Science Olympiad

A journey into the study of science!
Not limited to the exceptional student!
The purpose is to introduce students to new areas of interest in science.
A Special thanks to Richard Brzozowski

This slideshow (and entire event) is based on work done by Mr B.

This will be our 4^{th} year without him and he is greatly missed.
Community Partnership!

- **American Federation of Mineralogical Societies:**
  - A non-profit educational federation of seven similar regional organizations of gem, mineral and lapidary Societies. Founded in 1947.

- [http://www.amfed.org/](http://www.amfed.org/)
Community Partnership!

- Local Rock, Mineral and Gem Societies
- Community and Park Nature Centers
- Science Museums
Contents

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• Topics
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• Coaching tips
• Making tests
• Putting together a team
• Test-taking strategies
• Resources
EVENT DESCRIPTION

• A team of up to 2 will demonstrate knowledge of Rocks, Minerals and Geology principles
• Writing implements, hand lenses, and resources are allowed
• Test format will be about 20 stations, and 100-150 questions
• Samples will be taken from the official 2014 NSO list, listed on the National site
EVENT TOPICS

- Sample identification
- Uses
- Physical attributes
- Special properties
2014 Official Science Olympiad
Rock and Mineral List

• Samples for identification must be taken from this list
• Event supervisors are free to use samples not on the list, however participants will not be required to identify those substitute species by species name.
Rule Clarifications

• Check the National Science Olympiad web site often for rule clarifications.

• [http://www.soinc.org/rocks_minerals_b](http://www.soinc.org/rocks_minerals_b)
Rocks

- Rocks are classified into three groups; Igneous, Sedimentary and Metamorphic
- Rocks have are made of Minerals
- The overall proportion and type of minerals define the rock
- The relative and overall differentiation of these minerals usually give insight into how the rock formed
Minerals

- Minerals are pure natural crystalline solids.
- Minerals have properties that aid in identification
  - Including but not limited to streak, hardness, specific gravity, luster, crystal habit and form, color
OUTLINE

• Find what works for your group
• Look in texts, on internet, find syllabi from fellow teachers or online
• Make sure all of the topics are covered
COACHING TIPS

• Practice! A lot!
• Weekly quizzes and work on:
  • Arranging specimens in groups
  • Charts
  • Diagrams
• Create a “Binder”
• Choose Resources
20 Stations in covered boxes A-T

Time the boxes are open is controlled
Letters on top of the boxes

Movement ascending the alphabet A - T then T - A
Questions & Answers are Found in the box tops
Samples are found in and around the boxes
Recording Answers

• Much of the event will be multiple choice
  – These answers will likely be recorded on a scantron style answer sheet

• Some of the event will require written answers.
  – Spelling will not count as long as intent is “crystal” clear to grader
Practicing

- Give lots of quizzes – even if they’re only 5 samples!
- Have kids make quizzes
- Use flash cards
- Have samples available at every practice and whenever kids want to study (study hall?)
- Have kids quiz each other and ask associated questions
- Play pictionary, hangman, charades, anything
Arranging Samples

• By Mineral or Rock
• By relative hardness
• By the rate of cooling during formation
• In groups
  – By Mineral family ex. Quartz, gypsum etc
  – By Rock type; igneous, sed, metamorphic
Charts

• Have the team make charts for anything you or they can think of!
• Physical properties, origins
• Excel is good for these
• Combine charts
• Color code
• Laminate
Reference Material

(RECORDING THE JOURNEY)

• Each team may bring only one magnifying glass, one three-ringed binder of any size filled with *attached* student or commercially produced reference materials from any source,

• plus one book to the event.

• Have students make his/her own

• They must be familiar with it and be *speedy*

• Organization is key
Additional RESOURCES

- A guidebook with which the students have practiced
- Text of your choice
- Any helpful charts or diagrams
MAKING TESTS

• Choose specimens that have typical characteristics
• Put one or more specimens per station
• Pair supplemental questions with specimens
• Provide information if necessary (Formula)
• Provide equipment if necessary (hand lens)
• Label specimens so they can’t be mixed up!
MAKING TESTS CONT.

- Try to cover all topics reasonably evenly
- Work out the traffic pattern and label it
- Optional – include a section students can work on without being at a station
- Clearly convey expectations at beginning of test
Sample Tests

- Science Olympiad
  2 Trans Am Plaza Drive
  Suite 415, Oakbrook Terrace, Illinois 60181
  Tel: 630-792-1251, FAX: 630-792-1287
  -OR-

  ......Look Online
PUTTING TOGETHER A TEAM

• Have more than 2 students per team practicing
• Pair your strengths (both identification and conceptual)
• Have students practice together
• Choose which resources will be used
• Be sure the students will support each other
  – Both students should contribute
  – If one is more dominant in the event, he/she should be a mentor, not just take over
TEST-TAKING STRATEGIES

• Know the event! (rules and format)
• Know the subject! (concepts and identification skills)
• Talk quietly (the competition may be listening)
• Don’t mix up the specimens
• Don’t leave your resources behind
• Don’t panic if a station is left unfinished
  – Take notes and try to finish while at another station
RESOURCES

• Try several to see what the students like

• Official suggestion:
  – Audubon Society Field Guide to Rocks and Minerals

• Honestly….  
  – Use what feels comfortable
RESOURCES

• Places to find samples to study:
  – High school Earth Science classes
  – Local colleges or universities (geology or education departments)
  – Local rockhound societies or individuals
  – State Geological Surveys
  – Swap sets with other schools to vary samples
Rock Samples

- Earth Science Educator’s Supply
  P.O. Box 503,
  Lee's Summit, MO 64063
- (No Credit Cards or Phone Orders-PH 816-524-5635; FAX 816-525-4263) item FOLY ___ at $____. Price quoted includes shipping and handling.
SUMMARY

• Assemble and get to know the resources
• Practice identification
• Assemble teams that can work together
• Keep a sense of humor
• Have FUN! Rock and Roll !!!
• Best Luck to all.
The End