

Chapter 4 Earth Chemistry Review Answer Key

SECTION 1 MATTER

Review

1. first row: Electron second row, from left to right: +; −; none third row: in the nucleus
2. Physical properties can be observed without chemical reactions. Chemical properties can be observed only when a substance reacts with another substance.
3. The atom's mass number is 29. It is an atom of silicon. Silicon's atomic number is 14, so all atoms of silicon have 14 protons.
4. Isotopes have the same number of protons, so their atomic numbers are equal. Isotopes have different numbers of neutrons, so their mass numbers are different.
5. They have the same number of valence electrons, and they have similar properties.

SECTION 2 COMBINATIONS OF ATOMS

Review

1. second row, from left to right: compounds; mixtures third row, from left to right: covalent bonds; ionic bonds; heterogeneous; homogeneous
2. The reactants are hydrogen (H_2) and oxygen (O_2). The product is water (H_2O). The equation is balanced because there are four hydrogen atoms and two oxygen atoms on each side of the equation.
3. Possible answers: Coffee is an example of a homogeneous solution. Gravel is an example of a heterogeneous solution.

Chapter 5 Minerals Review Answer Key

SECTION 1 WHAT IS A MINERAL?

Review

1. Silicate minerals contain compounds of silicon and oxygen. Nonsilicate minerals do not.
2. cubes, hexagonal prisms, and irregular shapes
3. Possible answer: Diamonds are minerals. They are solid, they form naturally, and they form crystals.
4. sulfides
5. Quartz is a silicate mineral, so quartz is made up of silicon-oxygen tetrahedrons. In a framework silicate such as quartz, each silicon-oxygen tetrahedron shares four oxygen atoms with other tetrahedrons. The tetrahedrons form a web, or framework. In a single-chain silicate such as pyroxene, each tetrahedron shares two oxygen atoms with other tetrahedrons. The tetrahedrons form long chains.
6. They do not contain silicon. All silicate minerals contain silicon and oxygen bonded together.

SECTION 2 IDENTIFYING MINERALS

Review

Review

1. cleavage only: mineral breaks along smooth, flat surfaces cleavage and fracture: describes how a mineral breaks fracture only: mineral breaks along uneven surfaces
2. If you scratched a piece of gold with a piece of talc, nothing would happen. The talc would not scratch the gold. Both the calcite and the quartz would scratch the gold.
3. A mineral may have many different colors, but its streak is always the same, no matter what its color is.
4. double refraction