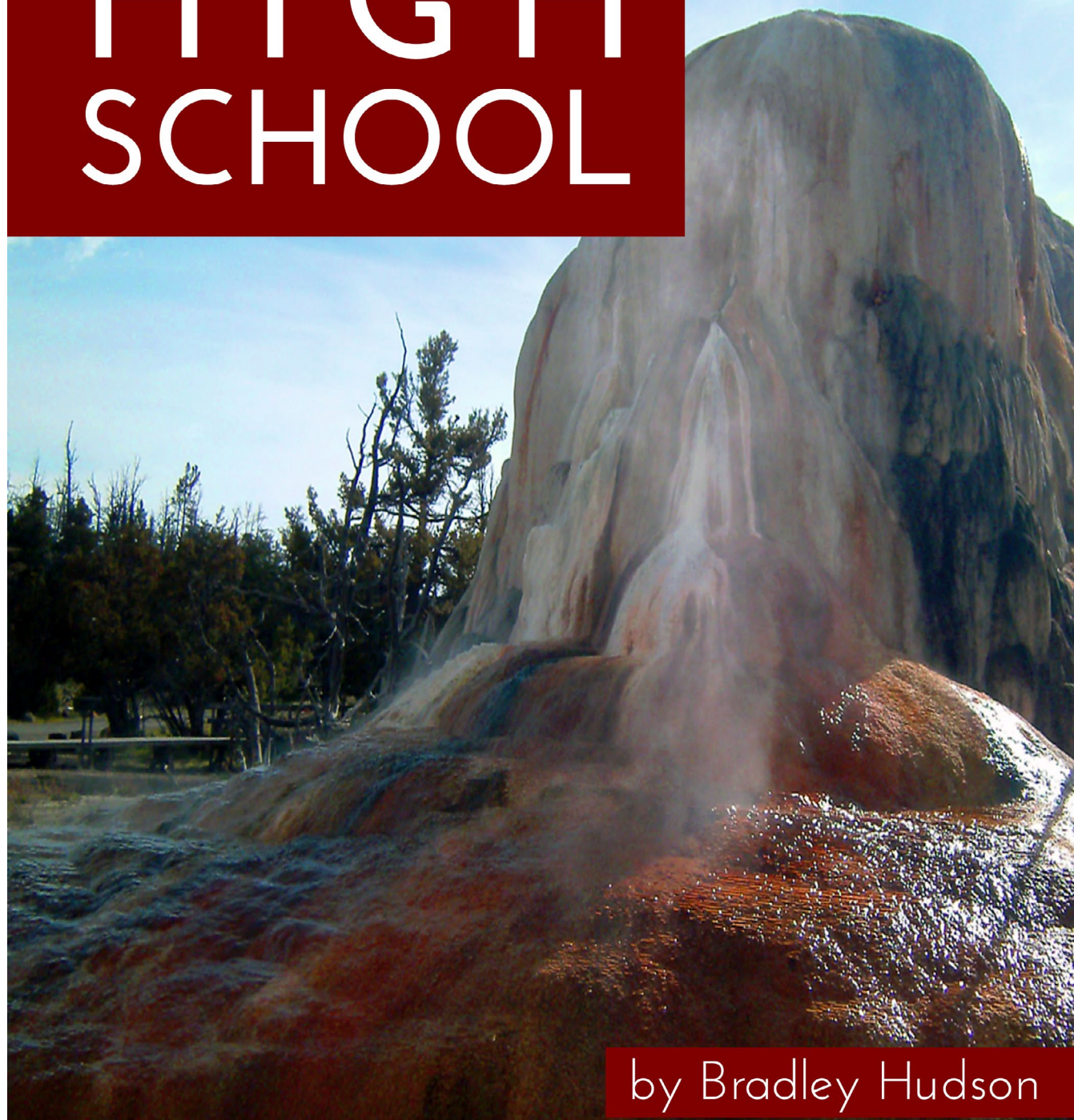


Chemistry for **HIGH SCHOOL**



by Bradley Hudson

Chemistry for High School

First Edition, 2019

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Introduction to this Guide

Welcome to Chemistry! This year, you will learn about matter, atomic structure, reactions, and much more. In this guide, you will find three types of schedules, as well as notes with the assignments for each week. To get links to the textbook, teacher guide, experiment, and quick-links for the activities in this guide, please visit:

