

Krug Chemistry – Deep Run Daily Planning Guide

Date of Lesson: Q3 Day 13 – Gas Law Investigation Lab

Topic /Big Questions: (Question Stems & Question Creation Chart)	
<ul style="list-style-type: none"> • How does pressure affect volume when temperature is constant? • How does temperature affect volume when pressure is constant? • What is the relationship between pressure, temperature, and volume? 	
State SOL CH.6	Unpacking the Standards (Video explanation shown at 3:18) CH.6 The student will investigate and understand that the phases of matter are explained by the Kinetic Molecular Theory. Key ideas include <ul style="list-style-type: none"> a) pressure and temperature define the phase of a substance; b) properties of ideal gases are described by gas laws; and c) intermolecular forces affect physical properties.
Visible Learning (For the three items with asterisks*, think from a student perspective. Use simple language)	
*What am I learning today? Pressure (P), Volume (V), and Temperature (T) of a gas are related through the Kinetic Molecular Theory.	
*Why is it important? The movement of atoms and the relationship of energy and the phases is outlined in the Kinetic Molecular Theory. The gas laws describe the relationships of pressure, volume, temperature and number of particles of a gas.	
*How will I know I've learned it? I will understand that P vs. T and V vs. T are both directly proportional. P vs. V is inversely proportional.	
Differentiation strategies: Gas Law Investigation Lab	
Accommodations and/or modifications are being met for students with IEP's/504's. frequent checks for understanding; materials available on Schoology; small group activities	
Daily Plan/Sequence of Instruction: Teacher will divide the room into three stations and prepare supplies for each station. Student groups will follow procedure for each station and record their observations on the MINI-LAB: INVESTIGATING GAS LAWS lab worksheet. Once all groups have rotated through each station, teacher will lead CER Modeling discussion. Ask questions such as, "Which variable was held constant for Produce #1?", "How do you know?", "What relationship did you observe between the other two variables?", "How can we write this relationship as a mathematical equation?" ... continue	

asking similar questions for the other stations. Have students write the mathematical equations and draw basic graphs showing the general trend for each relationship in their lab notebooks. **DO NOT tell them the name of each law until AFTER they are done entering information in their notebook.** (Understanding the equation and its relationship to the variables is more important than the name!!!)

Assessments (List all formative/summative assessments used to check for understanding during this lesson. Summative assessments may occur during a different class period.):

Gas Law Investigation Lab – (summative)

After assessing today's lesson are you and your students comfortable moving forward with your next objective?

Yes - students completed the Gas Law Investigation Lab and recorded the equations and graphs in their notebook

No, remediation required to proceed – If students do not participate during lab, they may make up the lab for up to a 65% passing score. Students, who were absent, can make it up for full credit.

Teacher reflection: The Fizz Keepers were difficult to find in the store. I bought a few on Amazon.com, but they take a long time to work. **My husband screwed a bicycle valve into the top of a 2-liter soda bottle cap** so I could use a bicycle pump to fill up the bottle with air. This worked amazingly! I blew up a balloon to about the size of my fist and shoved it into the soda bottle. Then in just a few pumps, the students could see the balloon go flat. The bottle was rock hard from all the air pressure. And if students twist the cap off quickly, they can observe adiabatic cooling and a cloud formation inside the bottle. The air leaving the bottle feels cold, but the bottle feels warm! So cool!