

Name _____ Class _____ Date _____

Introduction to Dissolved Oxygen Lab

Background: This experiment will help you understand one of the most important properties of water-that it holds oxygen! You will be testing to see how much dissolved oxygen is present in water at different temperatures. Follow the procedure below to complete the test.

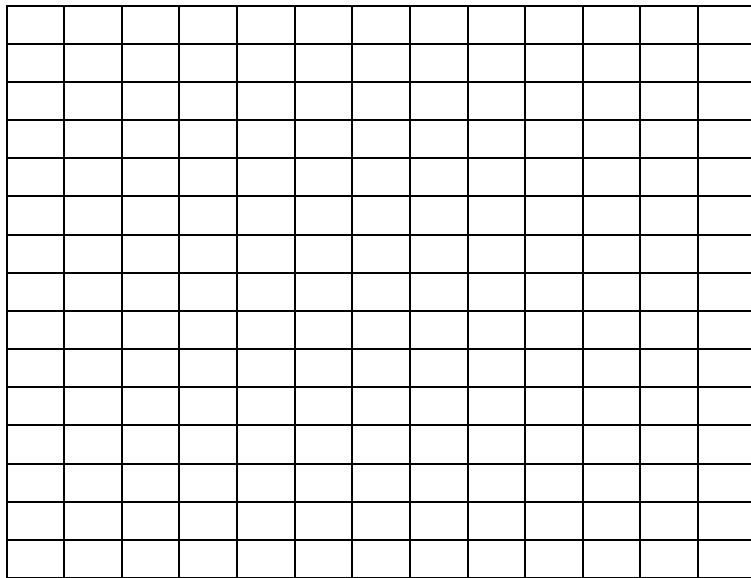
Before you begin: Write a prediction: which do you think will have more oxygen: tap water, water that has been boiled, or water that has been boiled and then shaken? Why?

Procedure:

1. Obtain a dissolved oxygen test kit (or probe) from your teacher.
2. Follow the directions that are contained in your kit for finding the dissolved oxygen level in your water sample:
 - a. Remember to use appropriate safety techniques when using chemicals.
 - b. Record your results in the chart below.
3. Test the dissolved oxygen in the sample of water that has been boiled and then sealed in a jar:
 - a. Carefully open the jar and pour the water sample into the testing bottle. Do this very slowly; you don't want to add oxygen by mixing the water with the air.
 - b. Perform the DO test.
 - c. Record your results.
4. Test the jar after shaking:
 - a. Pour about half of the water from the jar down the drain.
 - b. Cap the jar and shake it vigorously for about 3 minutes.
 - c. Perform the DO test again.
 - d. Record your results.
 - e. Optional: pour off more water, and then shake again.
5. Copy down the results from the other groups in your class.
6. Find a class average for each part of the experiment and graph your results.

<i>Group</i>	Dissolved oxygen (DO) in tap water	DO (mg/L) in newly opened jar	DO (mg/L) in jar after shaking	DO (mg/L) in jar after shaking, second time (<i>optional</i>)
1				
2				
3				
4				
5				
6				
7				
8				
Class average				

Create a graph of your class average data:



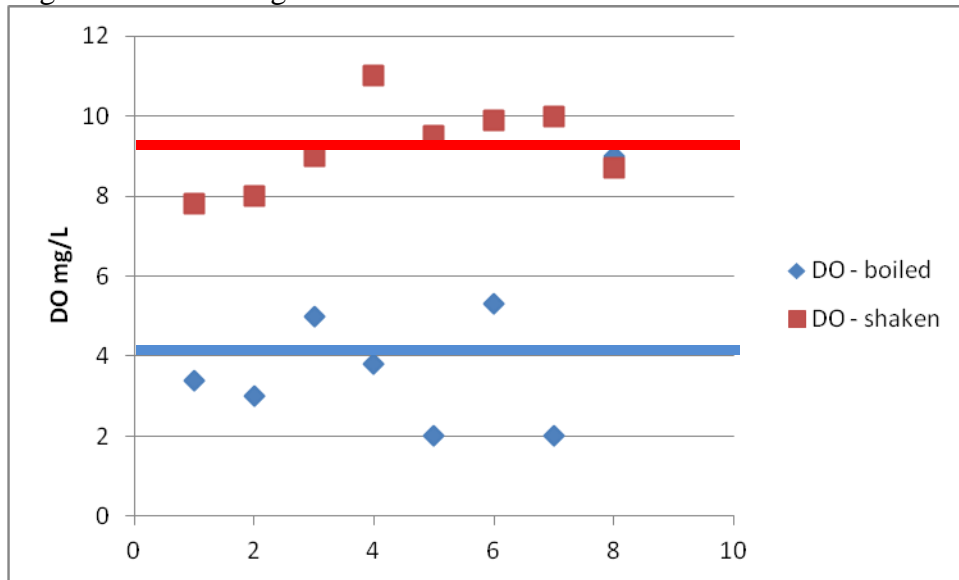
Discussion Questions:

1. Describe what you observed when your teacher showed you a cup of water. What formed on the sides? Why did this happen?

2. Which sample had the highest dissolved oxygen level? The lowest?

3. What was the average difference between the dissolved oxygen levels in the samples that had been boiled, versus the samples that had been boiled and shaken? Explain.

4. Make a scatter plot graph showing all of the dissolved oxygen values for both jars. Then, make a line at the average for both sets of data – the boiled and the shaken samples. This way, you can get all of your data on one graph. Your graph might look something like this:



How variable are your class results, when compared to the average?
Explain the possible reasons for the variability.

5. How did your results differ from your prediction? If your results were different, why did this occur?

6. What are some ways that dissolved oxygen could enter the water in a river?

7. Why is dissolved oxygen important for a river ecosystem? What do you think would happen to the aquatic organisms if the dissolved oxygen levels became too low?

Modified with permission from: "Oxygen for Life" 1997. Living in Water, National Aquarium in Baltimore, Kendall Hunt Publishing, Iowa.