A blue and grey logo with claws

Description automatically generated**2024-2025 Weekly Lesson Planning Document**

Template for the following:

Science, Social Studies, CTE, World Languages,

HPELW, Fine Arts, JROTC

Week of Monday, April 21, through Friday, April 25

**EDUCATOR’S NAME:** \_\_\_. Ms. Daughrity and Ms. Mitchell \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **SUBJECT:** \_\_\_\_\_\_Chemistry I\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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|  | **MONDAY** | **TUESDAY** | **WEDNESDAY** | **THURSDAY** | **FRIDAY** |
| **Lesson Title:**  **Unit:**  **Chapter:**  **Page Number(s):**  (It is suggested that you use your curriculum map.) | **Unit 8**  **Chapter 11:**  **Gases**  **p. 349-352** | **Unit 8**  **Chapter 11:**  **Gases**  **p. 357-363** | **Unit 8**  **Chapter 11:**  **Gases**  **p. 357-363** | **Unit 8**  **Chapter 11:**  **Gases**  **p. 357-363** | **Unit 8**  **Chapter 11:**  **Gases**  **p. 357-363** |
| **TN Standard(s):**  Grade level standard (include standard notation and language).  Which State Standard is your lesson addressing? This should also be on your Whiteboard Protocol. | **CHEM1.PS1.5** Conduct investigations to explore and characterize the behavior of gases (pressure, volume, temperature), develop models to represent this behavior, and construct arguments to explain this behavior. Evaluate the relationship (qualitatively and quantitatively) at STP between pressure and volume (Boyle’s law), temperature and volume (Charles’s law), temperature and pressure (Gay-Lussac law), and moles and volume (Avogadro’s law), and evaluate and explain these relationships with respect to kinetic-molecular theory. Be able to understand, establish, and predict the relationships between volume, temperature, and pressure using combined gas law both qualitatively and quantitatively.  **CHEM1.PS1.6** Use the ideal gas law, PV = nRT, to algebraically evaluate the relationship among the number of moles, volume, pressure, and temperature for ideal gases | | | | |

