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 4th year without him and he is greatly missed.

Science Olympiad
Rocks and Minerals
Division B/C

2014

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/**

Community Partnership!

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

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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

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