McGee geology/geomorphology

# Learning objectives:

1. Students will use field observations and remote data to create a map illustrating the principal geomorphic features present in a study area that they define.
2. Students will apply relative dating techniques to their field observations and determine the relative ages of tectonic and glacial geomorphic features.
3. Students will investigate the characteristics of an active fault trace and surrounding landscape features to calculate a fault slip rate and make inferences about fault type.
4. Students will evaluate the relatedness between vegetation and geomorphic features.

Assessments:

1. Apply the mapping badge rubric to the map (addresses learning objective 1.)
2. Apply the following scoring rubric to the written report (addresses learning objectives 2, 3, 4.)

# Geomorphology

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| 5 (outstanding) | 4 (very good) | 3 (satisfactory) | 2 (needs improvement) | 1 (unacceptable) |
| Scientifically accurate.  **AND**  Strong writing with respect to clarity, spelling, grammar, and punctuation. **AND**  Estimated age of glacial moraines is provided.  **AND**  Multiple lines of field evidence are provided to support each interpretation. | Scientifically accurate.  **AND**  Strong writing with respect to clarity, spelling, grammar, and punctuation. **AND** Estimated age of glacial moraines is provided. **AND**  One piece of field evidence are provided to support each interpretation. | Perhaps 1-2 minor content errors but they do not detract significantly from the overall response to the question.  **AND**  1-2 minor issues with clarity, spelling, grammar, and punctuation  **AND** Estimated age of glacial moraines is provided. **AND**  1 line of field evidence is provided to support each interpretation. | 1-2 major content errors OR minor content errors throughout.  **AND/OR**  1-2 major issues OR 3+ minor issues with clarity, spelling, grammar, and punctuation **AND/OR** Estimated age of glacial moraines is not provided. **AND/OR**  Some field evidence is provided but inadequate/needs to be expanded upon. | Major content errors throughout.  **AND/OR**  3+ major issues with clarity, spelling, grammar, and punctuation.  **AND/OR** Estimated age of glacial moraines is not provided. **AND/OR**  Field evidence is not provided. |

# Geology

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| 5 (outstanding) | 4 (very good) | 3 (satisfactory) | 2 (needs improvement) | 1 (unacceptable) |
| Scientifically accurate.  **AND**  Strong writing with respect to clarity, spelling, grammar, and punctuation.  **AND**  Fault type is correctly identified. **AND** Fault slip rate included. **AND** Multiple lines of field evidence are provided to support the fault interpretation and fault slip rate. **AND** Detailed analysis of relationship between stream changes and fault position. | Scientifically accurate.  **AND**  Strong writing with respect to clarity, spelling, grammar, and punctuation.  **AND**  Fault type is correctly identified. **AND** Fault slip rate included.  **AND**  Multiple lines of field evidence are provided to support the fault interpretation and fault slip rate. | Perhaps 1-2 minor content errors but they do not detract significantly from the overall response to the question.  **AND**  1-2 minor issues with clarity, spelling, grammar, and punctuation.  **AND**  Fault type is correctly identified. **AND** Fault slip rate included.  **AND**  1 line of field evidence is provided to support the fault interpretation and fault slip rate. | 1-2 major content errors OR minor content errors throughout.  **AND/OR**  1-2 major issues OR 3+ minor issues with clarity, spelling, grammar, and punctuation  **AND/OR**  Fault type is not identified correctly. **AND/OR** Fault slip rate is not included. **AND/OR** Field evidence is provided to support the fault interpretation but is unclear, incomplete, etc. | Major content errors throughout.  **AND/OR**  3+ major issues with clarity, spelling, grammar, and punctuation.  **AND/OR** Fault type is not identified correctly. **AND/OR** Fault slip rate is not included.  **AND/OR**  Field evidence is not provided. |