**How Healthy is Wascana Lake?**

For this assignment you will be creating an environmental science case study of Wascana Lake in Regina, Saskatchewan. An environmental science case study is a description of the condition of the environment as a result of either natural or human interference/influence. This case study will include the following components written in paragraph form:

1. **Introduction** – In this section, describe how environmental scientists go about assessing the water quality of a water body (i.e. - what characteristics do environmental scientists use to determine the health of a water body). Also, describe when we did our study and what we thought we might find in regards to the condition of the water as it pertains to human health.
2. A description of the **physical characteristics** of Wascana lake. The description should include the following information (at a minimum):
   1. Where the lake is located
   2. The history/origin of the lake
   3. The type of lake (oligotrophic or eutrophic) including the kind of lake-bed, and why you classified the lake the way you did.
   4. Human impacts on the water body such as:
      1. Any major modifications to the lake (i.e. – The Big Dig ☺)
      2. What the land around the lake is being used for
      3. Human Impacts on the water flowing into the lake (think about what’s going on upstream of the lake)
3. A description of the **chemical characteristics** of Wascana lake. This description should include the following information (at a minimum):
   1. The kind of tests you performed and what equipment you used to perform the tests
   2. A table including Nitrate, Ammonium, Phosphorous, Dissolved Oxygen, pH, temperature and turbidity information (including the UNITS)
   3. A description of the MEANING of each of the numbers found in the table in the previous question in regards to the:
      1. Algae population
      2. Fish population
      3. Plant population.
   4. Any other factors contributing to the nutrient/chemical content of the lake
4. A description of the **biological characteristics** of Wascana lake. This description should include the following information (at a minimum):
   1. A description of the concept of INDICATOR SPECIES using *water boatmen* as a non-example
   2. A description of the different kinds of creatures we found (including images!)
   3. A water quality index table including the final calculated water quality index number
   4. The Coliform test:
      1. What *E.coli* is and how it affects the human body
      2. How the coliform test was conducted
      3. The results of the test (whether Coliforms are present in the water or not)
      4. Any questions you have that may require further study
5. **Conclusion –** This conclusion must include a **summary** of the condition of Wascana lake including the following features
   1. Its physical, chemical, and biological condition
   2. answering the question **“How healthy is Wascana lake?”**

In addition, the conclusion must **make recommendations** to improve the quality of Wascana lake with ideas such as:

* 1. Introduction of a trophic cascade (please also describe what a trophic cascade is making reference to class discussions)
  2. Possible reduction of chemical inputs into the water body
  3. ???Other ideas ☺