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**Lesson Title:** Chemical Conversions using mole concept and the Law of Conservation of Mass

**Suggested Grade Level:**

 9th-12th

**Estimated Lesson Time:**

 50 minutes

**Abstract:**

Students will explore the dimensional analysis involved in conversions of different units of substances in relation to the Law of Conservation of Mass. The following video will give a very brief overview of these conversions and by the end of the lesson; students should be able to use these concepts throughout the semester.

<http://www.youtube.com/watch?v=dExpJAECSL8>

**Student Prior Knowledge:**

Students will be told to read the chapter in the text book that corresponds to moles and the Law of Conservation of Mass and also watch the videos and any other provided resources so that when they arrive in class, they will be able to contribute to the class discussion and activities

**Standards:**

SC.912.P.8.9 - Apply the mole concept and the law of conservation of mass to calculate quantities of chemicals participating in reactions.

**Goals:**

Students will apply the mole concepts, dimensional analysis, and the Law of Conservation of Mass in order to demonstrate and how different elments and compounds in chemical equations work in equilibrium . Understanding how and why substances are balanced will help set a standard for comprehending future chemistry concepts.

Learning Objectives:

I can perform chemical dimensional anaylsis equations concepts based on the Law of Conservation of Mass and Law of Definite Proportions. This means that I can correctly convert masses to moles to molecules/atom/ions and vice versa more than 90% of the time. To learn this, I will read the chapter prior to class, do example problems online, and practice problems on my own.

**Resources:**

Prior to coming to class, students will be required to read the chapter that corresponds to this lesson and also look at this website for a simple example of a conversion that should give the students a fair understanding of the content that will be covered in class.

<http://misterguch.brinkster.net/molecalculations.html>

**Procedures:**

1. I/teacher will present the students with a short YouTube video that corresponds with the material that they should have read the night before. (5 minutes)

<http://www.youtube.com/watch?v=DW4PXTvlmO4>

1. You/Students perform a similar problem as the one in the video, and they will be instructed to answer the problem and submit it for a few points toward their participation grade. (3 minutes)
2. I/teacher will present a brief Prezi lecture that will further reinforce the information that the students have already prepared. (15 minutes)
3. We/class will go over some example problems on the board in order to strengthen the students’ understanding of the material. (5 minutes)
4. You/Students will complete the questions on the following website and 10 students who complete the quiz with the highest scores will be given 1 point extra credit. (12 minutes)

<http://www.sciencegeek.net/Chemistry/taters/Unit4GramMoleVolume.htm>

1. We/teacher will go over any final questions the students have regarding today’s lesson. (5 minutes)
2. You/students will take the rest of class to begin their homework assignment to be completed before the start of the next day’s class (Students may work individually or in groups of no more than three). (5 minutes)

<http://misterguch.brinkster.net/WKS001_012_750921.pdf>

**Video Procedures**

<http://www.youtube.com/watch?v=iMvUOKVYF1k&feature=g-upl>