

Hybrid Chemistry: Campaign 6 - Gases

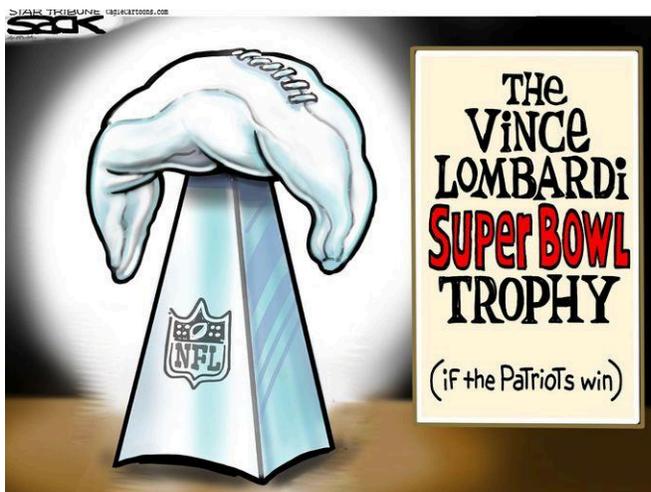


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How to use this campaign guide:

Take the time to READ through it! All the help you need outside of class is found here. Remember, you want to be treated like an adult. Make your own schedule, use resources best for you, and do work outside of class. Be sure to ask questions as you go through assignments - I'm here to help you!!!

Game Aspects

All gold is awarded as points in Canvas, XPs are earned through your class experience and earn a grade, HP can be lost for safety violations and unproductivity. Losing all HP will require a sentence to be served.

Daily Power-ups (-GP)

*subject to availability

Cost	Power-up	Description
2	• Berry	• Small piece of candy
2	• Stele	• Pencil to keep
1	• Cone of Silence	• Headphones to borrow
1	• Hands-free	• Phone kickstand to borrow
3	• Fruit	• Fruit snacks
3	• Teleport	• Work in the hallway
5	• Maxim Tomato	• Snack bag (chips, crackers)
10	• Potion	• Buy back a lost hit point



Daily Bonuses (+GP)

Points for your general awesomeness



Level 1	Level 2
<ul style="list-style-type: none"> • Linguist: Academic group discussion • Bravery: Answering a question in class • Diligence: working hard the whole time • Guessing a pop culture reference • Positivi-tea 	<ul style="list-style-type: none"> • Sensei: teach a classmate • Random Kindness • Showman: Going to the board • House Elf: Cleaning up after others

Available Boss Battle Boosts (-GP)

*3 use limit, prices TBD on Battle Day



Boost	Description
• Player Hint	• Get a hint on a question
• See the Future	• Ask whether your answer is correct
• Scroll	• Teacher provides a helpful handout
• Walkthrough	• 5 minutes with your own notes
• Crib sheet	• 3x5 index card with whatever you want, made ahead

Campaign 6 Objectives and Skills

Learning Objectives: acid-base theories, pH and pOH calculations, properties of acids and bases, solutions, molarity, solubility, solution stoichiometry

Essential Standards:

- 2.1.1. Explain the energetic nature of phase changes.
- 2.1.2. Explain heating and cooling curves (heat of fusion, heat of vaporization, heat, melting point, and boiling point).
- 2.1.3. Interpret the data presented in phase diagrams.
- 2.1.5. Explain the relationships between pressure, temperature, volume, and quantity of gas both qualitative and quantitative.
- 2.2.4. Analyze quantitative relationships in a reaction.
- 3.1.2. Explain the conditions of a system at equilibrium.

