

Harold's High School Chemistry
1st Semester
Cheat Sheet
 5 May 2026
DRAFT

Chapter 1: Measuring Up

| Term | Equation | Note | | |
|-------------------------------|---|---------------------|---|------------------------|
| Rulers | When using a ruler that is marked off in 16 th s of an inch, report your answers to a hundredth of an inch. | | | |
| Units | The unit of measurement is just as important as the number. You must always list the units, followed by the compound! Example: 6.28 mL H ₂ O | | | |
| Significant Figures | 1. All non-zero figures (1, 2, 3, 4, 5, 6, 7, 8, and 9) are significant. 2. A zero (0) is significant if it is between two significant digits. 3. A zero (0) is also significant if it's at the end of the number <i>and</i> to the right of the decimal point. | | | |
| Using SigFigs | 1. When adding and subtracting measurements, you must report your answer to the same precision as the <u>least</u> precise number in the problem. 2. When multiplying and dividing measurements, you must report your answer with the same number of significant figures as the measurement that has the <u>fewest</u> significant figures. 3. There is always some error in the last significant figure of a measurement. | | | |
| Precision vs. Accuracy | <ul style="list-style-type: none"> Precision: The consistency and reproducibility of measurements (e.g., 10 decimal places). Accuracy: How close a measurement is to the <u>true</u> or accepted value. | | | |
| Prefixes | Prefix | Abbreviation | Meaning | Scientific |
| | giga | G | 1,000,000,000 | 10 ⁹ |
| | mega | M | 1,000,000 | 10 ⁶ |
| | kilo | k | 1,000 | 10³ |
| | hector | H | 100 | 10 ² |
| | deca | Da | 10 | 10 ¹ |
| | centi | c | 0.01 | 10⁻² |
| | milli | m | 0.001 | 10⁻³ |
| | micro | μ | 0.000001 | 10 ⁻⁶ |
| nano | n | 0.000000001 | 10 ⁻⁹ | |
| Scientific Notation | 14,000,000 = 1.4 × 10 ⁷ = 1.4E7 | | 0.00000014 = 1.4 × 10 ⁻⁷ = 1.4E-7 | |
| Measuring | Volume (L) | | 1 cm ³ = 1 mL | |
| | Mass (g) | | weight = mass × gravity | |
| | Density (ρ) | | density = $\frac{mass}{volume}$ or $\rho = \frac{m}{V}$ | |

Chapter 8: Still More on Stoichiometry

Common Polyatomic Ions (Memorize)

| # | Name | Ion |
|----|-------------|---------------|
| 1 | Ammonium | NH_4^+ |
| 2 | Hydronium | H_3O^+ |
| 3 | Acetate | $C_2H_3O_2^-$ |
| 4 | Cyanide | CN^- |
| 5 | Bicarbonate | HCO_3^- |
| 6 | Carbonate | CO_3^{2-} |
| 7 | Hydroxide | OH^- |
| 8 | Nitrite | NO_2^- |
| 9 | Nitrate | NO_3^- |
| 10 | Sulfite | SO_3^{2-} |
| 11 | Sulfate | SO_4^{2-} |
| 12 | Phosphate | PO_4^{3-} |
| 13 | Chlorite | ClO_2^- |
| 14 | Manganate | MnO_4^{2-} |

Sources

These chapters and content are from the textbook:

- Dr. Jay L. Wile (2015). [Discovering Design with Chemistry](#), 1st Edition.