

**Unit 9** Chemical Formulas and Bonding (Ch. 4) – **GPS:** Nature of Matter.

**MAKE SURE ALL SAFETY PRECAUTIONS WERE DISCUSSED AND PROPER LAB SAFETY EQUIPMENT REQUIRED**

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**Day 1**

**Essential Question:** How do chemical formulas relate to Compounds, Molecules, Structure, and properties?

**Engaging Strategies:** Show a video of sodium metal being added to water.

**Activities:**

1. Review old test from unit 3
2. Notebook Check?
3. Make sure everyone has done Unit 4 vocabulary
4. Lecture 4.1 – Compounds and Molecules
  - a. Use handwritten notes in notebook to write down as I come to it.
  - b. Students to write their own notes
5. Answers Review questions on page 114, # 1 - 7

**Summarizing Strategies:** Review Questions and GR.

**Materials:** Old Test, graded. Video of sodium metal being added to water, molecular model kit, and lecture notes from notebook, guided reading copies.

**Homework:** Guided reading pages 20 – 26 (from study guide)

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**Day 2**

**Essential Question:** What are Ionic and Covalent compounds?

**Engaging Strategies:** Review Mixtures and Compounds worksheet.

**Activities:**

1. POP QUIZ: Mixtures vs. Compounds (soft copy)
2. Lecture 4.2 – Ionic and Covalent Compounds
  - a. Use handwritten notes in notebook to write down as I come to it.
  - b. Students to write their own notes
3. Physical Science – Ionic Compounds – Individual Practice
  - a. Students will work on their own first
  - b. Then students will work in lab groups for a few minutes.
  - c. Finish for Homework

**Summarizing Strategies:** Physical Science – Ionic Compounds – Individual Practice

**Materials:** QUIZ: Mixtures vs. Compounds, Lecture notes from notebook (my own), Ionic Compound practice sheet

**Homework:** Ionic Compounds – Individual Practice and GR

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**Day 3**

**Essential Question:** How does conductivity of solutions affect our environment?

**Engaging Strategies:** Revisit Ionic Compounds worksheet from last night.

**Activities:**

1. Collect Ionic Compounds – Individual Practice worksheet for a grade
2. Lab – Determine which household solutions conduct electricity. Lab #4 from Holt Science Lab Experiments.
  - a. See T10 – T12 for teacher version
  - b. See pg 13 – 16 for student version
  - c. KEEP the information, lab report tomorrow!
3. worksheet – Types of chemical bonds (on back of last night's HW)
  - a. Students will work on their own first
  - b. Then students will work in lab groups for a few minutes.
  - c. Finish for Homework

**Summarizing Strategies:** Types of Chemical bonds worksheet

**Materials:** Lab #4 Handouts (pg. 13 – 16), CBL units, Conductivity Probes, TI Calc. Table sugar Solution, Table salt solution, baking soda solution, Epsom Salt solution, Dishwashing Detergent solution, Rubbing Alcohol solution, Milk of Magnesia Solution, Chemical Fertilizer solution, 100ml Beakers (3), rinse bottle with deionized water, large beakers, tissue paper Worksheet: Types of Chemical Bonds

**Homework:** Types of Chemical Bonds

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**Day 4**

**Essential Question:** What do Chemical Formulas and Naming mean?

**Engaging Strategies:**

**Activities:**

1. Lab Report – Conductivity of Solutions
2. Lab – Comparing Ionic and Covalent Compounds **NO HANDOUT**
  - a. Students are melting Rock Salt and Para dichlorobenzene in an evaporating dish, to compare the strength of Ionic and covalent bonding.
  - b. Students are measuring volatility and solubility of Rock Salt and PDB.

Directions for students:

At the lab stations you will find the tools need to conduct a test on the melting points of rock salt and moth ice crystals. You task is to conduct an experiment that is viable and repeatable. To do this, you will need to write down every step you took and every measurement you took explicitly. You will not have a thermometer, but you will have a stop watch. Pass the temperature on the time, every 5 seconds of heating in a 3 degree Celsius increase, starting at 20 °C.