• Discussion board response, 25/38 ??
• Review of syllabus, check picture
• Go to the discussion board to get the homework assignment for Chapter 1, due next Wednesday, Jan 18
• Go to discussion board to get assigned elements for poster presentation in lab on Thursday, Jan 26
• The first week for your portfolio article collection is Jan 16 - Jan 22
• Class presentations to begin on Friday, Jan 20. Assigned dates will be posted on the discussion board.
• All of the above info posted by end of today - if not possible it will be sent via e-mail

• Science - a way of knowing and understanding the universe. It provides an organized way to obtain answers to questions. (Snyder p.12)
• Technology - the application of knowledge. For example, science helps us understand electricity, technology may be a battery or a power plant
• Chemistry - study of matter, its composition, its properties and the changes it undergoes. Changes in matter involve energy, which is an important aspect of chemical studies.
• Environment - all the external factors influencing the life of organisms; the conditions that surround people and affect the way they live

• Scientific Process - how do we know (p. 12)
  – Ask questions and do experiments
    • How “clever” are the questions
    • How good are the experiments
  – Make observations and attempt some answers
    • Observations become most useful when quantitative
    • Quantitative data allows for predictions
  – Ask other questions, more experiments, better answers
    • Try to reduce variability in the data
  – Interpret the answers to help us understand the world (universe around us)
    • Unexpected answers lead to new questions, repeat the process
  – Communicate observations and interpretations for further investigation
    • Important skills in writing and speaking
• The scientific process leads to:
  – Hypothesis: tentative explanation
  – Theory: a generally accepted interpretation of observations
• Some theories we will start from:
  – Element: a pure substance that cannot be decomposed or converted to a simpler substance
  – Compound: a pure substance formed by the chemical combination of two or more elements in a specific ratio
  – Atomic theory: the smallest building blocks for elements are made of three different types of basic particles. These have been identified as protons, neutrons and electrons.
• Can these theories help explain some observations

Some observations -
• Light bulb with wire
• Light bulb without wire
• Light bulb in water
• Light bulb in sugar, water with sugar
• Light bulb in salt, water with salt

Some questions -
• What causes the light bulb to function?
• Why do water, sugar and salt not work?
• Why does salt/water work, but sugar/water does not?
• What is the difference in composition of salt and sugar?
• Do other materials behave in similar manner?

Substances that conduct electricity when dissolved in water are called

1. Capacitors
2. Electrolytes
3. Covalent
4. Molecules
Sodium chloride in water conducts electricity because:

1. It forms electrons in the water
2. Sodium atoms add metallic character to water
3. It forms ions that carry electrical charge
4. All of the above true
5. None of the above are true

Sugar in water does not conduct electricity because:

1. It is a compound
2. It does not contain chlorine (Cl)
3. It does not form ions in water
4. Electrons stick to the sugar instead of moving in the circuit

Some interpretations -
- Light bulb requires movement of electrical charge
- Wires allow movement of electrical charge
- Water, sugar and salt do not allow charge to move
- Dissolved sugar has no charge movement
- Dissolved salt does have charge movement
- Salt contains charged particles that can move in water, but not in the solid

Some communication -
- Charged particle will be called ions
- Positive ions are cations, negative ions are anions
- The salt compound contains the elements Na and Cl, which are present as ions
- The sugar compound contains the elements C, H and O
Some more questions -
• Can the same elements combine to form different compounds?
• Do the same elements in different compounds behave the same?

Some more observations -
• Water is 11.1% by weight H and 88.9% by weight O
• Hydrogen peroxide is 5.9% by weight H and 94.1% by weight O
• Reaction with the addition of the salt KI (potassium iodide)

Some more interpretations -
• Hydrogen and oxygen atoms are organized in different ways in the compounds water and hydrogen peroxide

What are some additional questions -