

Stoichiometry Teaching Bundle

Includes:

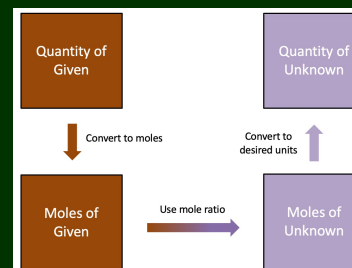
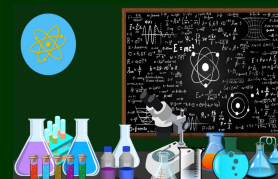
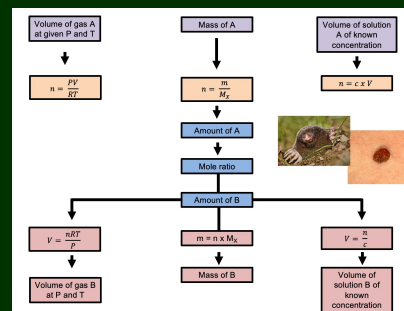
- 3 Lessons in Office and Google
- Exit Tickets and Practice Questions

Lessons:

Lesson 1 - Stoichiometry in Solutions

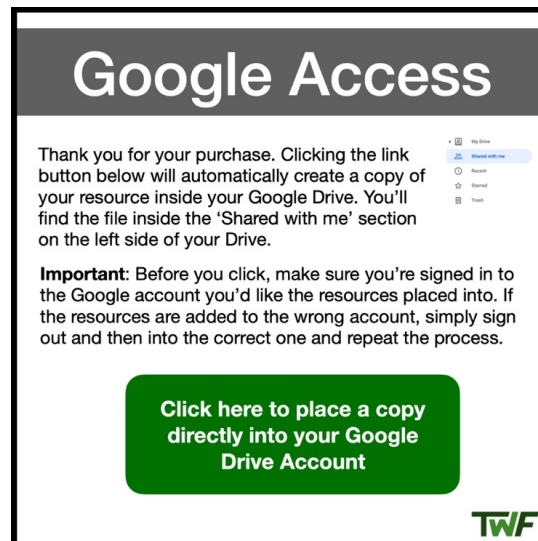
Lesson 2 - Gas Law Stoichiometry

Lesson 3 - Stoichiometry - Solving Quantitative Chemistry Problems



Office and Google Versions

- The lessons inside this unit come in both PowerPoint and Google Slides format
- Each lesson also contains an Exit Ticket that you can use to check for student understanding
- Your resource is perfect for distance learning and integrates seamlessly with Google Classroom as I've included a link that will automatically create a copy of the resources and put them directly into your Google Drive with one click



Thank you for your interest

Inside the Unit

- 3 lessons
- Office and Google versions of EACH lesson
- Videos embedded into your lessons
- Teacher and student versions for each lesson
- Student notes in Word and Google Doc

Gas Law Stoichiometry

- Gay Lussac's Law of Combining Volumes
- Avogadro's Hypothesis and the Law of Combining Volumes
- Fully-worked Practice Problems
- Reactions Involving Gases and Solutions
- More Practice Problems

Check Your Understanding

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Google and Classroom Ready

Stoichiometry in Solutions

- Ionic compounds in water
- Net Ionic Equations
- Total and Net Ionic Equations
- Rules For Net Ionic Equations
- Stoichiometry
- Practice

Fixed ions

Free ions

Step 1: Write a balanced molecular equation (check solubility):
$$2\text{HCl} + \text{Ca}(\text{OH})_2 \rightarrow \text{CaCl}_2 + 2\text{H}_2\text{O}$$

Step 2: Write the total ionic equation and remove spectator ions:
$$2\text{H}^+ + 2\text{Cl}^- + \text{Ca}^{2+} + 2\text{OH}^- \rightarrow \text{Ca}^{2+} + 2\text{Cl}^- + 2\text{H}_2\text{O}$$

Step 3: Write the net ionic equation:
$$2\text{H}^+ + 2\text{OH}^- \rightarrow 2\text{H}_2\text{O}$$

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This digital Office res

Stoichiometry

- What is Stoichiometry?
- Chemical Reactions and the Mole
- Steps to Stoichiometry
- Mole Ratio
- Fully Worked Practice Questions

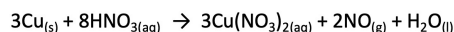
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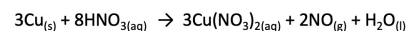
Each lesson contains many opportunities for your students to check their understanding with lesson-related questions and fully-worked answers.

Check Your Understanding



What volume of dry nitrogen monoxide gas would be produced from 25.0 g of copper metal at a temperature of 22°C and a pressure of 102 kPa?

Check Your Understanding



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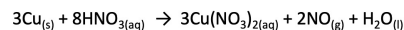
2) Find n_{NO} using mole ratios

$$\frac{n_{\text{NO}}}{0.393 \text{ mol Cu}} = \frac{2 \text{ mol NO}}{3 \text{ mol Cu}}$$

	$3\text{Cu}_{(s)}$	$8\text{HNO}_{3(aq)}$	$3\text{Cu}(\text{NO}_3)_2(aq)$	$2\text{NO}_{(g)}$	$\text{H}_2\text{O}_{(l)}$
m	25.0 g				
M	63.55 g/mol				
n	0.393 mol			0.262 mol	
P				102 kPa	
V				?	
R				$8.31 \text{ kPa}\cdot\text{L}\cdot\text{mol}^{-1}\cdot\text{K}^{-1}$	
T				$22 + 273 = 295 \text{ K}$	

$$n_{\text{NO}} = 0.262 \text{ mol}$$

Check Your Understanding



What volume of dry nitrogen monoxide gas would be produced from 25.0 g of copper metal at a temperature of 22°C and a pressure of 102 kPa?

3) Find V_{NO}

$$PV = nRT$$

$$V_{\text{NO}} = \frac{nRT}{P} = \frac{(0.262 \text{ mol})(8.31 \text{ kPa}\cdot\text{L}\cdot\text{mol}^{-1}\cdot\text{K}^{-1})(295 \text{ K})}{102 \text{ kPa}}$$

$$= 6.3 \text{ L}$$

Therefore, 6.3 L of nitrogen monoxide gas will be produced.

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- More Practice Problems



Check Your Understanding

What volume of hydrogen gas (at STP) will react with 10.0 L of oxygen gas (at STP) to form water vapor (at STP)?

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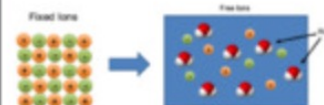
What volume of hydrogen gas (at STP) will react with 10.0 L of oxygen gas (at STP) to form water vapor (at STP)?

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- Ionic compounds in water
- Net Ionic Equations
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- Rules For Net Ionic Equations
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Step 1: Write a balanced chemical equation (check solubility).

$$\text{Zn}_{(s)} + \text{CuSO}_{4(aq)} \rightarrow \text{Cu}_{(s)} + \text{ZnSO}_{4(aq)}$$

Step 2: Write the total ionic equation and remove spectator ions.

$$\text{Zn}_{(s)} + \text{Cu}^{2+}_{(aq)} + \text{SO}_4^{2-}_{(aq)} \rightarrow \text{Cu}_{(s)} + \text{Zn}^{2+}_{(aq)} + \text{SO}_4^{2-}_{(aq)}$$

Step 3: Write the net ionic equation.

$$\text{Zn}_{(s)} + \text{Cu}^{2+}_{(aq)} \rightarrow \text{Cu}_{(s)} + \text{Zn}^{2+}_{(aq)}$$

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