4C's: On a daily basis, students will use various methods of *communication*, think *critically* to solve problems or draw conclusions, Utilize their *creativity* to find different solutions, illustrate their work, ask their own questions, and work smarter, *Collaborate* to accomplish the above

Glossary <ul style="list-style-type: none">• Kinetic Molecular Theory• Elastic collision• Inelastic collision• Ideal gas• Sublimation• Deposition• Critical point• Triple point	Top 10 "I can..." <ol style="list-style-type: none">1. Explain how particle movement relates to a substance's state of matter2. State the 5 principles of kinetic molecular theory3. Explain how changes in volume, pressure, and temperature will affect a gas.4. Differentiate between an ideal vs. a real gas.5. Predict the state of matter or process for a substance based on a given phase change diagram.6. Explain a phase change diagram with respect to physical equilibria.7. Determine which gas law applies in a given situation.8. Solve problems involving gases using the appropriate gas laws.9. Provide examples of real-world applications that use the gas laws.10. Use the ideal gas law in stoichiometry problems.
Test Date: 26 November 2019	Formulas/Math <ul style="list-style-type: none">•

Topics and Resources

All Topics: [ONLINE NOTEBOOK](#)

[Flexbook Readings on Gases](#)

TOPIC	CONTENT	PRACTICE
6.1 Kinetic Molecular Theory	KMT Flexbook Chapter Kinetic Molecular Theory PPT	KMT 1 KMT 2
6.2 Phase Changes	WATCH: Veritasium States of Matter	Phase Diagrams Phase Diagrams 2
6.3 Gas Laws	15.4 - Gas Laws Gas Law Tutorials Gas Laws VIDEO! (Use for the notes)	Gas Laws Involving P, V and T Ideal Gas Law Problems Gas Laws Fill-in Review Review Problems
6.4 Gas Law Stoichiometry	Ideal Gas Law and Stoichiometry CK12 Gas Stoichiometry	Gas Stoich Practice Worksheet

Campaign 6 Experience Points (+XP)

YOUR NAME _____ Block ____ # ____

- All XPs are maintained in CANVAS where you can also find due dates. **You must earn 20 XP in order to earn 100% for this category.**
- This is **part of your final grade** in this class! Do not confuse the game aspect here with not counting!
- * indicates a **required** activity and these points will be deducted from the 15 point goal regardless of how many extra assignments you have completed.
- Any extra points earned will be converted to currency (GP)!

XP	Activity	Deliverable	DUE DATE	✓
1	States of matter inquiry using Sims: Gas Properties and States of Matter	In class participation		
1	*Labeled Phase Diagram	Completion, hardcopy only		
4	Gas Laws Practice Problems (4 sections)	Completion, hardcopy only		
2	Deflategate Case Study <ul style="list-style-type: none"> Wells Experimental Appendix Fig 21-22 	In class participation		
2	* Gas Law Stoichiometry Notes HERE'S the Video	Completion, hardcopy only		
4	* Gas Laws Worksheet (1-16) (Study Guide)	Completion, hardcopy only		
1-7	Extra Online Practice	Show your interactive practice results to your teacher in class, or take a selfie with your PC		
1-7	Extra Notes you took	From textbook reading/videos. 3-2-1 Protocol , OR evidence of active note-taking		
2	Collaboration	SCRUM Log Sheet/Daily meetings		
30	TOTAL AVAILABLE	BOSS BATTLE #6		

Campaign 6 Checkpoints/Graded Assignments

DATE	TOPIC(S)	METHOD	GRADED?
11/15	6.1 KMT	Discussion	
11/18	6.2 Phase Changes	Discussion	
11/19	6.1-6.2 Vocabulary	Quiz	yes
11/19	6.3 Gas Laws	Discussion	
Due 11/25	Molar mass of a gas	LAB day: 11/22	
11/26		Boss Battle #6 (Major Assessment)	yes

Campaign 6 Student Sheet

Your Faction - Names, roles, contact info

1. Project Manager (leads SCRUM)
2. Research Specialist (finds resources)
3. Communications Specialist (presentation)
4. Safety Officer (monitors and reports issues)
5. Time Manager (monitors and reports issues)
6. Scribe (records SCRUM log)

Space of infinite possibility! (Doodles, notes, to-do lists)

Burndown Chart

