Name _____ Date _____ Class _____

CHAPTER 2 STUDY GUIDE

Analyzing Data

Section 2.1 Units and Measurement

In your textbook, read about SI units.

Complete the following table.

SI Base Units		
Quantity	**Base unit**	**Unit abbreviation**
1.		s
2. Mass		
3.	kelvin	
4. Length		

In your textbook, read about base units and derived units.

For each SI unit in Column A, write the letter of the matching item from Column B.

Column A	Column B
_____ 5. second	a. A platinum-iridium cylinder that is stored at constant temperature and humidity
_____ 6. meter	b. The microwave frequency given off by a cesium-133 atom
_____ 7. kilogram	c. A cube whose sides all measure exactly one meter
_____ 8. cubic meter	d. The distance that light travels through a vacuum in 1/299, 792, 458 second

9. Use **Table 2.2** in your textbook to arrange the following prefixes in order from largest to smallest.

centi- giga- kilo- mega- milli- nano- pico-

_____

10. List the symbols and factors that the following prefixes represent.

a. centi- _____

b. kilo- _____

c. milli- _____

Section 2.1 *continued*

Answer the following questions.

11. Which temperature scale will you use for your experiments in this class? Is this an SI unit?

_____

12. How many grams are in a kilogram?

_____

13. How many liters are in a megaliter?

_____

14. How many centimeters are in a meter?

_____

15. What is the difference between a base unit and a derived unit?

_____

_____

16. What is density?

_____

17. Explain in terms of density why a grocery bag containing all canned goods is harder to lift than a grocery bag containing all paper goods.

_____

_____

_____

18. How can you obtain an object's volume if you know its density and its mass?

_____

_____

_____

19. What is the three-part process for problem solving?

_____

20. How are degrees Celsius converted to kelvins?

_____

Section 2.2 Scientific Notation and Dimensional Analysis

In your textbook, read about scientific notation.

1. Circle the figures that are written in scientific notation.

1.61×10^2 | $1.61 \times 10 \times 10$

1.61×100 | 161 km

$1.627\ 62 \times 10^{-27}$ kg | $9.109\ 39 \times 10^{-31}$ kg

2.8×10^{-8} | 1,380,000

2. Change the following data into scientific notation.

a. 5,000,000 km _____ c. 0.000421 g _____

b. 8,394,000,000 s _____ d. 0.03 cm _____

In your textbook, read about dimensional analysis.

Answer the following questions.

3. What is a conversion factor?

_____

_____

4. What is dimensional analysis?

_____

Complete the following dimensional analysis problems.

5. Convert 50 kilograms into grams.

50 _____ × 1000 _____ /1 _____ = 50,000 _____

6. Convert 5 meters into centimeters.

5 _____ × 100 _____ /1 _____ = 500 _____

7. Convert 5 liters into kiloliters.

5 _____ × 1 _____ /1000 _____ = 0.0005 _____

8. Convert 5 centimeters into meters.

5 _____ × 1 _____ /100 _____ = 0.05 _____

9. Convert 55 kilometers per hour into meters per second. Use the conversion factor 1 km = 1000 m.

55 _____ /_____ × 1000 _____ /1 _____ × 1 _____ /60 _____

× 1 _____ /60 _____ = 15 _____