. Why is Greenland a similar size to Africa on the PC Google map, but only the size of some of the larger African countries on the globe/ Google Maps for Android App?
17. Compare the area data of Greenland and Algeria on your chart, how does this compare to your visual observations of Greenland to Algeria on the PC-Google Map and on the globe/ Google Maps for Android App.
18. The PC-Google map is based on the Mercator projection, which is in the cylindrical map projection family. Google ‘Mercator projection’ to learn more about this projection. Use this information to explain the differences that you found in your map observation data and the land mass data from Wikipedia.
19. Has this changed your perception of the size of Greenland and Antarctica to the rest of the world? How?
20. What about the size of the islands in Canada’s north, they are large, but not as large as the map shows.