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| **Objective (s):**  What specifically should students be able to do at the end of the lesson? The objective is standards-based.  Write the objective in student friendly terms. For example, I can multiply binomials.  This is should also be on your Whiteboard Protocol.  What do you want students to know, understand and be able to do as a result of this lesson?  The objective should be written using the stem…  **I CAN….** | **I Can…**  Convert between various pressure units used to describe gases. | | **I Can…**  State the relationships among pressure, temperature, and volume of a constant amount of gas. | **I Can…**  State the relationships among pressure, temperature, and volume of a constant amount of gas. | **I Can…**  State the relationships among pressure, temperature, and volume of a constant amount of gas. | | **I Can…**  State the relationships among pressure, temperature, and volume of a constant amount of gas. |
| **Possible Misconception (s):**  What misconception(s) are you anticipating during this lesson? | Ask students to give examples of a fluid. [Answers will most likely include liquids such as water and juice.] Point out that gases are also considered fluids. Have students explain why.  Students frequently think that the gas laws apply to real gases. Remind students that the gas laws are abstractions that apply to ideal gases and that they apply to real gases only as an approximation. But, close to atmospheric pressure and room temperature, the approximations generally yield results that are close to those expected from an ideal gas. Discuss the properties that prevent real gases from acting like ideal gases. Remind students of the ways in which real gases deviate from ideal behavior.  Students often are unclear about whether gas law references to pressure refer to pressure exerted by the gas or pressure exerted on the gas. Point out that in most cases the two quantities are the same.  Students may wonder about the fact that temperature measurement has a lowest possible value (0 K), but no maximum value. Discuss with them the relationship between temperature and particle motion.  Students may think that the size of one unit is the same for all temperature scales. The size of a kelvin is exactly the same as the size of a Celsius degree, but the Fahrenheit unit is a different size. One Fahrenheit unit is five-ninths the size of a Celsius unit. | | | | | | |
| **Literacy-Based DO NOW:**  This literacy-based activity should be ready for students to begin working on upon entering class. Students should have an opportunity to read, write, and/or speak. | Consider the formula for kinetic energy:  KE = ½ *mv2*  Explain why a truck has more kinetic energy than a car when they are moving at the same speed. | Convert 58.90 kPa to torr. (SHOW YOUR WORK and use correct sig figs & units!) | | A 500 mL can of gas is at a pressure of 20 kPa. If the can is run over by a garbage truck and flattened to a volume of 10 mL, what is the pressure in kPa assuming the can doesn’t leak? | A sample of air has a volume of 140.0 mL at 67.0°C. At what Kelvin temperature would its volume be 50.0 mL at constant pressure? | A sample of hydrogen gas at 47°C exerts a pressure of 0.329 atm. To what Celsius temperature would the gas need to be heated in order to increase the pressure to 0.500 atm? | |
| **Agenda for the Day**  Simple outline of lesson segments or activities that is time stamped.  Teacher/class should take 2 minutes or less to review. | * Do Now *(8 minutes)* * Review Learning Objective *(2 minutes)* * I Do *(12 minutes)* * We Do *(12 minutes)* * You Do *(13 minutes)* * Exit Ticket *(5 minutes)* | * Do Now *(8 minutes)* * Review Learning Objective *(2 minutes)* * I Do *(12 minutes)* * We Do *(12 minutes)* * You Do *(13 minutes)*   Exit Ticket *(5 minutes)* | | * Do Now *(8 minutes)* * Review Learning Objective *(2 minutes)* * I Do *(12 minutes)* * We Do *(12 minutes)* * You Do *(13 minutes)* * Exit Ticket *(5 minutes)* | * Do Now *(8 minutes)* * Review Learning Objective *(2 minutes)* * I Do *(12 minutes)* * We Do *(12 minutes)* * You Do *(13 minutes)* * Exit Ticket *(5 minutes)* | * Do Now *(8 minutes)* * Review Learning Objective *(2 minutes)* * I Do *(12 minutes)* * We Do *(12 minutes)* * You Do *(13 minutes)* * Exit Ticket *(5 minutes)* | |
| **Beginning of Lesson**  **I Do**  **Science:** Engage & Explore | **I will explain the concepts of pressure and how to measure atmospheric pressure. I will revisit the problem-solving technique of dimensional analysis to model converting between pressure units.** | **I will introduce Boyle’s Law using a demonstration. I will model the problem-solving techniques for Boyle’s Law.** | | **I will introduce Charles; Law using a demonstration. I will model the problem-solving techniques for Charles’ Law.** | **I will introduce Gay-Lussac’s Law using a demonstration. I will model the problem-solving techniques for Gay-Lussac’s Law.** | **I will provide practice problems using Boyle’s Law, Charles’ Law, and Gay-Lussac’s Law.** | |
| **Middle of the lesson**  We Do  **Science:** Explain and Elaborate | **Respond to CFUs embedded in the guided notes to indicate mastery of the concepts covered in class today.** | **Respond to CFUs embedded in the guided notes to indicate mastery of the concepts covered in class today.** | | **Respond to CFUs embedded in the guided notes to indicate mastery of the concepts covered in class today.** | **Respond to CFUs embedded in the guided notes to indicate mastery of the concepts covered in class today.** | **Respond to CFUs embedded in the guided notes to indicate mastery of the concepts covered in class today.** | |
| **End of the lesson**  You Do  **Science:** Evaluate | **Respond to CFUs embedded in the guided notes to indicate mastery of the concepts covered in class today.**  **Ask any questions I have concerning pressure and pressure conversions.** | **Respond to CFUs embedded in the guided notes to indicate mastery of the concepts covered in class today.**  **Ask any questions I have concerning Boyle’s Law.** | | **Respond to CFUs embedded in the guided notes to indicate mastery of the concepts covered in class today.**  **Ask any questions I have concerning Charles’ Law.** | **Respond to CFUs embedded in the guided notes to indicate mastery of the concepts covered in class today.**  **Ask any questions I have concerning Gay-Lussac’s Law.** | **Respond to CFUs embedded in the guided notes to indicate mastery of the concepts covered in class today.**  **Ask any questions I have concerning how to solve Boyle’s Law, Charles’ Law, and Gay-Lussac’s Law problems.** | |
| **(05 MINUTES MAX)**  **Literacy Based closing activity:**  Engage students in reading and writing tasks that assess their understanding of the lesson. Students are drawn back to the objective for the day. | Complete literacy-based Exit Ticket question on paper or in Microsoft Forums. Will be based on what was discussed in lesson for the day. | Complete literacy-based Exit Ticket question on paper or in Microsoft Forums. Will be based on what was discussed in lesson for the day. | | Complete literacy-based Exit Ticket question on paper or in Microsoft Forums. Will be based on what was discussed in lesson for the day. | Complete literacy-based Exit Ticket question on paper or in Microsoft Forums. Will be based on what was discussed in lesson for the day. | Complete literacy-based Exit Ticket question on paper or in Microsoft Forums. Will be based on what was discussed in lesson for the day. | |
| **SPED Modification (s):**  What modifications are being made to accommodate the students receiving special services? | Extended time on assignments; ability to correct assignments; reduced number of problems  Planned/preferential seating  Allow breaks during class  Extended time for testing; reduced choices on multiple choice tests  Repeating directions verbatim | | | | | | |
| **ESL Modification (s):**  What modifications are being made to accommodate the students receiving special services? | Small group instruction  Read aloud for assessments  Interactive reader for computer assignments  Extended time on assignments and tests  Opportunity to redo assignments and correct tests based on teacher feedback  Bilingual support provided by translated copies, peers, and dictionaries | | | | | | |
| Formative assessment of responses to the CFUs and Exit Ticket. | Formative assessment of responses to the CFUs and Exit Ticket. | | Formative assessment of responses to the CFUs and Exit Ticket. | Formative assessment of responses to the CFUs and Exit Ticket. | Formative assessment of responses to the CFUs and Exit Ticket. | | Formative assessment of responses to the CFUs and Exit Ticket. |
| **Corrective Activity (s):**  What will I do if the student doesn’t understand the lesson? | -Weekly tutoring sessions  -Peer tutoring partners.  -Opportunity for corrections. | | -Weekly tutoring sessions  -Peer tutoring partners.  -Opportunity for corrections. | -Weekly tutoring sessions  -Peer tutoring partners.  -Opportunity for corrections. | -Weekly tutoring sessions  -Peer tutoring partners.  -Opportunity for corrections. | | -Weekly tutoring sessions  -Peer tutoring partners.  -Opportunity for test corrections. |
| **Extension/Enrichment Activity (s):**  What will I do with students who understand quicker than others? | * Have students research Graham’s laws regarding the behavior of gases. Graham’s law of diffusion explains how two gases mix. The law also states that the rate at which gases diffuse is inversely proportional to the square root of their densities. Graham’s law of effusion explains the rate at which a gas escapes through a pinhole into a vacuum. This law states that the rate of effusion of a gas is inversely proportional to the square root of either the density or the molar mass of the gas. Have students select two gases and show how Graham’s laws apply to their behavior. | | | | | | |
| **Technology Integration:**  How will the students use technology to help them master the objective. | * Use district-issued electronic device to complete online assignments, formative assessments (exit tickets), and summative assessments. | | | | | | |

