

Minerals (p. 62 – 66)

I. What Is A Mineral?

1. Define the term mineral.

Mineral – naturally occurring, inorganic solid with a definite composition and an orderly arrangement of atoms

2. Identify the five characteristics of minerals.

1. Naturally Occurring
2. Inorganic (Not carbon-based organic)
3. Definite Chemical Composition (Made up of one thing)
4. Solid (Possesses a definite shape)
5. Crystalline (Composed of repeating patterns)

3. Define the term crystalline.

Crystalline – atoms arranged in a pattern that is repeated over + over again

II. The Structure Of Minerals

1. Define the term crystal.

Crystal – solid in which the atoms are arranged in orderly, repeating patterns

2. Match the crystal shape with the correct examples. (p. 64)

- | | |
|-----------------------------|---|
| 1. <u>B.</u> - Cubic | A. Orthoclase, Azurite – (only one right angle) |
| 2. <u>D.</u> - Hexagonal | B. Fluorite, Magnetite – (equal size in all dimensions) |
| 3. <u>A.</u> - Monoclinic | C. Barite, Sulfur – (unequal in length; brick-like shape) |
| 4. <u>C.</u> - Orthorhombic | D. Quartz, Beryl – (equal horizontal length between surfaces) |
| 5. <u>F.</u> - Tetragonal | E. Rhodonite, Microcline Feldspar - (least symmetrical) |
| 6. <u>E.</u> - Triclinic | F. Zircon, Rutile – (similar to cubic, one side longer) |

3. Identify two processes by which crystals form.

Magma + Lava Solutions

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4. Define the term magma.

Magma - hot, melted rock material (belowground)
(Lava = Aboveground)

5. What affects the size of crystals formed from magma?

The rate at which the magma cools

6. Identify which type of crystals is produced from the following depths.

Deep below the surface : (Circle One) Small Crystals Large Crystals

Closer to the surface : (Circle One) Small Crystals Large Crystals

7. Identify which type of crystals is produced from the following cooling rates.

Fast On Window

Fast Cooling : (Circle One) Small Crystals Large Crystals

Slower To Earth Center

Slow Cooling : (Circle One) Small Crystals Large Crystals

8. How do minerals form from solution?

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Top/Right

1. Minerals dissolved in water (evaporate = crystals)
2. Saturated substances in water (precipitate = crystals)

III. Mineral Compositions & Groups

1. How many elements naturally occur in the Earth's crust?

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90 Elements

2. What percentage of the crust is composed of eight of the naturally occurring elements?

98 %

3. Define the term silicates.

Silicates - minerals that contain silicon and oxygen and usually one or more other elements

4. What are the two most abundant elements in the Earth's crust?

Silicon Oxygen