

Weathering Lab: Science 141

Name _____

Weathering is the Physical and Chemical breakdown of rocks. One of the best places to study weathering is at a local cemetery. A cemetery has a number of types of rocks to study and the year that they started weathering can usually be determined by the date of death on the stone. During the first part of this lab you will gather data on weathering condition and age of stone. For the second part of this activity you will graph your data to try to see a pattern in your data. The third part of the lab will be your conclusions coupled with a creative inference about what happened to some of the residents of this solemn place.

Remember A cemetery is a sacred resting place for the departed and an important memorial for the community. Please be on your best behavior.

Part 1: Data Collection

Enter the following data on your data sheets.

- 1) Sample # (ie. 1 2 3 etc)
- 2) Type of stone (ie. granite, marble, gneiss, sandstone)
- 3) Physical weathering score (1-5)
 - 1) Stone shows no cracks
 - 2) Stone shows small unopened cracks
 - 3) Stone shows small opened cracks
 - 4) Stone has many opened cracks, some large
 - 5) Stone is badly cracked, Broken and in danger of falling

- 4) Chemical weathering score (1-5)
 - 1) Stone's surface smooth or shiny, lettering sharp and clear
 - 2) Stone's surface slightly pitted, lettering clear
 - 3) Stone's surface slightly rough and sandy feeling, lettering not completely clear
 - 4) Stone's surface rough and crumbling, some lettering difficult to read
 - 5) Stone's surface crumbling, all lettering barely legible
- 5) comments where appropriate

Part 2: Data analysis

Using Microsoft Excel create a graph for your data. Dates should be on your x axis and weathering condition (1-5) should be on the y axis. Produce a scatter plot and then attach a "best fit line" Make two graphs, one for physical and one for chemical. Be sure to include a title and labels for your axis and graphs.

If you are unsure how to graph data with Excel, detailed instructions are included at the end of this packet.

Part 3: Conclusions: Answer the following questions:

- 1) Which rock proved to be more resistant to Physical weathering? Support your claim with data from your graph. Be sure to include information on both the position and slope of the lines.

- 2) Which rock proved to be more resistant to Chemical weathering? Support your claim with data from your graph. Be sure to include information on both the position and slope of the lines.

- 3) Why are some rocks more resistant to physical weathering than others? How is this supported by the rocks in your study?

- 4) Why are some rocks more resistant to chemical weathering than others? How is this supported by the rocks in your study?

- 5) From today's investigation it should be apparent that peoples taste in tombstones has changed over the years, why do you think that is so? Consider historical, societal and technological reasons.

- 6) If you had the chance to "do me in" what type of rock would you choose for my memorial? Your choice can be from any of the rocks that we have learned about in lab and must be accompanied by the reasons for your choice.

Part 4: Creative story: As you walk around the cemetery notice the information that people felt was important to make permanently engraved on stone. A lot of this information hints at events such as great tragedy or the human emotions of pride, love, sorrow etc. Pick and record information on one or more stones and use it as the basis of a brief fictional story about a time and place in Cortland's history. Be sure to illustrate how the facts fit into the story. **(Your story must include a legible picture of the stone, or a direct transcription of the information from the stone, on which you based your story).**

