



ROCKS AND MINERALS

DESCRIPTION: Participants will demonstrate their knowledge of rocks and minerals including, but not limited to, formation, identification, classification, economic importance, composition, identification keys and common diagnostic tools.

A TEAM OF UP TO: 2

APPROXIMATE TIME: 40-50 Minutes

EVENT PARAMETERS: With the exception of pens or pencils, fingernails, and hand lenses, only those tools provided by the supervisor may be used. Participants may bring any student developed or purchased reference materials that fit within the confines of an area no larger than 12" x 12" x 3".

THE COMPETITION:

1. Equal time intervals, as determined by the supervisor, will be allotted for each station (e.g., 40 one-minute tasks, 15 three-minute tasks, or any other equal increments of time. When the start signal is given, participants will begin work at their initial station. A signal will indicate when participants are to move to their next station. Participants may not continue onto the next station until prompted to do so, may not skip stations, nor return to any previously visited station. Participants are permitted to edit or complete any written statements initiated at any previous station at any time during the time allotted.
2. Specimens and accompanying materials placed at the various stations by the supervisor may not be transported to other stations.
3. HCl will not be provided, nor may it be brought to or used during the competition. Written descriptions as to how a specimen might react were it to be tested with HCl may, at the discretion of the supervisor, be provided.
4. Specimens include all major rock and mineral groups; intrusive, extrusive, and pyroclastic igneous rocks; foliated and nonfoliated metamorphic rocks; clastic, organic, and chemical sedimentary rocks, and mineral classifications – sulfides, oxides, carbonates, etc. Only those specimens appearing on the official NSO list (see www.soinc.org) will be used in the competition with the following exception: Tournament Directors may include up to five additional specimens important to their own state. If additional specimens are included, all teams must be notified six weeks before the tournament.
5. Responses may be in the form of multiple-choice, matching, short answer, sequencing, etc.

REPRESENTATIVE STATION ACTIVITIES:

1. Using the tools provided, fingernails included, determine the relative hardness of each of these six minerals. List the specimens, by name and number, in order of increasing hardness.
2. Granite may vary in both color and texture. Identify two characteristics all granites share.
3. Identify the parent rock of each metamorphic rock at this station.
4. Classify each sedimentary rock at this station according to texture using the terms clastic, crystalline, and bioclastic.
5. Use the spring scale, water, and calculator to determine the density of this mineral. Use the appropriate formula and show your work.

SCORING: Places in this event will be determined by the highest total score. Values of questions may be weighted. A minimum of three pre-identified questions will serve as tiebreakers.

Recommended Field Guide: National Audubon Society Field Guide to North American Rocks and Minerals and SO Rock and Mineral Teaching Guides at www.soinc.org and **Sample References:**

Minerals by Name: <http://mineral.galleries.com/minerals/by-name.htm>

Sedimentary: <http://www.wilson.wnyric.org/t/drobison/labshare/stevekludge/sedimentaryid.pdf>

Igneous: <http://www.wilson.wnyric.org/t/drobison/labshare/stevekludge/igneousid.pdf>

Metamorphic: <http://www.wilson.wnyric.org/t/drobison/labshare/stevekludge/metamorphicid.pdf>

National Science Education Standards: Earth and Space Science, Content Standard D: Structure of the Earth System; Earth's History; Earth in the Solar System. (5-8); Earth and Space Science, Content Standard D: The Origin and Evolution of the Earth System; Geochemical cycles.