**Unit 5: Learning Goals for Moles in Compounds, Stoichiometry and Limiting Reactants**

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| Guiding Question: How do scientists predict or determine amounts of reactants and products in chemical reactions? |
| Content GoalsStudents will be able to:* Determine the molar mass (formula mass) of an element or compound
* Determine the percent composition of a compound
* Determine the empirical formula and molecular formula based on mass of elements or % mass of elements in compounds
* Convert moles to grams or particles AND convert grams or particles to moles
* Write balanced equations for chemical reactions
* Use mole ratios in a balanced equation to determine the moles, mass, or particles of a reactant or product
* Determine the limiting reactant and the excess reactant in a reaction
* Calculate the theoretical yield based on the limiting reactant
* Determine the percent yield from the actual and theoretical yields
 | Skills GoalsStudents will:* Conduct laboratory investigations in a safe and productive manner
* Use standard laboratory equipment properly to observe various chemical reactions
* Make measurements to the correct degree of uncertainty
* Present data in organized tables
* Present calculations in organized format
* Analyze results of investigation in a written conclusion
* Evaluate the effect of error on experimental results
* Suggest realistic improvements to obtain more accurate results
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| Big IdeasStudents will:* Understand how to determine the amount of product that will be produced or the amount of reactant that reacted based on a measured amount of any reactant or product in a chemical reaction
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| Assessment – How will I know if students have mastered content, skills, and big ideas?Students will:* Collect and present data in tables or graphs
* Make calculations and present in organized format
* Complete tests and quizzes on all topics in content goals
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| Key Vocabulary |
| MoleMolar mass (Formula mass)Coefficient in balanced equationSubscript in chemical formulaPercent compositionEmpirical formulaMolecular formula (compound formula)Balanced Equation | Mole ratio (from balanced equation or chemical formula)StoichiometryLimiting reactantExcess reactantTheoretical yieldActual yieldPercent yield |



**Related in Discovery Ed:**

Chapter 10, p. 290-299 mole review

Chapter 10, p. 305-312 % comp, emp formulas, molec formulas

Chapter 11, p. 321-339 Balancing and Writing equations

Chapter 12, p. 353-375 Stoichiometry and Limiting Reactants

 Here take my number. Of course it’s 6.02x1023!

I’m frickin’ Avogadro! Get it?! It’s my number!

