

Unit 1: Matter

What is CHEMISTRY?

What is MATTER?

- ◆ System
- ◆ Surrounding

MEASURING MATTER

◆ Mass is...

✓ Measured with a _____.

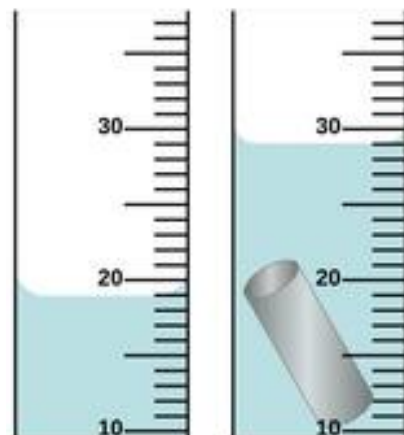
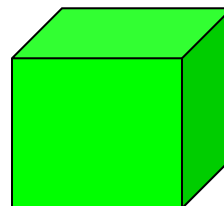
✓ Base unit is the _____ (_____)

◆ Volume is...

✓ Base unit is the _____ (_____)

✓ Volume of a Regular Solid

✓ Volume of an Irregular Solid



EXPRESSING MEASUREMENTS

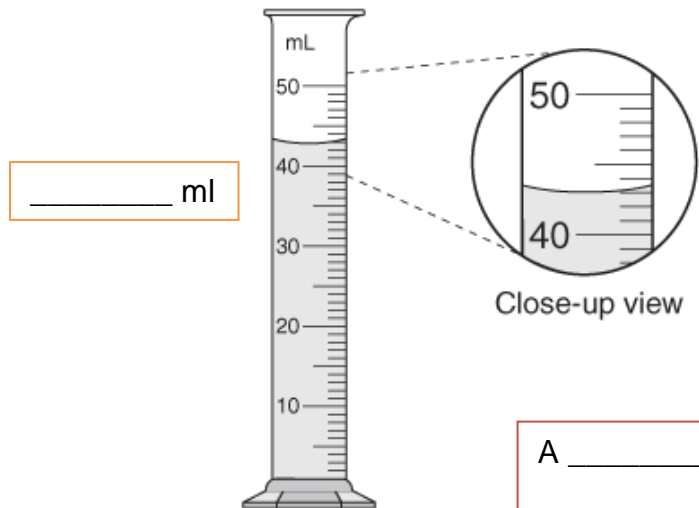
◆ Uncertainty in Data

✓ Accuracy:

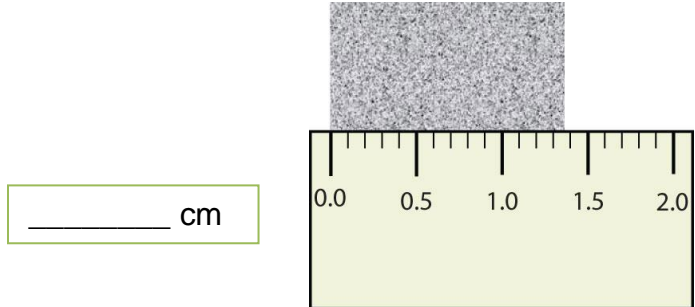
✓ Precision:

◆ **Significant Figures:**

✓ Measure the following estimating one digit.

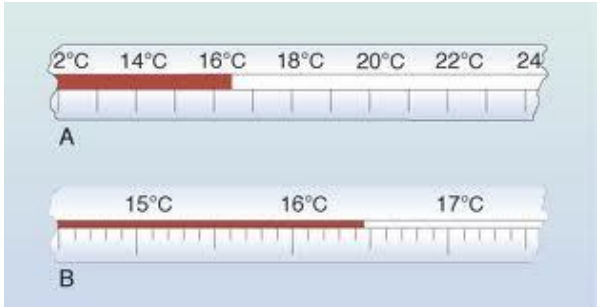


_____ ml



_____ cm

A _____ °C
B _____ °C



✓ Counting Sig Figs

○ Nonzero numbers are significant.

72.3 has _____ sig figs 35.52 has _____ sig figs

○ Zeros in the _____ of a number are significant.

70.357 has _____ sig figs 10.04 has _____ sig figs

○ Zeros at the _____ of a number AND to the _____ of a decimal are significant.

75.00 has _____ sig figs 9.00 has _____ sig figs

○ Placeholder zeros _____ significant.

