

Name: _____

Activity 11A

Activity 11A: Concept Sketches and Sedimentary Processes

A **concept sketch** is a simplified drawing illustrating the main aspects of landscape or system. It is annotated with concise but complete labels that identify important features. Short sentences describe the processes that are occurring. The final aim is to show the relationships between features and processes. It is not simply a sketch labeled with only the names of features. See a rubric below for what is expected for each success level. Point values will be determined by your instructor.

Skill	Emerging	Progressing	Partial Mastery	Mastery
Identify Features	Incomplete labeling.	Some labeling.	Most clearly labeled.	Relevant features clearly labeled.
Identify Processes	Incomplete identification and description.	Incomplete identification or description.	Clear identification and description.	Relevant processes clearly identified and described.
Explain the Connections and Relationships Between Features/Processes	Incomplete connections/relationships.	Suggests some connections/relationship.	Most connections/relationships highlighted effectively.	Relevant connections/relationships highlighted effectively.
Demonstrate Proper Use of Terminology	Incomplete or inappropriate use of terminology/units. Frequent errors and misunderstanding of the subject.	Attempts use of appropriate terminology/units. Some errors and missing components.	Consistent use of appropriate terminology/units. Few errors or missing components.	Consistent and successful use of appropriate terminology/units.
Assess Scientific Accuracy	Lacks organization with frequent errors, demonstrating misunderstanding of the subject.	Drawings are readable, with occasional oversimplifications, errors and/or missing components.	Drawings are readable. Consistent use of symbology and/or colors/patterns to illustrate major features and/or processes.	Drawings are clearly readable with accurate details illustrated through appropriate symbols and/or colors/patterns. Sketch shows a scale.

Table 5.3: Rubric for geology concept sketches. (CC-BY 4.0; Chloe Branciforte and Emily Haddad, own work)

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1. Imagine a mountain composed of granite: *what does the resulting sediments' journey via a river to the ocean look like?* After reading the background information provided, draw a concept sketch for **“The Journey of a Pebble”**. Labels should be short sentences explaining the relationships between geologic features and processes.

The Journey of a Pebble

As the granite mountain is weathered, it is broken down into clasts of varying sizes. Larger, jagged clasts remain nearby and retain the composition of the original granite minerals (quartz, potassium feldspar, muscovite, Na-rich plagioclase feldspar). Clasts that continue their journey, perhaps by a fast-moving river, are changed. During transportation, clasts collide with one another becoming progressively smaller and more rounded. As the topography flattens, the river's velocity begins to slow, triggering deposition of larger clasts, while smaller clasts continue to be transported. As the river meets the beach and ocean, velocity will continue to slow down, depositing smaller and smaller sediments, until nothing is left. Throughout this journey, clasts will also undergo chemical weathering, fundamentally altering the original mineralogy of the granite. Feldspars and micas are transformed into clay-minerals, like kaolinite or montmorillonite, and the iron-bearing minerals alter to hematite. The only mineral that does not chemically change is quartz.

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