

Harold's High School Chemistry
1st Semester
Cheat Sheet
 3 October 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 <u>error</u> in the last significant figure of a measurement.																																									
Precision vs. Accuracy	• Precision: Number of digits shown (e.g., on a calculator) • Accuracy: Number of digits you can trust. (minimum digits)																																									
Prefixes		<table><tr><th>Prefix</th><th>Abbreviation</th><th>Meaning</th><th>Scientific</th></tr><tr><td>giga</td><td>G</td><td>1,000,000,000</td><td>10⁹</td></tr><tr><td>mega</td><td>M</td><td>1,000,000</td><td>10⁶</td></tr><tr><td>kilo</td><td>k</td><td>1,000</td><td>10³</td></tr><tr><td>hecto</td><td>H</td><td>100</td><td>10²</td></tr><tr><td>deca</td><td>Da</td><td>10</td><td>10¹</td></tr><tr><td>centi</td><td>c</td><td>0.01</td><td>10⁻²</td></tr><tr><td>milli</td><td>m</td><td>0.001</td><td>10⁻³</td></tr><tr><td>micro</td><td>μ</td><td>0.000001</td><td>10⁻⁶</td></tr><tr><td>nano</td><td>n</td><td>0.000000001</td><td>10⁻⁹</td></tr></table>	Prefix	Abbreviation	Meaning	Scientific	giga	G	1,000,000,000	10 ⁹	mega	M	1,000,000	10 ⁶	kilo	k	1,000	10³	hecto	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
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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 $\rho = \frac{m}{V}$																																								
Unit Conversion (Train Track Method)	0.1436 mL = <u> ?</u> m ³																																									
	143.6 L	1000 mL	1 cm ³	(1 m) ³	0.1436 m³																																					
		1 L	1 mL	(100 cm) ³																																						

Chapter 2: What's The Matter

[illegible]

Chapter 3: Making Sense of Atoms and Elements

[illegible]

Chapter 4: The Modern View of Atoms and Their Chemistry

[illegible]

Chapter 5: Covalent Compounds and Their Molecular Geometry

[illegible]

Chapter 6: Physical and Chemical Changes

[illegible]

Chapter 7: Stoichiometry

[illegible]

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

Where possible, these chapters and content are taken verbatim from the High School textbook:

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

Acknowledgements

- Proofread with assistance from ChatGPT 6.1 Sol, <https://chatgpt.com/>