 <https://elementalscience.com/blogs/resources/chs>

Three Courses in One

This guide contains the plans for three courses in one book. These are:

- ☞ **Honors** - The plans in this option are for a lab science, 1-credit *Honors Chemistry* course. There are textbook assignments, experiments, events in science, optional hands-on activities, and written work with these plans. Expect to take about 5 to 6 hours a week to complete these plans. We recommend this option for students who plan on going into the sciences. The honors course will also fulfill a lab science credit for graduation.
- ☞ **Standard** - The plans in this option are for a standard lab science, 1-credit *High School Chemistry* course. There are textbook assignments, experiments or online labs, and written work with these plans. Expect to take about 4 to 5 hours a week to complete these plans. We recommend this option for students who are not and for students who are planning on going into the sciences. The standard course will fulfill a lab science credit for graduation.
- ☞ **Survey** - The plans in this option are for an information-only, 1-credit *Survey of Chemistry* course. There are textbook assignments, written work, and events in science with these plans. There are no experiments or hands-on activities scheduled with these plans. Expect to take about 4 to 5 hours a week to complete these plans. We recommend this option for students who are not planning on going into the sciences and do not need a lab science credit for graduation.

Each of the scheduling pages will note at the top which course the plans are for. These schedules for these courses are suggestions; please check with your local oversight contact to make sure that you are meeting your state's graduation requirements. Please feel free to tailor this program to the needs of your students.

An Explanation of the Sections

After the scheduling pages, you will find the notes sheets. These sheets are divided into four sections - textbook, experiments, events in science, and hands-on activities. Here is an explanation of each of these sections.


Textbook

For this study, we have chosen to use the standard text book, *CK-12 Chemistry Intermediate*.

You can download this text as a pdf from the resource page above. You will complete the reading assignment and then answer several of the questions from the text. These answers should be added to the reading section of the science notebooks. You will also define several of the key terms from the chapter. The definitions should be added to the glossary section of the science notebook.

Experiment

All the experiments come from the *Standard Home School Chemistry Laboratory Kit Instruction Manual*, along with the corresponding experiment kit. You can download the guide for free and purchase the kit (CK01B Standard Home School Chemistry Laboratory Kit) from here:

 <https://www.thehomescientist.com/ck01b-main.php>

With each of these experiments, you will find a purpose, required pre-reading, procedure, lab notebook assignments, and lab questions. For each week, we have included a supply list for your convenience. If you would like to see a full list of the household supplies you will need in addition to the experiment kit, please see pg. 239 in the Appendix.

We have also incorporated an optional online lab into the standard course. These online labs are available through Beyond Labz. You can visit the resource page for this program for directions on how to sign up and use these labs or visit their website directly at:

 <https://www.beyondlabz.com/>

As part of unit 1, the standard- and honors-course students will complete a full lab report for one of the experiments. We have included an explanation of what a full lab report includes after this introduction.

Events in Science





This section gives two options for the Events in Science section. One will familiarize you with current events in science, as you research on the internet for the various topics. The other will familiarize you with the key historical figures in chemistry through the scientist biography report. We have included two articles to explain these options in more depth following this introduction.

Hands-on Activities

We have also included optional hands-on experiments for each week. You can see a list of the supplies you will need for these in the Appendix on pg. 241.

