

Proposed New Science Olympiad Event

Title:	Geo Logic
Description:	This event will test a team's ability to master concepts in geology, common rocks and minerals, stratigraphic layering, and geological structure using common geological tools and methods. It will allow the teams to demonstrate geological reasoning, use of geological techniques and tools, understanding of spatial relationships, descriptive ability, ability to make interpretations based on varied geological data.
No. of Participants:	Two per team. Up to six teams per session.
Approximate Time:	50 minute session.
Event Parameters:	Students may bring a ruler, pencils, eraser, and calculator.
The Competition:	<p>The competition will involve several tasks to be completed.</p> <p>Task 1. Identify 6 to 12 common rocks and minerals. Answer a few descriptive questions.</p> <p>Task 2. Correlate 4 to 6 stratigraphic columns. Lithologies and some index fossils will be provided. This will require some interpretation of geological features between columns, such as unconformities and stratigraphic pinch-outs.</p> <p>Task 3. Delineate a geological history based on a provided cross-section. Teams will make a list of features and events in the correct time sequence. Some ages will be provided. There will be missing features, which can be included in their correct position in the sequential order.</p> <p>Task 4. Teams will make a topographic-based map of subsurface geological structure. Teams will draw contours based on provided well data points. This is a topographic map exercise, but the surface will be underground. This will include contouring around a fault.</p> <p>Task 5. Teams will sketch a cross section on a side of a block diagram based on mapped geology provided on the upper surface of the block.</p>
Scoring:	It is recognized that geology is an inexact science, and for some tasks, multiple interpretations are a likely and acceptable outcome. Interpretations will be graded by 3-person judging panel based on adherence to data, completeness, and clarity. Points will be awarded for accuracy, quality, and for task 3, quantity of correct responses. Points will be given for threshold numbers of geological features drawn correctly. A couple pre-identified questions will serve as tie-breakers.
Comments:	We will try to design the different tasks to have a common geological setting, so that the different tasks will relate to one another. Students will answer a few questions based on geology exhibited in their drawings.

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