

Water is Life

Water is something many of us in Canada take for granted. Although freshwater security is an important and ongoing issue on many of our First Nations reserves (environmental racism), we, in Saskatoon and Warrman, have near-limitless access to refined and filtered water. This got me thinking, is there a measurable difference between the treated water that we drink, and *raw water* from local ponds and sloughs?

We will be testing both the **abiotic** (non-living) and **biotic** (living) components of *raw water* and comparing our findings to local drinking water.

The abiotic factors that affect water purity include: Temperature (°F), Total Dissolved Solids (TDS), pH, and dissolved oxygen. It should be noted that we do not have the equipment to accurately measure *turbidity* (water clarity), but we will note qualitative observations.

1. **Dissolved Oxygen** - Dissolved oxygen analysis measures the amount of gaseous oxygen (O₂) dissolved in an aqueous solution. Oxygen gets into water by diffusion from the surrounding air, by aeration (rapid movement), and as a waste product of photosynthesis.
2. **Temperature** - Temperature is important because of its influence on water chemistry. The rate of chemical reactions generally increases at higher temperature, which in turn affects biological activity. An important example of the effects of temperature on water chemistry is its impact on oxygen. Warm water holds less oxygen than cool water, so it may be saturated with oxygen but still not contain enough for survival of aquatic life.
3. **Total Dissolved Solids** - Dissolved solids" refer to any minerals, salts, metals, cations or anions dissolved in water. Total dissolved solids (TDS) comprise inorganic salts (principally calcium, magnesium, potassium, sodium, bicarbonates, chlorides and sulfates) and some small amounts of organic matter that are dissolved in water

4. **pH** - Most fish can tolerate pH values of about 5.0 to 9.0, but serious anglers look for waters between pH 6.5 and 8.2. The vast majority of American rivers, lakes and streams fall within this range, though acid rain has compromised many bodies of water in our environment.
5. **Turbidity** - Light's ability to pass through water depends on how much suspended material is present. Turbidity may be caused when light is blocked by large amounts of silt, microorganisms, plant fibers, sawdust, wood ashes, chemicals and coal dust. Any substance that makes water cloudy will cause turbidity. The most frequent causes of turbidity in lakes and rivers are plankton and soil erosion from logging, mining, and dredging operations

Please neatly create a chart with 3 columns and 4 rows to summarize your data.