Gas Laws

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***Teacher:*** | Ms. Athwal | ***Date:*** | Feb 10 – Feb 14 | ***Course:*** | Chemistry | ***Grade:*** | 11 |
| ***CA Standard(s):***  4a *Students know* the random motion of molecules and their collisions with a surface create the observable pressure on that surface.  4b *Students know* the random motion of molecules explains the diffusion of gases.  4c *Students know* how to apply the gas laws to relations between the pressure, temperature, and volume of any amount of an ideal gas or any mixture of ideal gases.  4d *Students know* the values and meanings of standard temperature and pressure (STP).  4e *Students know* how to convert between the Celsius and Kelvin temperature scales.  4f *Students know* there is no temperature lower than 0 Kelvin.  4g *Students know* the kinetic theory of gases relates the absolute temperature of a gas to the average kinetic energy of its molecules or atoms.  4h *Students know* how to solve problems by using the ideal gas law in the form *PV* = *nRT* | | | | | | | |
| ***Learning Objective (s):***  LT 5.1 – I can explain how pressure is created through the collisions of molecules with a surface.  LT 5.2 – I can discuss how the diffusion of a gas through a space is the result of the random motion of a gas molecule.  LT 5.3 – For a given gas, I can define what STP is.  LT 5.4 – I can discuss how the kinetic energy of a gas molecules is related to the temperature of the gas mixture  LT 5.5 – I can define what absolute zero and relate it to the Kelvin temperature scale.  LT 5.6 – I can convert between the Kelvin and Celsius temperature scales.  LT 5.7 – I can explain Boyle’s Law, how it relates pressure and volume, and I can calculate pressure and volume values for a given problem.  LT 5.8 – I can explain Charles Law, how it relates to temperature and volume, and I can calculate temperature and volume values for a given problem  LT 5.9 – I can explain Gay-Lussac’s Law, how it relates to temperature and pressure, and I can calculate temperature and pressure values for a given problem.  LT 5.10 – I can calculate the various properties of a gas using the Ideal Gas Law and the Combined Gas Law. | | | | | | | |
| ***Essential Question(s):*** How do I save my community? | | | | | | | |
| **Assessment**:   * Unit 5 Exam * Unit 5 Exam Reflection | | | | | | | |
| ***Do Now***:   1. What do each of the 3 gas laws state? 2. A gas has a pressure of 0.370 atm at 50.0 °C. What is the pressure at 0 °C?   1. Calculate the number of moles of gas when a gas occupies 2 L at 4 atm and a temperature of 300 K. Note – R is 0.0821  2. Determine the volume of occupied by 2.34 grams of carbon dioxide gas at STP. **HINT** – You need to convert grams of CO2 to moles of CO2 using stoichiometry | | | | | | | |

|  |
| --- |
| **WHOLE GROUP/ DIRECT INTRUCTION** |
| * Unit 5 Exam * Unit 5 Exam Reflection * Unit 5 Test corrections * Introduction to Unit 6: Acids and Base videos/ Breaking bad |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SMALL GROUP STATION** |  | **COLLABORATIVE STATION** |  | **COMPUTER ASSISTED STATION** |
| Unit 5 Test |  | Test corrections |  | On Edmodo, complete the Unit 5 Exam relfection questions |