

Mapping badge information and scoring rubric

Content, skills, and behavioral attributes of the badge:

- Content: geomorphic mapping, bedrock geologic mapping, watershed mapping, plant mapping
- Skills: data collection, base map reading and interpretation, translation of field data to map, depiction of data in map view, using map data to make interpretations
- Behavior: time management, teamwork, decision-making

Overarching badge goals:

1. Students will create an accurate, field-observation based, discipline-specific (geology, geomorphology, hydrology, ecology), 2-dimensional map of a defined field area using appropriate map symbols and components.
2. Students will articulate their decision-making processes to justify the interpretations made on their final maps.

Rubric:

Map elements

Exceeds the standard	Meets the standard	Does not meet the standard
Map includes all major and minor elements required for a discipline-specific map as specified in the project instructions. (See supplemental document.)	Map includes all major elements required for a discipline-specific map as specified in the project instructions. (See supplemental document.) AND 1 minor element missing.	Map is missing one or more major elements required for a discipline-specific map as specified in the project instructions. (See supplemental document.) OR Map is missing 2 or more minor elements required for a discipline-specific map as specified in the map instructions.

1. General Map Elements
 - Title, date, author
 - North arrow
 - Legend
 - Scale
 - Grid
2. Geology
 - If applicable, shading on map with a different color for each stratigraphic unit encountered in the mapping area.
 - If applicable, symbols drawn on stratigraphic column to illustrate different grain sizes.
 - If applicable, conformable, erosional, and intrusive contacts marked with a black line.
 - If applicable, structural contacts marked with a bold, black line.
 - If applicable, structures (i.e., folds, faults) are annotated with appropriate symbols.
 - Representative strike and dip symbols.
 - If applicable, stratigraphic thicknesses.
 - If applicable, lithologic descriptions for each unit measured in the stratigraphic section.
3. Geomorphology
 - Site specific geomorphic features (i.e. faults, moraine crests/bases, terraces, streams, lakes, bogs, colluvial cones, etc.)

Thoroughness and legibility

Exceeds the standard	Meets the standard	Does not meet the standard
95% or more of the map area has been mapped. AND Map is legible to an evaluator.	75% or more of the map area has been mapped. AND Map is legible to an evaluator.	Less than 75% of the map area has been mapped. AND/OR Legibility problems hinder evaluation.

Accuracy

Exceeds the standard	Meets the standard	Does not meet the standard
More than 95% of the map data as specified in the project instructions reflect the student's field observations. AND More than 95% of the map data are accurate. AND Map interpretations are supported by field observations.	More than 75% of the map data as specified in the project instructions reflect the student's field observations. AND More than 75% of the map data are accurate. AND Map interpretations are supported by field observations.	Less than 75% of the map data as specified in the project instructions reflect the student's field observations. AND/OR Less than 75% of map data are accurate. AND/OR Link between field observations and map interpretations is lacking.

1. Geology
 - Contact type
 - Contact placement
 - Stratigraphic unit
 - Orientation
 - Structural elements
 - Stratigraphic thickness
 - Lithologic description
2. Geomorphology
 - Field site placement
 - Landscape feature placement
 - Correct symbology

Justification of interpretations

Exceeds the standard	Meets the standard	Does not meet the standard
More than 95% of map interpretations are supported by field observations. AND The majority of areas of uncertainty in the map area are specified. AND Students can utilize the map to successfully answer a question about spatial relationships in the map area. AND Multiple working hypotheses are presented for areas of uncertainty in the map area.	More than 75% of map interpretations are supported by field observations. AND Some areas of uncertainty in the map area are specified. AND Students can utilize the map to successfully answer a question about spatial relationships in the map area.	Fewer than 75% of map interpretations are supported by field observations. AND/OR Few to no areas of uncertainty in the map area are specified. AND/OR Students cannot successfully answer a question about spatial relationships in the map area by utilizing the map.