

Section 1–4 Tools and Procedures (pages 24–28)

This section describes the measurement system that most scientists use. It also describes light microscopes, electron microscopes, and laboratory techniques.

A Common Measurement System (page 24)

1. Why do scientists need a common system of measurement? _____

2. When collecting data and doing experiments, what system of measurement do most scientists use? _____
3. What is the metric system? _____

4. Complete each equation by writing the correct number or metric unit.
 - a. 1000 meters = 1 _____
 - b. 1 liter = _____ milliliters
 - c. 1 gram = _____ milligrams
 - d. 1000 kilograms = 1 _____

Analyzing Biological Data (page 25)

5. When scientists collect data, what are they often trying to find out? _____

6. What does a graph of data make easier to recognize and understand than a table of data? _____

Microscopes (pages 25–26)

7. What are microscopes? _____

8. What are compound light microscopes? _____

9. How do chemical stains make light microscopes more useful? _____

Name _____ Class _____ Date _____

10. What are the two main types of electron microscopes?

a. _____

b. _____

11. Compare how a TEM and an SEM produce images. _____

12. How must samples be prepared for observation by an electron microscope?

Laboratory Techniques (page 27)

13. A group of cells grown in a nutrient solution from a single original cell is called a(an)

_____.

14. What technique do biologists use to separate one part of a cell from the rest of the cell?

Working Safely in Biology (page 28)

15. What is the single most important rule for your safety while working in a laboratory?

WordWise

The block of letters below contains six vocabulary terms from Chapter 1. Use the clues to identify the words you need to find. Then, find the words across, down, or on the diagonal. Circle each word in the hidden-word puzzle.

Clues

A device that produces magnified images of structures that are too small to see with the unaided eye

A well-tested explanation that unifies a broad range of observations

Change over time

The process by which organisms keep their internal conditions fairly constant

An organized way of using evidence to learn about the natural world

Evidence gathered from observations

The chemical reactions through which an organism builds up or breaks down materials

A collection of living matter enclosed by a barrier that separates it from the surroundings

Vocabulary Terms

h o m e o s t a s i s
 h n s q a a l e s n m
 m t c e l l s v m s s
 h y i d o s z o u p b
 t m e t a b o l i s m
 r w n l s t x v m s s
 m i c l s v a e d a h
 t h e o r y l m e a n
 m m i c r o s c o p e