Water Quality 5E **Name _____Per. _____**

Elaborate: Water Quality Testing in the Lab

Bring in a water sample from a pond, lake, stream, the ocean, backyard pool, well, or fountain.
Watch this video to see how to take a water sample: https://youtu.be/8440sn2ThRE

Determine whether a water sample is acceptable for humans to drink and for healthy aquatic life.

- *Write a hypothesis about whether your water will meet safe drinking water standards. Why or why not?*

- *Write a hypothesis about whether your water will be healthy for aquatic (fish) population. Why or why not?*

Procedure: Perform the water quality tests when they are rotated to you. Make sure you follow all directions.
Use the Reference sheets to fill in some boxes.

Temperature Test

What does the test tell us?		
Why is this reading important?		
What is the reading of your water sample?		
Does your water sample meet legal drinking water standards for this test?	Yes, No or n/a	Explain:
Is this reading acceptable for aquatic life? Explain.	Yes, No, or n/a	Explain:

pH Test

What does the test tell us?		
Why is this reading important?		
What is the reading of your water sample?		
Does your water sample meet legal drinking water standards for this test?	Yes, No or n/a	Explain:
Is this reading acceptable for aquatic life? Explain.	Yes, No, or n/a	Explain:

Dissolved Oxygen Test (If your sample is from the ocean, pond, lake or stream, this test won't be accurate due to BOD, but take it anyway)

What does the test tell us?		
Why is this reading important?		
What is the reading of your water sample?		
Does your water sample meet legal drinking water standards for this test?	Yes, No or n/a	Explain:
Is this reading acceptable for aquatic life? Explain.	Yes, No, or n/a	Explain:

Nitrate Test

What does the test tell us?		
Why is this reading important?		
What is the reading of your water sample?		
Does your water sample meet legal drinking water standards for this test?	Yes, No or n/a	Explain:
Is this reading acceptable for aquatic life? Explain.	Yes, No, or n/a	Explain:

Turbidity Test

What does the test tell us?		
Why is this reading important?		
What is the reading of your water sample?		
Does your water sample meet legal drinking water standards for this test?	Yes, No or n/a	Explain:
Is this reading acceptable for aquatic life? Explain.	Yes, No, or n/a	Explain:

Conductivity Test

What does the test tell us?		
Why is this reading important?		
What is the reading of your water sample?		
Does your water sample meet legal drinking water standards for this test?	Yes, No or n/a	Explain:
Is this reading acceptable for aquatic life? Explain.	Yes, No, or n/a	Explain:

Salinity Test

What does the test tell us?		
Why is this reading important?		
What is the reading of your water sample?		
Does your water sample meet legal drinking water standards for this test?	Yes, No or n/a	Explain:
Is this reading acceptable for aquatic life? Explain.	Yes, No, or n/a	Explain:

Total Hardness Test

What does the test tell us?		
Why is this reading important?		
What is the reading of your water sample?		
Does your water sample meet legal drinking water standards for this test?	Yes, No or n/a	Explain:
Is this reading acceptable for aquatic life? Explain.	Yes, No, or n/a	Explain:

Copper (Heavy Metal) Test

What does the test tell us?		
Why is this reading important?		
What is the reading of your water sample?		
Does your water sample meet legal drinking water standards for this test?	Yes, No or n/a	Explain:
Is this reading acceptable for aquatic life? Explain.	Yes, No, or n/a	Explain:

Odor and Color: Fill in any time. Requires you to observe, not to perform a test

What does the observation tell us?		
Why is this reading important?		
What is the reading of your water sample?		
Does your water sample meet legal drinking water standards for this test?	Yes, No or n/a	Explain:
Is this reading acceptable for aquatic life? Explain.	Yes, No, or n/a	Explain:

1. According to these tests only, is your water sample safe to drink?

2. According to these tests only, is your water sample good for aquatic life?

Go to the "National Primary Drinking Water Regulations" http://bit.ly/2nN2dDO

There are many other tests that must be done for tap water to make sure it's safe to drink. This is by law and enforced by the EPA.

3. Name one microorganism and its legal limit:

4. Name one disinfection byproduct and its legal limit:

5. Name one disinfection and its legal limit:

6. Name one inorganic chemical and its legal limit:

7. Name one organic chemical and its legal limit:

8. Name one radionucleotide and its legal limit:

9. Now, pick 1 of the contaminants that you listed above and name its source and potential health problems:

Go to: https://yourscvwater.com/water-quality/

Click on the most recent SCV water report.
The green column tells the legal limits or recommendations. MCL is the maximum allowed by the EPA. The other columns show test results for the water agencies for different parts of SCV.

10. Do we have any problems with lead? Explain using the data.

11. Do we have any problems with nitrates? Explain using the data.

Discuss the results in class

12. Do any groups have an extreme level in one or more of the tests? Explain why:

Evaluate-Lab Conclusion

Write the following for your conclusion. Please # your responses and use proper writing guidelines for your answers. This lab conclusion should only cover the "Elaborate" section of the learning cycle.

1. Introductory statement with the purpose and both hypotheses.
2. Summary of experiment with results and explain whether the results of the lab confirm or refute **both** hypotheses.
3. Describe any real or possible error. If you had real error, explain why this error occurred. If no error occurred, explain why another group had error or theorize where error could occur. Be specific.
4. Provide a concluding statement that is evidence-based (facts and data). Remember, no opinions or feelings.