

For the outcrop image observed on the screen, please provide a written response to the following prompts. Please be as complete as possible. Short answers and phrases are acceptable.

1. Please describe what you see, in terms of lithology, stratigraphy, and structure. Include information on color, texture, orientation, mineralogy, chemistry, etc.
2. Please take note the labels on different rock layers. These correspond with the samples on the table before you. Please provide a complete description of the minerals present, the possible rock type, and other significant features, textures, and/or fossils.
3. Given your description of the outcrop and the rock samples, what interpretations can you offer on (a) what environment the material was deposited or emplaced in, (b) what has happened to the material since it was first emplaced, and (c) what is likely to happen to the material in the future? How would you test your interpretations? What information would you look for?
4. Consider the responses you have provided to the first three prompts. How would you communicate your responses, using diagrams and numbers as needed, to:
  - a. A relative, friend, or a teacher that was not knowledgeable in the geosciences, but wished to build or make a substantial financial investment in the immediate area;
  - b. Another geoscience student that is at the same or lower class rank than yourself
  - c. A geoscience professional that you might hope to work for or engage in further studies with.
5. Describe how:
  - a. your preparation as a scientist has allowed you to frame your responses
  - b. your preparation as a gescientist as impacted your responses
  - c. your approach to responding to the prompts has identified areas that you need further study in.

	Early Stage	Middle Stage	Late Stage
Lithology/Earth Materials	A-B	A-D	A-F
Stratigraphy & Structure	A-B	A-D	A-F
Interpretation and inference	A-B	A-D	A-F
Prediction and Retrodiction	A-B	A-C	A-E
Scientific Communication	A-B	A-C	A-E
Scientific skills and growth	A	A-B	A-C

**Lithology/Earth Materials**

- A. Identify the rocks present
- B. Identify the minerals present in the rocks
- C. Describe the texture of the rocks present
- D. Identify fossils (to the order/family) present in the rocks
- E. Estimate the orientation of the rocks (strike/dip)
- F. Predict the chemistry of the materials

**Stratigraphy & Structure**

- A. Bedding thickness
- B. Bedding type
- C. Distinguishing between primary/secondary features
- D. Deformational features
- E. Brittle and ductile deformation
- F. Compressional and tensional characteristics

**Interpretation & Inference**

- A. Relative Ages
- B. Distinguishing between marine and terrestrial environments
- C. Depositional Setting/Environment of emplacement
- D. Timing of primary and secondary features
- E. Identifying stress/strain relations and directions
- F. Fractionation processes evident

**Prediction & Retrodiction**

- A. Application of concepts of superposition, original horizontality, cross-cutting relations
- B. Origins of materials present
- C. Origins of structures observed
- D. Geomorphology/Landscape evolution
- E. Continued fractionation of materials.

**Scientific Communication**

- A. Appropriate use of terminology in identifying
- B. Appropriate application of terminology in explaining
- C. Use of data, measurements, and visualizations to define and explain terminology
- D. Pose questions to investigate concepts derived from observations of phenomena
- E. Predict possible solutions to questions posed

**Self-Efficacy**

- A. appraise personal skills as a scientist
- B. appraise personal skills as a geoscientist
- C. define future learning needs and expectations