Name _____   Student ID _____   Date _____

Is it too salty?

Background: Now that you know a bit more about salt, design a study to test whether the streams in your area are affected by salt pollution. Since you can't see this kind of pollution, you will be collecting water samples and bringing them back to the lab for testing.

Before you begin: List the kinds of things that you think may impact the concentration of salt in the water:

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Using the "Salt Pollution Reference Table", what level do you expect your local aquatic ecosystem to have (safe, harmful to living things, harmful to human health, lethal)?

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Why? _____

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Materials:

- Sample bottles
- Tape & marker to label your bottles
- Gloves
- Optional: water test kits (for testing temperature, dissolved oxygen, or other parameters of interest in the field)
- Optional: orange, stopwatch, measuring tape (for testing water flow)
- Conductivity or chloride meter

Procedure:

1. Identify a sampling site with your teacher.
2. Draw a map of your sample site on a blank sheet of paper. Decide where you will take your samples before you go outside.
3. Make sure you have all of your supplies.
4. While outdoors, follow appropriate safety procedures.
5. Mark the location of each sample site, and write down the bottle number at that point. Take replicates of your samples.
6. When you return to the classroom, measure the conductivity levels of your samples.

7. Complete the data table below for your class data. Use the equation provided by your teacher to convert between conductivity and chloride levels.

   Write the equation here:

8. Complete the chart by adding in the benchmark levels from the Reference Table.

Site #	Conductivity (μS/cm)	Chloride (mg/L)	Level
Example: Site 1	*540*	*96*	*Harmful to living things*
Class Average			

Discussion Questions

1. Create a graph of your data.

2. You calculated an average for your class. How do all of your data compare with this average (this is called *variability)*? In other words, are your data close to the average or do they vary greatly from one another? Why or why not?

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3. If you wanted to repeat this experiment, explain what you would do to improve your confidence in the results.

_____

_____

4. Using the Salt Pollution Reference Table, decide whether the level of salt in your aquatic ecosystem a problem for other living things, or for human health?

_____

_____

5. Go back to the first graph you made, of the scientists' data from a local stream. How does your class average compare with data from the scientists? In other words, is your data similar to the results found by the scientists? Why or why not?

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6. The local town council needs to decide whether to stop applying salt to their roads in the winter. Think about the two sources of data that you have - could you make a recommendation about whether to stop applying salt to the roads in the winter? Why or why not? Which data set do you feel is more useful for making a recommendation? Why?

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