CHAPTER 1 REVIEW

Matter and Change

Teacher Notes and Answers

SECTION 1

SHORT ANSWER

1. a
2. d
3. a
4. b
5. organic chemistry—the study of carbon-containing compounds
   inorganic chemistry—the study of non-organic substances
   physical chemistry—the study of properties of matter, changes that occur in matter, and the relationships between matter and energy
   analytical chemistry—the identification of the composition of materials
   biochemistry—the study of the chemistry of living things
   theoretical chemistry—the use of mathematics and computers to design and predict the properties of new compounds
   Students may also describe pharmaceuticals, forensic chemistry, or green chemistry.
6. a. basic research
   b. applied research/technical development
   c. applied research
   d. applied research/technical development
   e. applied research/technical development
   f. applied research
7. Chemistry can help you ask good questions or examine and test the claims made about products.
8. Chemistry is said to have come from alchemy, which produced knowledge about many substances as well as useful new substances.
9. Chemists are using computer models to design new molecules, are enhancing crime detection and prevention, and are reducing harmful effects of waste products.
10. the study of the composition, properties, and interactions of matter

Name:_____ Class: _____ Date: _____

CHAPTER 1 REVIEW

Matter and Change

SECTION 1

SHORT ANSWER Answer the following questions in the space provided.

1. _____ Science is
   (a) a body of knowledge and a way of thinking.
   (b) the study of society's interaction with matter.
   (c) a collection of facts and opinions.
   (d) a set of unconfirmed theories.

2. _____ The primary motivation behind basic research is to
   (a) develop new products.
   (b) make money.
   (c) understand an environmental problem.
   (d) gain knowledge.

3. _____ Applied research is designed to
   (a) solve a particular problem.
   (b) satisfy curiosity.
   (c) gain knowledge.
   (d) learn for the sake of learning.

4. _____ Chemistry is usually classified as
   (a) a biological science.
   (b) a physical science.
   (c) a social science.
   (d) a computer science.

5. Describe several major branches of chemistry.

_____

_____

_____

_____

_____

_____

_____

_____

Name:_____ Class: _____ Date: _____

SECTION 1 *continued*

6. For each of the following types of chemical investigations, determine whether the investigation is *basic research, applied research, or technological development.* More than one choice may apply.

   _____ a. A laboratory in a major university surveys all the reactions involving bromine.

   _____ b. A pharmaceutical company explores a disease in order to produce a better medicine.

   _____ c. A scientist investigates the cause of the ozone hole to find a way to stop the loss of the ozone layer.

   _____ d. A pharmaceutical company discovers a more efficient method of producing a drug.

   _____ e. A chemical company develops a new biodegradable plastic.

   _____ f. A laboratory explores the use of ozone to inactivate bacteria in a drinking-water system.

7. What is a way in which chemistry can help you make better decisions about consumer products?

   _____

   _____

8. From what philosophical tradition is chemistry said to have emerged? What is something chemistry owes to this tradition?

   _____

   _____

9. Describe one exciting area of study in chemistry today.

   _____

   _____

10. What is chemistry?

    _____

    _____