Chapter 1 & 2 Review Sheet

1. Define the following terms: a . science b. chemistry c . scientific method
   d. natural law e. hypothesis f. theory

2. Discuss how the scientific method is useful in solving problems outside science. Give an examples of when you have used the scientific method (outside of school) in the past month.

3. What is a summary of observed behavior?
   a . fact b. law c. theory d. symbol e. equation

4. Chemistry is a study of matter and its changes. List at least three chemical changes that are a part of your everyday life.

5. Discuss how a hypothesis can become a theory. True or false: If a theory proves correct over a long period of time, it becomes a law. Explain your answer.

6. Make 5 qualitative and 5 quantitative observations about the room you are in.

7. Identify each of the following as qualitative or quantitative observations.
   A. The object has a mass of 2.3 grams.
   B. Carbon dioxide gas is produced.
   C. The liquid is yellow.
   D. A yellow solid is formed.

8. A hypothesis is:
   A. a summary of observed (measurable) behavior.
   B. a process used to make and explain discoveries and to solve problems.
   C. a possible explanation for why nature behaves in a particular way.
   D. an explanation that has stood up to much testing and investigation.

9. A student observes that a tree is made up of a trunk, branches, and leaves. What type of observation is this?

10. A student uses the following structured process to investigate a scientific phenomenon: statement of problem, data collection, hypothesis, and experimentation. What term best describes this process?

11. A student investigated the properties of several unknown substances. The data table from the experiment is shown in Table 1. Substance A and B are liquids, and Substance C is a solid.

Table 1

Unknown substance	Density (g/cm^3)	Color	Mass (g)
A	1.0	colorless	100.0
B	13.6	silver	25.0
C	2.72	brown	300.0

According to the information provided in the table, which of the following statements is true?

A. The data table contains quantitative data only.
B. The data table contains qualitative data only.
C. The data table contains quantitative and qualitative data.
D. none of the above

12. What is matter? Of what is matter composed? What are some of the different types of matter? How do these types of matter differ and how are they the same?

13. What is an element and what is a compound? Give examples of each. What does it mean to say that a compound has a constant composition?

14. Explain the differences among a gas, a liquid, and a solid.

15. What is meant by the term chemical property? What is meant by the term physical property?

16. What is meant by the term chemical change? What is meant by the term physical change? Classify each of the following as a chemical or physical property or change.
    A. Table salt dissolves in water.
    B. Water boils at 100°C.
    C. You bake a cake.
    D. A tree is struck by lightning.

17. What are alloys? Provide an example.

18. What is a mixture? Provide an example. What is a solution? Provide an example. Are all solutions mixtures? Are all mixtures solutions? Explain.

19. What is meant by the term pure substance? Are all elements pure substances? Are all compounds pure substances?

20. Are mixtures pure substances? Are solutions pure substances?

21. What is the difference between a homogeneous mixture and a heterogeneous mixture?

22. Provide an example of each of the following mixtures and state whether it is a homogeneous or heterogeneous mixture. Support your answer.
    a. A mixture of a solid and a liquid.
    b. A mixture of two gases.
    c. A mixture of two liquids.
    d. A mixture of two solids.