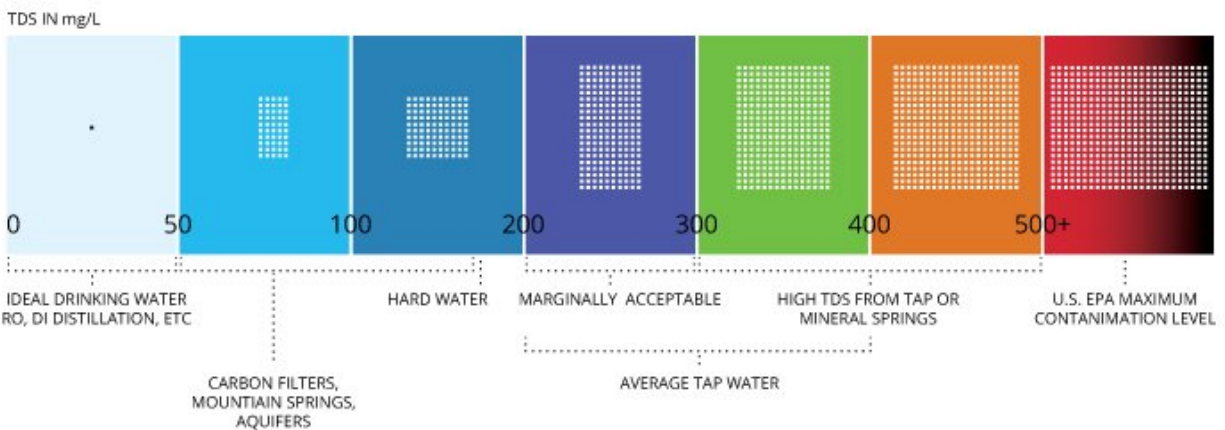


# Water Quality Investigation

## Total Dissolved Solids (TDS) in mg/L (ppm)

High levels of total dissolved solids can adversely impact aquatic life. Different species have different tolerance levels. Sudden changes in total dissolved solids can be an indicator of pollution.

You will use a meter to measure the TDS in your water samples. Turn the meter on, remove the cap from the bottom of the meter. Place the meter into your water sample, swirl gently and tap the meter on the side of the beaker to dislodge any bubbles from the probe. Record the concentration displayed on the meter.



## pH

pH is a measure acidity by measurement of the hydrogen ion concentration. The optimal pH range for most aquatic life is 6 – 9.

You will measure pH three ways and compare your results using the three methods.

1. Use a tablet dissolved in a sample of your water in a tall collection tube. Compare the color of your water sample to the table on the card.
2. Measure pH with pH paper. Place a drop of water using a stirring rod onto a piece of pH paper and match the color to the scale provided with the paper.
3. Measure pH with the pH meter.

## Dissolved Oxygen

This parameter is an indicator of the water's ability to support aquatic life. Good quality water has at least 3 mg/L (ppm) dissolved oxygen.

You will measure dissolved oxygen by dissolving two DO test tablets in a sample of water in a small collection vial. To fill the vial, completely submerge the vial in the container you used to collect the

water from the lake. Be sure the vial is filled to the rim. When you add the DO tablets, water should overflow. Place the cover on the vial and tighten. Additional water may overflow when you tighten the cover. Invert the vial to dissolve the tablets. This may take up to 4 minutes. Wait an additional 5 minutes after the tablets are fully dissolved then match the color to the colors on the card to determine dissolved oxygen concentrations.

### **Turbidity**

This parameter measure the cloudiness of the water. Turbidity itself is not a major health concern, but high turbidity can interfere with disinfection and provide a medium for microbial growth. It also may indicate the presence of microbes ([U.S. EPA Office of Water, Current Drinking Water Standards](#)).

You will measure turbidity with a Secchi disk on the bottom of your collection jar. Hold the turbidity card next to your water sample to compare your sample to the card. Record the turbidity level.

### **Temperature**

Temperature is used to assess water quality because of the impact it has on other chemical and physical properties, including dissolved oxygen, metabolic rates of aquatic life, conductivity and density.

Record the temperature of the water at the collection site by reading the thermometer attached to the side of the collection jar. Record the temperature of your water sample again in the lab using a thermometer.

Discuss the results of the tests with your group and be prepared to share with the larger group your assessment of the quality of the water.