Name
TA

Chemistry 11
2021-2022

Learning Guide # 3: Mass Relationships in Chemical Reactions

BIG IDEA:
Molar Mass, Molecular Mass, and Stoichiometry

Fundamental Knowledge (I know)

- ☐ How to calculate the atomic mass of elements and compounds
- ☐ The difference between empirical and molecular formulae and can calculate molecular formulas
- ☐ The difference between reactant and product amounts and can converts chemical amounts to moles
- ☐ How to write a balanced chemical equation and can calculate amounts using stoichiometric ratios

Curricular Competencies (I can)

	Proficiency Scale Teacher and Student self assessment (Circle one)	**Evidence (How do you know?)**
I can: Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions.	**Emerging (EMG)** Initial Understanding **Developing (DEV)** Partial/Near Complete Understanding **Proficient (PRF)** Complete Understanding **Extending (EXT)** Sophisticated Understanding	
Describe specific ways to improve their investigation methods and the quality of their data.	**Emerging (EMG)** Initial Understanding **Developing (DEV)** Partial/Near Complete Understanding **Proficient (PRF)** Complete Understanding **Extending (EXT)** Sophisticated Understanding	

Student Signature: **Teacher Signature:**

Date:

TOPIC	OPTION 1	OPTION 2	OPTION 3
Atomic and Molar Mass	**Create** a glossary of the bolded terms in chapter 3 (Pgs. 78 – 106) **Read** Pages 78 – 83 and **complete Review Question**s: 3.1-3.4, 3.9, 3.10 on Pg. 107 **Complete *"Example: Practice Exercises"*** 3.1 – 3.4 on Pgs. 79, 81, 82, and 83.	**Create** a brochure to summarize the steps to calculate "Average Atomic Mass" (P. 78) and converting Mass to moles to Particles (P.80-81) **Read** Pages 78 – 83 and **complete Review Question**s: 3.1-3.4 , 3.9, 3.10 on Pg. 107 **Complete *"Example: Practice Exercises"*** 3.1 – 3.4 on Pg. 79, 81, 82, and 83.	**Choose your own adventure!** Pick up a planning sheet from the Science Kiosk. Create a plan! Make sure you read through the first page of this LG, as you will need to design ways to learn/practice and show your understanding of the topic(s) and skill(s) (competencies.) You will need to have a teacher approve your plan before beginning the LG.
Molecular Mass and Percent Composition	**Read** Pages 83 – 90 and **complete Review Question**s: 3.35 – 3.38, on Pg. 108. **Complete *"Example: Practice Exercises"*** 3.5 – 3.10 on Pgs. 83, 84, 85, 88, 89, and 90.	**Create** a digital presentation that explains how to create a molecular formula and percent composition. **Complete Review Question**s: 3.35 – 3.38, on Pg. 108. **Complete *"Example: Practice Exercises"*** 3.5 – 3.10 on Pgs. 83, 84, 85, 88, 89, and 90.	
Empirical Formulas, Chemical Reactions and Chemical Equations	**Read** Pages 90 – 97 and **complete Review Question**s: 3.55-3.58, on Pg. 109. **Complete *"Example: Practice Exercises"*** 3.11 and 3.12 on Pgs. 90/91 and 96/97.	**Create** a digital presentation that explains how to determine a molecular formula and write ten (10) balancing chemical equations questions. **Complete Review Question**s: 3.55-3.58, on Pg. 109. **Complete *"Example: Practice Exercises"*** 3.11 and 3.12 on Pgs. 90/91 and 96/97.	
Amount of Reactant and Products (Limiting Reagents)	**Read** Pages 97 – 103 and **complete Review Question**s: 3.61, 3.79, and 3.80 on Pgs. 110 and 111. **Complete *"Example: Practice Exercises"*** 3.13 - 3.15 on Pgs. 99 and 103.	**Explain** the steps and calculations necessary to correctly complete a stoichiometry problem. (Use the example of Pgs. 98 and 99 as guidance) **Complete Review Question**s: 3.61, 3.79, and 3.80 on Pgs. 110 and 111. **Complete *"Example: Practice Exercises"*** 3.13 - 3.15 on Pgs. 99 and 103.	
Reaction Yield And Percent Yield	**Read** Pages 103– 106 and **complete Review Question**s: 3.87 and 3.88 on Pg. 111. **Complete *"Example: Practice Exercises"*** 3.16 on Pgs. 104 and 106.	**Explain** using a digital presentation, paragraph, list, etc. the steps needed to calculate reaction and percent yield. **Complete Review Question**s: 3.87 and 3.88 on Pg. 111. **Complete *"Example: Practice Exercises"*** 3.16 on Pgs. 104 and 106.	
Chapter Review	**Complete *"problems"*** 3.14, 3.16, 3.18, 3.24, 3.26, 3.30, 3.34, 3. 50, 3.52, 3.60 (a-k only), 3.64, 3.66, 3.74, 3.82, 3.86, 3.90, 3.94, 3.110, 3.138 on Pgs.107–114.		
Lab	4A: Counting Atoms in a Chemical Reaction 4B: Determining the Empirical Formula of a Compound	Do a lab write up for each lab.	
Self Assessment	Reflect on the Fundamental Knowledge and Curricular Competencies. Use the rubric and make goals to improve for your next learning guide.		
Interview or Quiz	See you teacher for an interview or to have a quiz slip signed for the test center. Bring your work and staple it to your quiz when complete.		