Name _____ Class _____ Date _____

Assessment

Measurements and Calculations

Section Quiz: Scientific Method

In the space provided, write the letter of the term or phrase that best completes each sentence or best answers each question.

_____ **1.** Which of these observations is qualitative rather than quantitative?
- **a.** A chemical reaction is complete in 2.3 s.
- **b.** The solid has a mass of 23.4 g.
- **c.** The density of aluminum is 2.70 g/cm^3.
- **d.** Salt deposits form from an evaporated liquid.

_____ **2.** Quantitative observations are recorded in the form of
- **a.** numerical data.
- **b.** detailed descriptions.
- **c.** precise predictions.
- **d.** step-by-step procedures.

_____ **3.** All of the following are steps in the scientific method *except*
- **a.** observing and recording data.
- **b.** forming a hypothesis.
- **c.** discarding data inconsistent with the hypothesis.
- **d.** making predictions based on a theory.

_____ **4.** Which of these statements about the scientific method is *not* true?
- **a.** All experiments must follow the same step-by-step procedure.
- **b.** Experiments may be repeated several times.
- **c.** Some unexpected results can be beneficial.
- **d.** Experimental results may or may not support the hypothesis.

_____ **5.** Ten plants are grown in equal amounts of sunlight with equal amounts of water and varying amounts of fertilizer. Sunlight, water, and fertilizer are
- **a.** controls.
- **b.** experiments.
- **c.** systems.
- **d.** variables.

_____ **6.** An experiment was designed to measure the effect of sulfur dioxide emissions from a power plant on the pH of rain falling downwind of the plant. In this experiment, the average pH of rainwater upwind from the plant would be considered
a. a model.
b. a variable.
c. the hypothesis.
d. the control.

_____ **7.** Which of these best describes a scientific model?
a. a small version of a large object
b. the most recent version of a theory
c. a way of explaining a complex concept
d. a detailed description of a natural event

_____ **8.** A proposed explanation that is based on observations and that can be tested is known as a(n)
a. principle.
b. experiment.
c. law.
d. hypothesis.

_____ **9.** For each investigation, the scientific method
a. requires that the same set of procedures be followed.
b. provides a logical set of procedures.
c. is abandoned if there are unexpected results.
d. helps to predict the results.

_____ **10.** A theory is accepted as the explanation of an observed phenomenon until
a. one study contradicts the theory.
b. repeated observations conflict with the theory.
c. a new method is used to gather data.
d. a leading scientist feels that it is invalid.