

Lesson Plans: Unit 1- Chemistry

Unit Title: Chemtools- An Introduction to Chemistry

Major Learning Outcomes:

Students should be able to:

- Define SI units for time, length, mass, and temperature (Kelvin and Celsius)
- Compare the derived units of density and volume
- Express numbers in scientific notation
- Perform operations in scientific notation
- Use dimensional analysis (factor label) to convert between units
- Define and compare accuracy and precision
- Use significant figures and rounding to reflect the certainty of data
- Use percent error to describe the accuracy of experimental data
- Create graphs to show patterns in data
- Interpret graphs
- Apply knowledge of laboratory safety and equipment
- Define physical change
- Recognize that melting points, boiling points, and solubility can be used to determine the identity of a substance
- Apply information (BP, MP, density) from the reference tables to identify an unknown
- Calculate density. ($D=m/V$)
- Apply the solubility rules
- Use graph of solubility vs. temperature to identify a substance based on solubility at a particular temperature. Use graph to relate the degree of saturation of solutions to temperature. Use graph to make simple calculations about solutions
- Describe physical equilibrium: liquid water-water vapor. Vapor pressure depends on temperature and concentration of particles in solution. (conceptual only – no calculations)
- Draw phase diagrams of water and carbon dioxide (shows how sublimation occurs). Identify regions, phases and phase changes using a phase diagram.
- Know that phase changes occur with changes in temperature and/or pressure. Relate change of phase to heating and cooling curves.

IV. Content Objectives Includes (with RBT Tags):

Objective Number	Objective	RBT Tag
2.04	Identify substances using their physical properties: <ul style="list-style-type: none"> • Melting points. • Boiling points. • Density. • Solubility. 	C3
2.08	Assess the dynamics of physical equilibria. <ul style="list-style-type: none"> • Interpret phase diagrams. • Factors that affect phase changes. 	B4

Aug 25th

EQ: How do you use chemistry in your everyday life?

Activities:

1. Go over Course Expectations
2. Fire/Tornado Drill
3. Pass out Textbooks
4. Getting to know you exercise
5. Cornell Notes

Homework:

2. Get syllabus signed

August 26th

EQ: How do you use dimensional analysis in your everyday life?

Activities:

1. Define SI units for Time, length, mass and temperature (Kelvin and Celsius)

- a. Expressing numbers in scientific notation
- b. Perform operations in scientific notation

1. Pg R58 #s 1-3 (located in the back of the book)
2. Lesson: Dimensional analysis and number usage
 - a. Factor Label method
 - b. Unit conversions
3. Factor label method worksheet practice (groups).

Homework:

1. Finish Worksheet
2. Unit 1 Terms
3. Get syllabus signed if you haven't already

August 29th

EQ: How does density determine the layering of a liquid mixture?

Activities:

1. Go over homework
2. Group Quiz- Dimensional Analysis
3. Critical Reading-Reference tables: Recognize that melting point, boiling point and solubility can be used to determine the identity of a substance.
4. Apply information from reference tables to identify an unknown.
5. Calculate Density $D=m/v$
6. Solubility Rules
7. Use graph of solubility vs. temperature to identify a substance based on solubility at a particular temperature. Use graph to relate the degree of saturation of solutions to temperature. (WORKSHEET)
8. Inquiry-Teacher Demo: RED, WHITE, AND BLUE

Homework:

1. pg 93 #s 46-56
2. Finish worksheet on solubility if you didn't finish in class.
3. Unit 1 Terms (Due Monday)

August 30

EQ:

Describe the changes of state including in matter and how you would determine the state of matter at a specific temperature.

Activities:

1. Go over Homework and worksheet on solubility
2. Changes of matter ppt notes
3. Use reference tables to answer questions embedded in ppt.
4. Phase Diagrams: Water and Carbon Dioxide (shows how sublimation occurs)
5. Phase Diagram Practice

Homework:

1. Finish Phase Diagram Practice
2. Study/Review For Test
3. Vocab Quiz on Tuesday

August 31st

EQ: What properties must a solid have to undergo sublimation?

Activities:

1. Go over phase diagram practice
2. Check Vocabulary
3. Vocab Quiz
4. Check Quiz together

5. Review for Test on Unit 1 for tomorrow.
Homework:

1. Study for test tomorrow on Unit 1
- 2.

September 1st

EQ: What are the dependant factors for Vapor Pressure?

Activities:

1. Review/Reiterate
2. Test- Unit 1
3. Vocab for Chapter 4 (Unit 2)

Homework:

1. Finish Vocab