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| **IN THE FOLLOWING PAGES:**  **ONLY COMPLETE SECTION(S) BELOW IF YOUR SUBJECT IS IDENTIFIED/LISTED** | |
| **ALL SCIENCE (S):**  What is your **resource plan for each of the 5 Es** of inquiry-based science instruction?   1. Engage 2. Explore 3. Explain 4. Elaborate 5. Evaluate | **Engage**   1. Classroom Catalyst, TE p. 317 2. Demonstration: Compressibility of Gases, TE p. 319 3. Classroom Catalyst, TE p. 349 4. Classroom Catalyst, TE p. 357 5. Classroom Catalyst, TE p. 366   **Explore**   * 1. Demonstration: Relating Pressure to Area, TE p. 350   2. Demonstration: Unbalanced Force of Atomospheric Pressure, TE p. 351   3. Core Skills Lab: Mass and Density of Air at Different Pressure   4. Core Skills Lab: Boyle’s Law   5. Probeware Lab: Pressure-Volume Relationships: Understanding Boyle’s Law   6. Core Skills Lab: Molar Volume of a Gas   7. Core Skills Lab: Generating and Collecting O2   8. Core Skills Lab: Generating and Collecting H2   9. Core Skills Lab: Testing for Dissolved Oxygen   10. QuickLab: Diffusion, TE p. 375   **Explain**   1. Classroom Practice: Converting Between Units of Pressure, p. 353 2. Demo Problem, TE p.354 3. Classroom Practice: Using Boyle’s Law, p. 358 4. Classroom Practice: Using Charles’ Law, p. 360 5. Classroom Practice: Using Gay-Lussac’s Law, p. 362 6. Classroom Practice: Using Combined Gas Law, p. 363 7. Classroom Practice: Gas Stoichiometry, p. 370 8. Classroom Practice: Using Ideal Gas Law, p. 373   **Elaborate**   1. Alternative Assessment, TE p. 352 2. Why It Matters: The Gas Laws and Scuba Diving, p. 356   **Evaluate**   1. 8.1 Section Formative Assessment, p. 355 2. 8.1 Section Formative Assessment, p. 363 3. 8.1 Section Formative Assessment, p. 373 4. 8.1 Section Formative Assessment, p. 376 |
| **ALL SCIENCE (S):**  ***(Multiple opportunities to engage in science, Makes since of science content)***  What is yourplan to incorporate technology while incorporating the 5E instructional model? | **SUGGESTED OPPORTUNITIES FOR TECHNOLOGY**  1. PhET Simulations  2. Microsoft Forms  3. Virtual Lab |