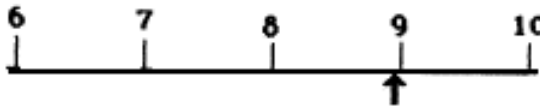
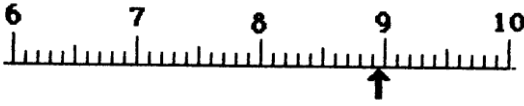
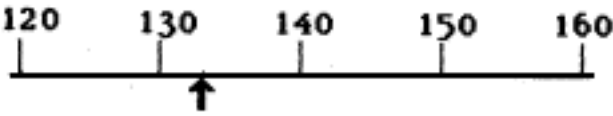
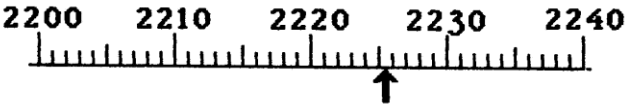
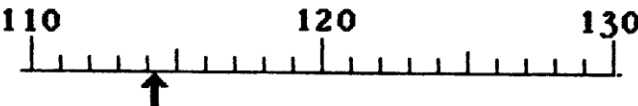
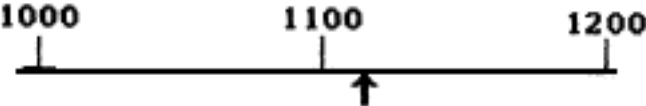
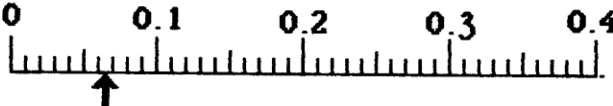
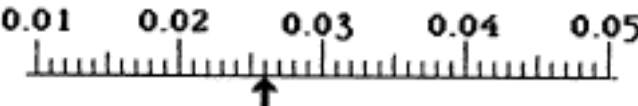
0.054 and 5400 have _____ sig figs

○ **PRACTICE:** How many significant figures do the following numbers have?

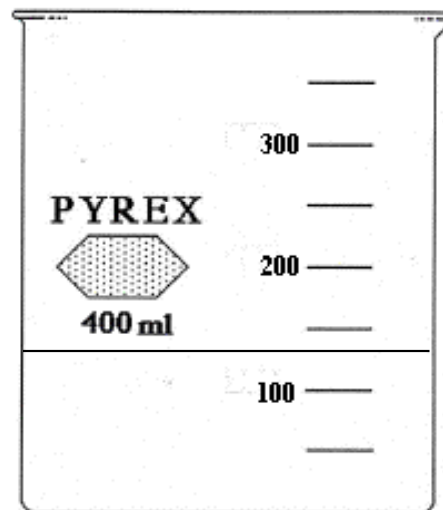
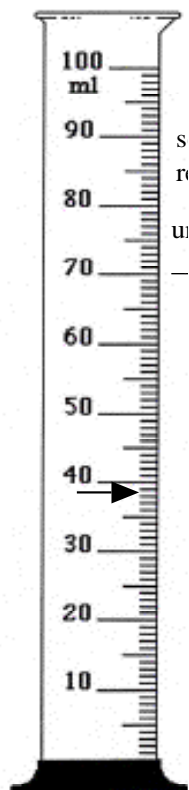
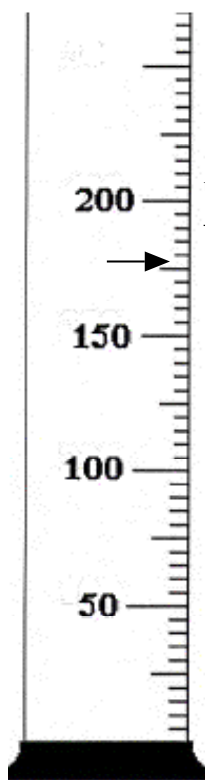
- | | | |
|------------------|-----------------|-----------------|
| a. 4.500 _____ | d. 234.86 _____ | g. 9004.2 _____ |
| b. 0.00033 _____ | e. 46,000 _____ | h. 0.0203 _____ |
| o 9,830 _____ | f. 2.01 _____ | i. 700.0 _____ |

Practice: Reading Scales

For each of the following, write the scale reading,
then the number of significant figures in the reading.

		Reading	Sig Figs
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

For each of the volume devices below record the scale reading and circle the uncertain digit in your measurement.



9. _____

10. _____

11. _____

12. _____

✓ Sig Figs and Math

o The answer must have the same number of _____ sig figs as the measurement with the _____ number of sig figs.

o Examples

a. $2.005 \times 3.7 =$ _____

b. $1050 \div 39.895 =$ _____

o **PRACTICE:** Multiply or divide, writing the answer with the proper number of significant figures.

$400 \times 0.02955 =$ _____

$2.89 \times 4.01 =$ _____

$84.560 \times 43.0 =$ _____

$5.00 \times 7.3216 =$ _____

$984,390 \div 30,130 =$ _____

$5.08 \times 1.2 =$ _____

$997.0 \div 333.33 =$ _____

$8.071 \div 2.00 =$ _____