Chemistry Unit 1: Measurement

Chapter 2: p 29-61

Topics:

- *SI System of measurement*
- *Accuracy and precision*
- *Density*
- *Percent error*
- *Scientific notation*

Guided Notes

p. 29: The Scientific Method

1. Summarize the 5 stages of the scientific method. The beginning letters of each stage are given.

- O____

- H____

- T____

- TH____

- P____

p. 34-36: SI System of Measurement

For each of the following quantities, give the *unit name* and the *unit symbol*

2. length

3. mass

4. time

5. temperature

6. amount of substance

For each of the following prefixes, give the *symbol* and *meaning*

    7. mega

    8. kilo

    9. deci

    10. centi

    11. milli

    12. nano

For each of the following derived unit quantities, give the *unit* and the *abbreviation*

    13. area

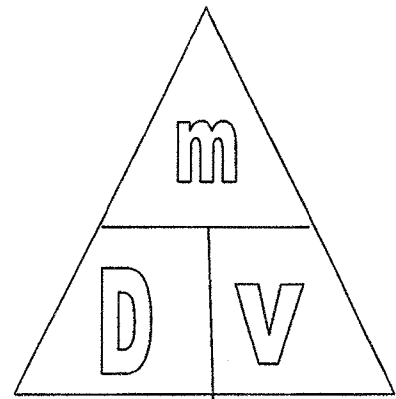   14. volume

    15. density

    16. energy

Now would be a good time to complete the worksheet *SI Conversions*.

p. 38: Density

A good way to solve density problems is with the triangle-T for the equation

Cover up the variable that's missing. Do the math with what's left (top ÷ bottom, or side x side) and use the correct unit for your answer

Please draw out and fill in the triangle for each of the following

    17. What is the density of an object with a mass of 60 g and a volume of 2 mL?

    18. Bob found a lava rock. Its mass if 36 g and its volume is 12 mL. What is its density?
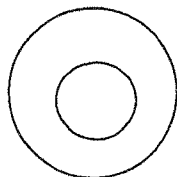
    19. If a block of wood has a density of 0.6 g/mL and a mass of 120 g, what is its volume?

    20. What is the mass of an object that has a volume of 34 mL and a density of 6 g/mL?
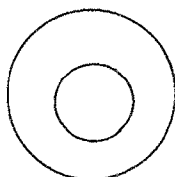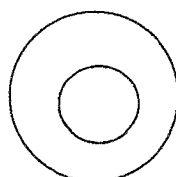
21. How is accuracy different from precision?

22. Imagine each of the shapes below are dart boards. Copy them onto your own paper, and draw hits on the dartboards to show what is written under each one.
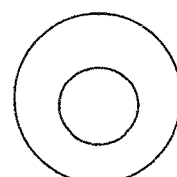

Accurate   Precise   Accurate and Precise   Neither Accurate nor Precise

22. A group of students measures the length of an object several times. They get 2.3 m the first time, 2.4m the second time, and 2.5 m the third time. The object is actually 7 m long. Which of the above bullseyes describe the students' measurements? Why?

23. What formula is used to calculate percent error?

24. What is an *accepted value*?

25. What is an *experimental value*?

26. Use the formula in #23 to calculate the percent error for the following:

    a. While doing a lab, a student finds the density of a piece of aluminum to be 2.85 g/mL. The accepted value for aluminum's density is 2.7 g/mL. What was the student's percent error?
    b. A student made a mistake when measuring the volume of a big container. He found the volume to be 65 liters. The real value for the volume is 50 liters. What is the percent error?
    c. A man measured his height and found 6 feet. However, after he carefully measured his height a second time, he found his real height to be 5 feet. What is the percent error the man made the first time he measured his height?