Digging Deeper Name: _____ Class Pd: _____ Date: _____

Data Resource	Description
USGS Water Basin map	These maps show the extent of the watershed (basin) that drains into each stream monitoring site.
MRLC Land Cover data	These data map and categorize the land cover (the physical surface of the land) around each stream monitoring site. This does <u>not</u> differentiate what developed land is used for (e.g. residential vs. industry).
Google Earth Project	This interactive project will allow you to zoom in to each stream monitoring site for a closer look. To go to a site, click the site code from the [⁝≡ Table of Contents]**.** You can zoom in to look more closely at the satellite imagery for each site.

Use all of the resources at your disposal (including your original CODAP data set and observations, and your Parameter Research) to respond to the prompts below. Remember to record any new questions you wonder about in the Question Collector!

Reference Sites

1. In your own words, what is a **reference site**?

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2. Explain why the critical zone researchers included a relatively un-urbanized/un-developed area (POBR - the reference site) in their study of urbanization impacts on critical zone processes.

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Analyzing Trends & Patterns

For the following prompts, you will reference the trends and/or patterns your team identified during the “Digging into the Data” activity.

<u>Alkalinity</u>

3. Alkalinity concentration is given as two different units of measurement (mg/L and µeq/L) calculated from the same sample. The data set indicates that there is one anomalous data point measured for alkalinity in DR5.
   a. In which units of measurement do we observe this anomaly (mg/L or µeq/L)?_____
   b. Given that this anomaly is only present in one of the units of measurement for the same sample, what is one possible explanation for this anomalous data point? _____

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4. One particular site and all of its sub-watersheds showed relatively higher concentrations of alkalinity than the other three sites.
   a. Identify this site (DR, PP, NWB, or POBR).

   b. Provide an explanation for this trend.

   c. If your group identified any other alkalinity trends, provide an explanation for those trends.

Question Collector

Nitrogen-containing compounds

5. One particular site and all of its sub-watersheds showed relatively higher concentrations of nitrogen-containing compounds than the other three sites.
   a. Identify this site (DR, PP, NWB, or POBR). _____
   b. Provide an explanation for this trend. _____

c. If your group identified any other nitrogen trends, provide an explanation for those trends.

Carbon

6. Explain what causes seasonal patterns like those you see in the TOC and DOC data.

a. For which sites (DR, PP, NWB, or POBR) are these patterns present?

Chloride

7. Explain what causes seasonal patterns like those you see in the chloride data.

a. For which sites (DR, PP, NWB, or POBR) are these patterns present?

Extension

8. Based on what you have learned about sources of chloride ions in streams, predict for which other parameter(s) you would most likely observe a similar seasonal pattern:

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   a. Use CODAP to determine if your prediction is supported by the data. Record what you discover (**yes, the data supports my prediction** or no, **the data does not support my prediction**) here.

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9. Of the four sites studied, only one of them contains a waste-water treatment plant within the research area and drainage basin.
   a. Identify this site (DR, PP, NWB, or POBR)._____
   b. Identify which of the parameters studied in this lesson provides support for this claim (cite the data) **and explain your choice**. _____

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