

STUDY GUIDE

Chapter 1

Standards of Measurement

Some prefixes used in SI are listed in the table below. Use the information in the table to answer questions 1-5.

SI Prefix	Meaning
kilo -	thousand (1000)
hecto -	hundred (100)
deka -	ten (10)
deci -	tenth (0.10)
centi -	hundredth (0.01)
milli -	thousandth (0.001)

- How many meters are in one *kilometer*? _____
- What part of a liter is one *milliliter*? _____
- How many grams are in two *dekagrams*? _____
- If one gram of water has a volume of one *milliliter*, what would the mass of one liter of water be in *kilograms*? _____
- What part of a meter is a *decimeter*? _____

In the blank at the left, write the term that correctly completes each statement. Choose from the terms listed below.

metric
ten

SI
prefixes

standard
tenth

- _____ 6. An exact quantity that people agree to use for comparison is a _____.
- _____ 7. The system of measurement used worldwide in science is _____.
- _____ 8. SI is based on units of _____.
- _____ 9. The first system of measurement that was based on units of ten was the _____ system.
- _____ 10. In SI, _____ are used with the names of the base unit to indicate the multiple of ten that is being used with the base unit.
- _____ 11. The prefix deci- means _____.

REINFORCEMENT

Chapter 1

Standards of Measurement

Fill in the missing information in the table below.

SI prefixes and their meanings	
Prefix	Meaning
	0.001
	0.01
deci-	0.1
	10
hecto-	100
	1000

Circle the larger unit in each pair of units.

1. millimeter, kilometer
2. decimeter, dekameter
3. hectogram, decigram
4. centimeter, millimeter
5. hectogram, kilogram

6. In SI, the base unit of length is the meter. Use this information to arrange the following units of measurement in the correct order from smallest to largest. Write the number 1 (smallest) through 7 (largest) in the spaces provided.

- | | |
|---------------------|---------------------|
| _____ a. kilometer | _____ e. hectometer |
| _____ b. centimeter | _____ f. millimeter |
| _____ c. meter | _____ g. decimeter |
| _____ d. dekameter | |

Use your knowledge of the prefixes used in SI to answer the following questions in the spaces provided.

7. One part of the Olympic games involves an activity called the decathlon. How many events do you think make up the decathlon? _____
8. How many years make up a decade? _____
9. How many years make up a century? _____
10. What part of a second do you think a millisecond is? _____

ENRICHMENT**Chapter 1****Standards of Measurement****SI PREFIXES**

Use the following table of SI prefixes to complete number 1 and answer questions 2-4.

Prefix	Symbol	Multiplying factor
mega	M	1 000 000
kilo	k	1 000
deci	d	0.1
centi	c	0.01
milli	m	0.001
micro	μ	0.000 001
nano	n	0.000 000 001
pico	p	0.000 000 000 001

- Circle the quantity in each of the following pairs that is larger,
 - millimeter, centimeter
 - picometer, micrometer
 - kilogram, centigram
 - megawatt, kilowatt
 - microsecond, millisecond
 - milliliter, microliter
- A decimeter is 0.1 m. What are the names of the following quantities
 - 0.1 g _____
 - 0.000 001 s _____
 - 0.001 m _____
 - 0.000 000 001 s _____
 - 1 000 000 watts _____
 - 1 000 _____
 - 0.01 m _____
 - 0.000 001 m _____
- A millimeter is 0.001 m. Which quantities have the following names?
 - picosecond _____
 - centigram _____
 - decimeter _____
 - microliter _____
- There are more SI prefixes that represent very big and very small factors. Find out what each of the following prefixes represents.
 - giga _____
 - tera; _____
 - femto _____
 - atto _____