

Section 1 • Organization of Matter

Student textbook, p. 227

Atoms and Molecules (pp. 217-220)

1. a) What is an atom? *An atom is the smallest unit forming matter.*
- b) What holds atoms in a molecule together? *Chemical bonds hold atoms in a molecule together.*

Pure Substances (pp. 220-222)

2. a) What is the difference between an element and a compound? *An element is a pure substance made up of only one type of atom, whereas a compound is a pure substance formed by two or more atoms.*
- b) Divide the substances on the following list into elements and compounds. Indicate how many atoms of each type are included in each substance.
 - NaCl *Compound formed from one atom of sodium and one atom of chlorine*
 - H₂O *Compound formed from two atoms of hydrogen and one atom of oxygen*
 - O₃ *Element formed from three atoms of oxygen*
 - Au *Element formed from one atom of gold*
 - NaOH *Compound formed from one atom of sodium, one atom of oxygen and one atom of hydrogen*
 - Ca *Element formed from one atom of calcium*

Homogeneous and Heterogeneous Mixtures (pp. 222-225)

3. Indicate whether each statement below describes a homogeneous mixture or a heterogeneous mixture:
 - Only displays one phase to the naked eye *Homogeneous*
 - Displays a disorderly arrangement of particles *Heterogeneous*
 - Displays more than one phase to the naked eye or through a microscope *Heterogeneous*
 - Shows a uniform distribution of particles *Homogeneous*
4. Indicate which of the following mixtures are homogeneous and which are heterogeneous:
 - a) Milk *Heterogeneous*
 - b) Noodle soup *Heterogeneous*
 - c) Iced tea *Homogeneous*
 - d) Ice cream *Heterogeneous*
 - e) White vinegar *Homogeneous*

The Particle Model (pp. 225 and 226)

5. Why is a scientific model useful? *A model provides a visible representation of a situation that is abstract, hard to access or completely hidden.*
6. Indicate which state of matter (solid, liquid or gas) corresponds to each of the following statements:
 - a) Particles are highly excited *Gas*
 - b) Particles are very orderly *Solid*
 - c) Particles are spaced only slightly apart *Liquid*
 - d) Particles are spaced very far apart *Gas*