Sand Story – Telling the History of a Place

**Objective**: To decipher the geologic history of an area as recorded in the grains of sand found there.

**Project Description**: You will be given a container of sand collected from a known locality. In most cases, you will be given a latitude and longitude only. You will write a report summarizing the geologic history of that sand sample based on the sand itself and general information available about the collection locality. If you have a sand sample that you personally collected, you may use that instead.

**Report Details**: Your report should contain the following components –

1. *Geologic setting*. Locality information (latitude/longitude and place name); overview of the geology and geomorphology of the sample locality, based on maps or other meaningful sources.
2. *Description of Sample*. Formal description of the sand sample, including grain size, shape, sorting, rounding, and composition. Data regarding these parameters should be described using the appropriate measures, terminology, and/or graphical representations.
3. *Provenance*. Interpretation of sand source. This interpretation should be informed by both the general geologic setting of the locality and the observations made for your particular sand sample. Your interpretations should be tied clearly to the supporting data.
4. *Transportation*. Interpretation of the processes that produced and transported the sand. These interpretations should be informed primarily by the characteristics of the sand and perhaps secondarily by the geologic setting.
5. *Conclusion*. Brief synthesis of the geologic history that produced the observed sand sample.
6. *References*. Sources used in completing the paper should be cited in the text and listed in a bibliography at the end of the paper. Use the GSA citation format.

**Length**: Most reports will take about 4 double-spaced pages to accomplish the five sections of the paper, with perhaps a little more space for figures.

**Resources**: You may find that you have questions that you don’t know how to answer. That’s the whole idea of this project. Ask. We have lots of tools at our disposal, but I need to know what you’re thinking about in order to point you in the right direction. Don’t sweat it if you don’t know how to use a tool (like an optical microscope) – I can help you! Sometimes, your classmates can help you too.

**Assessment**: This project will be evaluated using the following criteria:

1. Is the geologic setting described accurately and completely, and are relevant sources cited?
2. Is the sand sample described thoroughly and accurately?
3. Is the provenance interpretation reasonable, given the information presented in 1 & 2?
4. Is the transportation interpretation reasonable, given the information presented in 1 & 2?
5. Are there at least two supporting references that connect the interpretations in parts 3 & 4 to the information in parts 1 & 2? In other words, how did you ground your conclusions in the things that are already known about geology?
6. Is the conclusion connected with the data and interpretations, and is it reasonable given the available data?
7. Is the paper written clearly, using proper grammar, spelling, and a suitable style for a scientific report?

**Deadlines**:

May 5: You will submit the geologic setting and sample description for your sand sample.

May 21: Full report due