

Captains' Tryouts: Rocks and Minerals KEY

Blue Valley North HS

Station 1

1. Microcline (amazonite) (1 point)
2. $KAlSi_3O_8$ (1 point)
3. C (1 point)
4. 2.5-2.6

The specific gravity of a mineral is the density relative to water. To find this you must weigh the specimen and then measure its volume in water. Then divide the mass by the volume to determine the SG. (2 points; 1 for correct SG, 1 for correct explanation)

Station 2

1. Sphalerite (1 point)
2. Sulfides (1 point)
3. Yes (Triboluminescence is flashes of light if rubbed or struck with a hard surface) (1 point)
4. B (1 point)
5. Many answers: pyrite, sodalite, bornite, copper, diamond, fluorite, galena, gold, almandine, halite, magnetite, silver (everything that is isometric) (1 point)

Station 3

1. Amethyst quartz (1 point)
2. D (1 point)
3. Quartzite (1 point)
4. February (1 point)

Station 4

1. Granite (1 point)
2. Answers include: feldspar, quartz, biotite, hornblende, augite, muscovite (1 point each, 3 points maximum)
3. Formed by the slow cooling of magma underground (1 point)
4. C (1 point)

Station 5

1. Pyrite, FeS_2 (1 point)
2. Galena, PbS (1 point)
3. Lead, Silver (2 points, 1 point each)

4. A (1 point)
5. D (1 point)

Station 6

1. Albite (1 point)
2. B (1 point)
3. A (1 point)
4. When two separate crystals align and intergrow at specific points in the crystal structure resulting in a twin boundary between the crystals. Albite often displays crystal twinning. (1 point)

Station 7

1. Gypsum (sand crystals) (1 point)
2. Selenite (gypsum) (1 point)
3. C (1 point)
4. Yes (in HCl) (1 point)

Station 8

1. Quartzite (1 point)
2. Quartz sands (1 point)
3. C (1 point)
4. It forms at convergent plate boundaries in places of contact of regional metamorphism (1 point)

Station 9

1. Opal (1 point)
2. Obsidian (1 point)
3. October (1 point)
4. The rapid cooling of silica rich magma with limited crystal growth (1 point)
5. A (1 point)

Station 10

1. Apatite (1 point)
2. B (1 point)
3. A (1 point)
4. Phosphate (1 point)

Station 11

1. Talc (1 point)
2. A (1 point)
3. Pearly (1 point)
4. C (1 point)

Station 12

1. Marble (1 point)
2. The regional or contact metamorphism of limestone or calcite (1 point)
3. D (1 point)

Station 13

1. Agate (1 point)
2. Microscopically crystallized with slender fibers arranged in parallel bands causing banding and no apparent crystal structure (2 points)
3. Conchoidal fracture (1 point)
4. B (1 point)

Station 14

1. Staurolite (1 point)
2. Penetration twinning (1 point)
3. Georgia (1 point)
4. $\text{Fe}_2\text{Al}_9\text{Si}_4\text{O}_{22}(\text{OH})_2$ (1 point)

Station 15

1. Halite (1 point)
2. Salt, table salt, rock salt, ext. (1 point)
3. Hopper crystals (1 point)
4. Cubic/Isometric (1 point)
5. NaCl (1 point)

Station 16

1. Dolomite (1 point)
2. Fluorite (1 point)
3. 2 (1 point)
4. 2 (1 point)
5. Ca (1 point)