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Chapter 1 Science Skills

Section 1.3 Measurement

(pages 14–20)

This section discusses units of measurement, making and evaluating measurements, and calculations with measurements.

Reading Strategy (page 14)

Previewing Before you read the section, draw a table like the one below in your notebook. Rewrite the green and blue topic headings in this section as questions in the table. As you read, write answers to the questions. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

Measurement
Why is scientific notation useful? It makes very large or very small numbers easier to work with.

Using Scientific Notation (pages 14–15)

1. Scientific notation expresses a value as the product of a number between 1 and 10 and Power of ten.
2. Circle the letter of the value that is expressed as 3×10^8.

   a. 300
   b. 300,000
   c. 300,000,000

SI Units of Measurement (pages 16–18)

3. Is the following sentence true or false? Units in the SI system include feet, pounds, and degrees Fahrenheit. false

Match the SI base unit with the quantity that is used to measure.

	SI Base Unit	Quantity
c	4. meter	a. mass
a	5. kilogram	b. time
d	6. kelvin	c. length
b	7. second	d. temperature

8. Use the terms in the box to complete the table of SI prefixes.

micro-	billion(10^9)	1,000,000	c
milli-	tenth(10^{-1})	1,000	n

SI Prefixes			
Prefix	**Symbol**	**Meaning**	**Multiply Unit By**
giga-	G	Billion(10^7)	1,000,000,000
mega-	M	million (10^6)	1,000,000
kilo-	k	thousand (10^3)	1,000
deci-	d	tenth(10^-1)	0.1
centi-	c	hundredth (10^{-2})	0.01
milli-	m	thousandth (10^{-3})	0.001
micro-	μ	millionth (10^{-6})	0.000001
nano-	n	billionth (10^{-9})	0.000000001

9. A ratio of equivalent measurements that is used to convert a quantity expressed in one unit to another unit is called a(n) _____. Circle the correct answer.

fraction conversion factor proportion

Limits of Measurement (page 19)

10. Circle the letter of each expression that has four significant figures.

a. 1.25×10^4
b. 12.51
c. 0.1255

11. Is the following sentence true or false? The precision of a calculated answer is limited by the least precise measurement used in the calculation. true

Measuring Temperature (page 20)

12. Circle the letter of the base unit of temperature in SI.

a. degree Fahrenheit (°F)
b. degree Celsius (°C)
c. kelvin (K)