2006
NYS Regional Science Olympiad – Division C
Rocks and Minerals
Supervisor Notes

Each station includes one or more specimens that should be labeled as indicated. Provide glass plate, copper penny, streak plate as necessary. You may want to include a magnifier at the rock stations.

STATION 1 (Mineral Properties)

MATERIALS: STREAK PLATE, GLASS PLATE, COPPER PENNY

Chalcopyrite or Halite

(Pick a specimen that shows obvious properties; you may substitute any mineral, but do not use a crystal.)

STATION 2 (Mineral Luster)

Pick specimens that clearly illustrate each luster. You may substitute different minerals if necessary.

A. talc (pearly)
B. kaolinite or hematite (earthy)
C. satin spar gypsum (silky)
D. galena (metallic)
E. quartz (vitreous)

STATION 3 (Rock Classification)

A. Fossil Limestone
B. Gneiss
C. Granite
D. Conglomerate
E. Scoria

STATION 4 (Ore Minerals) (STREAK PLATE)

A. Hematite
B. Bauxite
C. Galena

STATION 5 (Density; Magnetite)

Any mineral that is durable and that fits into graduated cylinder can be used. Make sure mineral does not have too much mass for the balance to be used.

Materials: Triple Beam Balance or Electronic Scale, calculator.

Determine the volume ahead of time by using an overflow can and a graduated cylinder. Provide the volume for the students.

STATION 6 (Rock forming Minerals)

Materials: glass plate, streak plate

A. Quartz (crystal)
B. Orthoclase feldspar
C. Olivine

STATION 7 (Mineral ID & composition)

MATERIALS: GLASS, STREAK PLATE, COPPER.

A. Pyrite
B. Sphalerite

STATION 8 (Igneous rock environment & composition)

A. Granite
B. Obsidian
C. Pumice
D. Basalt

STATION 9 (Igneous Rock Texture)

A. Pegmatite or very coarse Granite
B. Obsidian
C. Scoria
D. Basalt

STATION 10 (Metamorphic Rocks)

A. Gneiss
B. Marble

STATION 11 (Felsic Igneous Rocks)

If possible use pink granite and rhyolite.

A. Granite
B. Rhyolite

STATION 12 (Mineral ID & properties)

Select specimens that are transparent with good cleavage.

A. Selenite Gypsum
B. Calcite

STATION 13 (Hardness)

MATERIALS: GLASS, STREAK PLATE, COPPER. Don't use your best specimens since students will be testing the minerals by scratching them against each other, etc.

A. Fluorite
B. Corundum
C. Feldspar
D. Talc

STATION 14 (Varieties of Quartz)

MATERIALS: GLASS, STREAK PLATE, COPPER PENNY

A. Rose Quartz
B. Amethyst
C. Chalcedony
D. Quartz Crystal

STATION 15

1. Biotite
2. Lepidolite

STATION 16 (Mineral identification & composition)

A. Copper
B. Bornite
C. Malachite

STATION 17 (Metamorphic processes)

A. Garnet or Mica Schist
B. Slate
C. Gneiss
D. Phyllite

STATION 18 (Limestones)

A. Travertine
B. Fossil Limestone

STATION 19 (Clastic Sedimentary Rocks)

A. Shale
B. Sandstone
C. Arkose

STATION 20

MATERIALS: GLASS, STREAK PLATE, COPPER PENNY

A. Almandine Garnet
B. Tourmaline

Instructional Kit This 12-station rock study kit includes a CD with three PowerPoint presentations entitled "Introduction to Rocks" addressing each of the three classes of rocks -- igneous, sedimentary, metamorphic; three 12-Station Labs, each with up to ten questions; a rock kit containing 30 labeled specimens; coaches guide; participant response sheet, and an answer key. This 12-Station Rock Kit is a powerful study tool for independent study at home or at school. CD runs on Windows only. Visit: http://www.otherworlds-edu.com

Science Olympiad Rock & Minerals 2006

Minerals

1. Albite [Plagioclase]
2. Almandine [Garnet]
3. Amazonite [Microcline]
4. Apatite
5. Aragonite
6. Augite
7. Azurite
8. Bauxite
9. Barite
10. Beryl
11. Biotite [Mica]
12. Bornite
13. Calcite
14. Celestite
15. Chalcopyrite
16. Copper
17. Corundum
18. Diamond*
19. Dolomite
20. Epidote
21. Feldspar [Orthoclase]
22. Fluorite
23. Galena
24. Goethite
25. Gold*
26. Graphite
27. Gypsum [Alabaster]
28. Gypsum [Satin-Spar]
29. Gypsum [Selenite]
30. Halite
31. Hematite
32. Hornblende
33. Kaolinite
34. Lepidolite
35. Magnetite
36. Malachite
37. Muscovite [Mica]
38. Olivine
39. Opal
40. Pyrite
41. Quartz [Agate/Onyx]
42. Quartz [Amethyst]
43. Quartz [Chalcedony]
44. Quartz [Chert/Flint]
45. Quartz [Citrine]
46. Quartz [Crystal]
47. Quartz [Jasper]
48. Quartz [Milky]
49. Quartz [Rose]
50. Rhodonite
51. Silver*
52. Sodalite
53. Sphalerite
54. Staurolite
55. Sulfur/Sulphur
56. Talc
57. Topaz
58. Tourmaline
59. Tremolite
60. Ulexite

Metamorphic Rocks

61. Gneiss
62. Marble
63. Phyllite
64. Quartzite
65. Schist [Garnet]
66. Schist [Mica]
67. Slate

Igneous Rocks

68. Andesite
69. Basalt
70. Diorite
71. Gabbro
72. Granite
73. Obsidian
74. Pegmatite
75. Pumice
76. Rhyolite
77. Scoria

Sedimentary Rocks
78. Anthracite Coal
79. Arkose
80. Bituminous Coal
81. Breccia
82. Conglomerate
83. Coquina
84. Diatomite
85. Dolomite Rock
86. Lignite
87. Limestone [Chalk]
88. Limestone [Crystalline]
89. Limestone [Fossiliferous]
90. Limestone [Oolitic]
91. Limestone [Travertine]
92. Sandstone
93. Shale

Rocks and Minerals Kits(*excluding only silver, gold, and diamond) may be purchased from either ESES, P.O. Box 503, Lee's Summit, MO64063 (No Phone Orders-PH 816-524-5635; FAX 816-525-4263) item OLY01 at $75.00. Prices quoted include shipping and handling.

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