Krug Chemistry – Deep Run Daily Planning Guide

Date of Lesson: Q1 Day 11 - QUIZ, PBR, and Density Lab

Topic /Big Questions: (Question Stems & Question Creation Chart)

- **What's the difference between a physical property and a chemical property?**
- **How are mass and volume related?**
- **How is matter classified?**

State SOL	Unpacking the Standards (Video explanation shown at 3:18)
CH 2 h CH 5 a, d	**CH.2** The student will investigate and understand that the placement of elements on the periodic table is a function of their atomic structure. The periodic table is a tool used for the investigations of: **h) chemical and physical properties**; and **CH.5** The student will investigate and understand that the phases of matter are explained by kinetic theory and forces of attraction between particles. Key concepts include: **a)** pressure, temperature, and **volume**; **d)** phase changes;

Visible Learning (For the three items with asterisks*, think from a student perspective. Use simple language)

*What am I learning today? Matter is classified by its chemical and physical properties.

*Why is it important? It's **important** for scientists to know the properties of **matter** because all things are made up of **matter**. ... The main physical characteristics of **matter** are mass, volume, weight, density, odor, and color.

*How will I know I've learned it? Students, who score an 80% or higher on the quiz, will have master the material on classifying matter.

Differentiation strategies:

Unit 2 Quiz

Q1 PBR 1 - Women in Science

Density Lab – Investigating Liquids and Solids

AMTA Density, Mass, & Volume Worksheet

Accommodations and/or modifications are being met for students with IEP's/504's.

Access to all materials on Schoology, frequent checks for understanding; small group testing

Daily Plan/Sequence of Instruction:

Begin with a short review. Answer any homework questions. Go over density, especially harder density problems with honors students. Assign Unit 2 Quiz. College prep will take multiple choice version through Schoology. Honors will take paper version.

After quiz, ask students to read PBR #1 "Women in Science" and answer the questions. Once students are finished, ask

them about stereotypes and equal pay and the struggle to be recognized for your accomplishments. Give real life examples if possible. Go over correct answers and allow students to correct their mistakes.

Divide students into groups. Each group will measure the density of a different substance by alternating the mass and measuring the volume.   Substances may include water, vegetable oil, alcohol, foam blocks, metal blocks, and wooden blocks, etc. Students using liquids should take at least 5 different measurements. Students will create a data table and corresponding graph on their white boards and in their lab notebooks. Once all groups are done with their graphs, being a CER Modeling inquiry.   Ask questions such as, "What did the slope of the line represent?", "What trend do we see in all the graphs?", "What does this mean about the way mass and volume are related?", "If your group did not use water, where would water's trend line go on your graph? Above or below your trend line? Why?" and "Which substances would sink? Float?"

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

Women in Science (formative)

Unit 1 Quiz (summative)
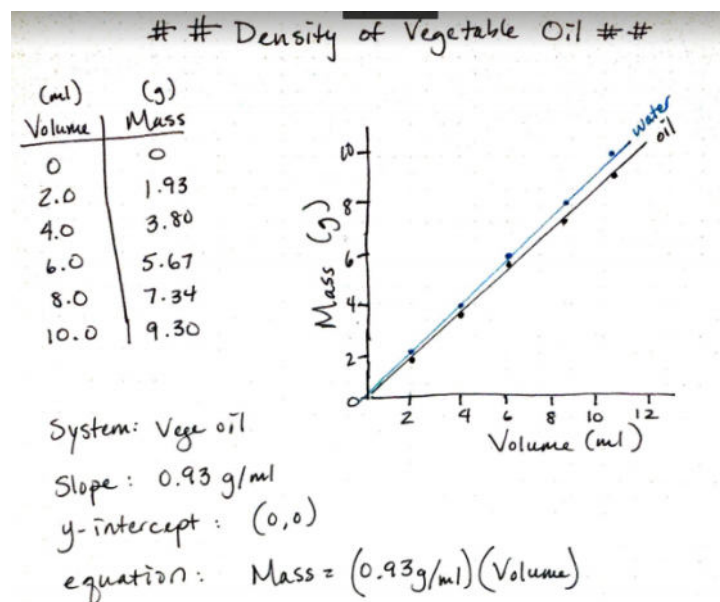
Density Lab (summative)

AMTA Density, Mass, & Volume Worksheet

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

Yes - Students scored 80% or higher on Quiz and participated and record data and graph in their lab notebook for the Density Lab

No, remediation required to proceed – Parents will be contacted if students fail the quiz; students may visit during One Lunch to discuss their mistakes.   Students, who did not record the lab during class, may make it up for a 65%. If students are absent, they may do the lab for full credit.

Teacher reflection: Example of Density Lab – Vegetable Oil