**Water & Solutions Chapter 15**

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**See** [**https://www.learningctronline.com/courses**](https://www.learningctronline.com/courses) **for Materials and Resources.**

**Topics:**

1. Water & Solutions

**Objectives:**

1. Describe how the structure of water accounts for its polarity.
2. Explain why water has unique properties including high surface tension, high boiling point, high specific heat, and peculiar density as a solid.
3. Describe the unique role of water as the “universal solvent”.
4. Identify factors affecting solubility and the rate at which a substance dissolves
5. Define solubility and differentiate between unsaturated, saturated and supersaturated solutions.
6. Define & calculate concentration in terms of mass, volume, & molarity, and molality.

TAKE NOTE (1 week)

1. Notes/Study Guide
2. Lesson Check & Sample Problems or Alternative Worksheets
3. Lab Quiz: Solubility of Solids and Gases vs Temperature
4. Test Corrections (Gas Laws)
5. HONORS 🡪 Salt & Solubility Simulation (PHET Simulation)
6. Class Song: “Study to Show Yourself Approved” (Let’s Get Down to Business)
7. Week 23 Devotional (<https://www.learningctronline.com/devotional>)

**Text**: Chapter 15: Water pp. 488-497; 518-527

Read the assigned pages in the text. Skip the omitted pages.

**Class Notes: PowerPoint or PDF**

**Notes/Study Guide:** Fill in the Chapter 15 worksheet to understand the class notes.

**Homework**: Text

(1) Answer the KEYED **“Lesson Check”** questions at the end of each.

(2) Answer the **“Sample problems”** found in the “Sample Problem” boxes throughout the chapter. An answer KEY is provided for you to use to self-correct your homework problems.

* Put your answers into complete thoughts in a Word document. Do NOT just put the answer, but write a phrase or sentence that you can study from for your tests. Save your work in a WORD document and SAVE into your HOMEWORK folder in the Chemistry folder on the desktop.
* Assignments will be “spot checked” during class or submitted via email.

**Alternate Homework**:

1. Solubility of Solids Graph (1 week)
2. Molarity & Dilutions (2 weeks)
3. HONORS 🡪 Salt & Solubility (PHET Simulation)

**Lab**: Solubility Activities

Perform the **"**Solubility Activities**"** experiments using the **Videos** and worksheet.

[Factors Affecting Solubility & the Rate of Solubility ctr](http://somup.com/cFXQoVnioR) (4:08).

[Solubility & Temperature Using Gases](http://somup.com/cYnuoGhtBq) (3:07).

* Answers are provided at the end of the document for guidance. Do NOT copy and paste these answers, but write using your own words.
* Save the document into your LAB folder in the Chemistry folder on your desktop.
* Study for understanding, and when ready, take the Lab Quiz.
* You may **NOT** use the worksheet on this lab test.

**TEST:** The test will be given after next week’s lesson.

Supplemental Resources (Optional)

1. Salts & Solubility Simulation (PHET) [Salts & Solubility (PHET simulation)](http://somup.com/cbeooEROk) (7:49)
2. Vocabulary Crossword (Water & Solutions)

[Dancing Water ctr](https://screencast-o-matic.com/watch/cFXiD9YP5e) (1:09) ... Polarity of Water  
  
[Dissolving (Dissolution) & Hydration](http://somup.com/cFXjnmninF) (1:19) How Water Dissolves Salt  
  
[Solution Formation: Dissolving (Dissolution) / dissociation & Hydration](http://somup.com/cFliqOnXI0) (0:46) animation  
  
[Electrolytes: The Electric Pickle](http://somup.com/cFXjenninr) (2:07) Stephen Spangler  
  
[Factors Affecting Solubility & the Rate of Solubility ctr](http://somup.com/cFXQoVnioR) (4:08) stirring/agitation, surface area, temperature, pressure  
  
["Seeding" a Supersaturated Solution](http://somup.com/cFXjebninU) (1:29)  
  
[Set Our Hope on God 1 Timothy 6:9,17; I Want to Know You More](http://somup.com/cYhFFVjyBA) (5:00)  
  
[The Athiest's Delusion](http://somup.com/cq62FwePal) (11:39) ... Thought Provoking.