

Rocks and Minerals C Key

Science Olympiad North Regional Tournament at the
University of Florida



Station 1

1. Identify this specimen

Answer: Azurite

2. What is the chemical formula

Answer: $\text{Cu}_3(\text{CO}_3)_2(\text{OH})_2$

3. What element gives this mineral its color?

Answer: Copper (Cu)

4. What is the crystal structure of this mineral?

Answer: Monoclinic - prismatic

5. What is the streak color of this mineral?

Answer: Light Blue

Station 2

1. Identify this specimen

Answer: Almandine

2. What is the chemical formula?

Answer: $\text{Fe}_3\text{Al}_2\text{Si}_3\text{O}_{12}$

3. To what class of minerals does this specimen belong to?

Answer: Garnet Group

4. What best describes this specimen's cleavage?

Answer: None/May exhibit parting

5. What is the crystalline system of this specimen?

Answer: Cubic

Station 3

1. Identify this specimen

Answer: Malachite

2. Write the chemical formula

Answer: $\text{Cu}_2\text{CO}_3(\text{OH})_2$

3. What is the fracture of this specimen?

Answer: Splintery

4. What is the transparency of this specimen?

Answer: Opaque

5. What is the historical significance of this mineral?

a. One of the first ores to produce copper --- Answer

Station 4

1. Identify the specimen

Answer: Barite

2. Write the chemical formula

Answer: BaSO_4

3. Of the following, which is considered the least helpful in identifying minerals?

a. Color ----- Answer

4. What is the hardness of the mineral?

Answer: 3-3.5

5. What is this mineral used for?

a. Used with mud for oil well drilling ===== answer

Station 5

1. Identify the specimen

Answer: Mica Schist

2. How is this rock textured?

Answer: C. Foliated on cm scale

3. What is the grain size on this rock?

Answer: Fine to medium grained

4. True or false this rock would be good material for an aquifer because it is not very porous

Answer: False, Schist has low porosity.

5. Classify this specimen as Igneous, Metamorphic, or Sedimentary

Answer: Metamorphic

Station 6

1. Identify this specimen

Answer: Gabbro

2. How is the rock formed?

Answer: Found along ocean ridges or mountains as compressed and uplifted oceanic crust.

3. Color of this rock?

Answer: D. Dark Grey-Black

4. What is the classification of the rock, Igneous, Metamorphic, Sedimentary.

Answer: Igneous

5. Based on the previous question determine whether this rock can be classified on the Bowen's Reaction Series and what classification it would get.

Answer: Yes, Mafic

Station 7

1. Identify this specimen

Answer: Breccia

2. How is this rock textured?

Answer: C. Clastic (Coarse-Grained)

3. What is the usage of this rock?

Answer: Used as decoration, aggregate, fill (construction and roads)

4. Classify this rock as Igneous, Sedimentary, Metamorphic

Answer: Sedimentary

5. Give at least one formation method of this rock

Answer: Some are material accumulated on steep hill slopes, Cataclastic breccias are produced by the fragmentation of rocks during faulting, Volcanic breccias comprise blocks of lava in an ash matrix, Hydrothermal breccias are formed when hydrothermal fluid fractures a rock mass, Impact breccias are formed when a meteor impacts the Earth's surface.

Station 8

1. Identify the specimen

Answer: Gneiss

2. Name at least 1 mineral that this rock encompasses

Answer: Feldspar, Quartz, Mafic Minerals such as Biotite, Pyroxene and amphibole, Garnet

3. What is a use for this rock?

Answer: Dimension stone for building facings, paving

4. What is the grain size of this rock?

a. Medium to coarse grained --- Answer

5. What is the classification of this rock: Sedimentary, Metamorphic, Igneous
Answer: Metamorphic

Station 9

Identify each specimen and describe its luster

(Be specific and use terms such as silky, vitreous, earthy, metallic)

- Specimen 1 – Beryl, Vitreous
- Specimen 2 – Olivine, Vitreous
- Specimen 3 – Pyrite, Metallic
- Specimen 4 – Sodalite, Greasy waxy
- Specimen 5 – Chalcedony, Vitreous
- Specimen 6 – Biotite Mica, Pearly
- Specimen 7 – Malachite, Silky
- Specimen 8 – Amethyst, Vitreous
- Specimen 9 – Graphite, Metallic
- Specimen 10 – Fluorite, Vitreous
- Specimen 11 – Agate, Vitreous
- Specimen 12 - Bornite, Metallic
- Specimen 13 – Hematite, Metallic
- Specimen 14 – Copper, Metallic
- Specimen 15 - Topaz, Vitreous

Station 10

Rank the following specimens in decreasing hardness from 1-6 (1 being the hardest, 6 being the softest). You will be given a penny.

- Specimen 1 (Graphite) 6
- Specimen 2 (Fluorite) 3
- Specimen 3 (Galena) 5

Specimen 4 (Augite) 2

Specimen 5 (Orthoclase) 1

Specimen 6 (Biotite) 4