Diffusion and Particles

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| ***Teacher:*** | Ms. Athwal | ***Date:*** | Jan 27 – Jan 31 | ***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. | | | | | | | |
| ***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. | | | | | | | |
| ***Essential Question(s):*** How do I save my community? | | | | | | | |
| **Assessment**:   * Pressure and Diffusion Exit Tickets * Environmental Justice Proposal maps * Boyles Law and Absolute Zero Exit Ticket * Boyles Law and Absolute Zero homework 5.2 * Can crushing lab conclusion write-up | | | | | | | |
| ***Do Now***:  1. How is pressure created?  2. Give 3 units that pressure is measured with  3. How does the motion of gas molecules explain diffusion?  -  1. What is the coldest possible temperature. What happens at this point?  2. You have a gas that has a pressure of 2 atm and a volume of 5 L. What is the new pressure if the gas is compressed to 2 L  3. How can you crush a can without touching it? | | | | | | | |

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| **WHOLE GROUP/ DIRECT INTRUCTION** |
| * Absolute Zero * Kelvin and Celsius conversions * Gay Lussac and Charles Law: Pressure and Temperature relationship |

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| **SMALL GROUP STATION** |  | **COLLABORATIVE STATION** |  | **COMPUTER ASSISTED STATION** |
| Notes on absolute zero, kelvin and celsius conversions, Gay Lussac and Charles law, correlations between temperature, pressure and volume |  | In groups complete the  Gases Notes Handout  [../../5.2/Gases Notes 2.docx](../../5.2/Gases%20Notes%202.docx)  After taking notes on temperature conversion from Celsius to Kelvin, and the relationship between pressure and volume  In your groups of 4, complete the following lab. Remember the lab safety rules from the beginning of the year and record all observations  [Can Crushing Lab](../../5.3/5.3%20Can%20Crush%20Lab%20.docx) |  | Work together in groups to define your community and design an environmental justice proposal including the problem, why it is a problem, and how you’re going the fix that problem. |