

ROCK HOUND

DESCRIPTION: Students will identify various rock and mineral specimens and answer questions about the characteristics of these specimens. They will also be expected to answer questions about the various processes that are involved with formation of these rocks and minerals. One chart is allowed per team, **limited to 8 ½” x 11”**.

TEAM SIZE: 1 or 2 students

APPROXIMATE TIME: 30 minutes

THE COMPETITION:

1. Teams will rotate through approximately 20 stations where they will identify rock and mineral specimens and answer questions about them. Answers will be recorded on a Zip Grade sheet. Most stations will have covered boxes with specimens inside. Some stations will only have questions inside the box. The boxes will be opened and closed at the supervisor’s direction. Students are allowed to touch the specimens unless specifically instructed otherwise. Teams will have about 1 minute per station to answer 4 to 6 multiple-choice or true/false questions.
2. The rocks and minerals that competitors need to be able to identify and answer questions about are listed on the next page. There are additional **metamorphic** rocks and associated minerals that have been added to this year’s scope.
3. Rock characteristic questions may be about their color, texture, uses, physical characteristics, special properties (reaction to 3 molar hydrochloric acid) and environments of formation.
4. The students also need to have an understanding of the rock cycle, the processes of the formation of igneous (extrusive, intrusive, volcanic glass), sedimentary (erosion, deposition, lithification) and metamorphic rocks. (the effects of heat and pressure on existing rocks).
5. Special questions relating to this year’s **metamorphic** focus may be asked. **These could include questions relating to textures (foliated, non-foliated), types of metamorphism (regional, contact, subduction zone and dynamic), factors that control the formation of metamorphic rocks and metamorphic facies and the significance of index minerals in metamorphic rocks.**
6. Mineral characteristic questions may be about their **chemical class**, color, luster, density, relative hardness, reaction to 3 molar hydrochloric acid, crystal shape, texture, cleavage, fracture, special properties (conductivity, fluorescence, optical properties and reaction to flame), uses and environment of formation.
7. Prior to the tournament, students may prepare a chart that can be used to help them during the event. The only items that the teams will be allowed to bring into the event will be pencils and their chart. The chart will not be turned in. The chart size is limited to **8 ½” x 11”**. Both sides may be used and any information the students find helpful may be included.

SCORING:

Each question answered correctly will be worth between 1 and 4 points. The team with the highest total score will be the winner. Ties will be broken using predetermined tiebreaker questions.

If a rule clarification is posted on the Macomb Science Olympiad website, the supervisor will score this event accordingly. Please visit: www.macombso.org/rocks.

ROCKS:

Igneous

basalt
granite
obsidian
pumice
scoria

Sedimentary

bituminous coal
chert
conglomerate
limestone - fossiliferous
limestone-oolitic
sandstone
shale

Metamorphic

anthracite coal
garnet schist
gneiss
marble
mica schist
phyllite
quartzite
slate
staurolite schist

MINERALS:

apatite
chalcopyrite
calcite
copper
feldspar (pink)
fluorite
galena
garnet

graphite
gypsum (satin-spar)
gypsum (selenite)
halite
hematite
kaolinite
kyanite
mica - biotite
mica- lepidolite
mica - Muscovite

pyrite
quartz (crystal)
amethyst
citrine
milky quartz
rose quartz
smoky quartz
staurolite
talc