The Science Notebook



This year, you will each create a science notebook. Each notebook should contain the following sections:

-  Reading (All Students) - This section of the notebook will contain any notes you have taken, along with the answers to the questions that were assigned each week.
-  Lab (Standard- and Honors-Course Students Only) - This section of the notebook will house the notes from the experiments you have done, along with any other materials relating to the labs.
-  Events (Survey- and Honors-Course Students Only) - This section of the notebook will include either the current events article summaries or the historical reports you have done.
-  Glossary (All Students) - This section of the notebook will have the definitions for the assigned vocabulary words.

This notebook can be a composition book, divided into the required sections, or a three-ring binder with dividers for each section.

Grading and Credits

The three options in this guide meet the requirements for a full credit of high school chemistry, as explained above. Each week, the student will answer lab and textbook questions, do events in science written work, and define vocabulary that can count toward a classwork grade for the course. The textbook for this course has chapter tests available for free in the quizzes and tests packet. We suggest that you use these for the exam grade for the course. We suggest you use the following percentages to come up with a final grade for the course:

-  Class work: 70%
-  Exam: 30%

Note - A grading rubric for the Scientist Biography Reports can be found on pg. 243 in the Appendix.

Students Going Into The Sciences

If your students plan to go on to major in the sciences, we suggest that you also add an in-depth project and a research report at some point during the year to this program. An explanation of the in-depth project and of the research report can be found on the following pages.

Final Thoughts

As the authors and publishers of this curriculum, we encourage you to contact us with any questions or problems that you might have concerning *Chemistry for High School* at support@elementalscience.com. We will be more than happy to answer you as soon as we are able. We trust that you and your students will enjoy *Chemistry for High School!*

Chemistry for High School

Unit 1 - Introduction to Chemistry

Week 1 Notes - Introduction to Chemistry

Textbook Assignments

Reading

📖 *CK-12 Chemistry* Sections 1.1, 1.2

Written

After you finish reading, answer questions #1-4 in section 1.1 and #1-6 in section 1.2 and file your work in the reading section of your science notebook. Then, define the following terms in the glossary section of your science notebook:

- | | |
|---|---|
| <input type="checkbox"/> Analytical Chemistry | <input type="checkbox"/> Control Group |
| <input type="checkbox"/> Biochemistry | <input type="checkbox"/> Dependent Variable |
| <input type="checkbox"/> Macroscopic | <input type="checkbox"/> Independent Variable |
| <input type="checkbox"/> Pure Chemistry | <input type="checkbox"/> Hypothesis |

Experiment - Setup A Lab Notebook

Purpose

The purpose of this lab is to familiarize you with how to setup a lab notebook and prepare your lab notebook for use in the course.

Pre-Reading

🌀 Read the background and procedure sections for the “Setup A Lab Notebook” on pg. 12 in *The Home Scientist Chemistry Laboratory Manual*.

Procedure

- ✓ Do the lab entitled “Setup A Lab Notebook” on pg. 12 in *The Home Scientist Chemistry Laboratory Manual*.

Lab Notebook

🌀 Write down on a sheet of paper or type out your notes as you do the experiment. After you are done, print out your lab notes and add them to the lab section of your science notebook.

Lab Questions

- 👉 There are no lab questions for this week.

Online Lab

🌀 There is no online lab scheduled for this week.

Events in Science

Current Events

- 🕒 Find a current events article relating to the field of chemistry and complete the article summary sheet found on pg. 245 of the Appendix. Once you are done, add the sheet to the events section of your science notebook.

Historical Figures

- ⌚ Begin to research the life and work of Dimitri Mendeleev, who originally laid out the first version of the periodic table. You will have five weeks to complete your research. After that, you will have three weeks to prepare a two to three page paper on this scientist and his contributions to the field of chemistry.

Hands-on Activity

Optional Hands-on

- ✂ Use a bit of chemistry to mix up a batch of homemade ice cream! You will need $\frac{1}{2}$ cup of heavy cream, $\frac{1}{2}$ cup of milk, 1 tablespoon of sugar, $\frac{1}{2}$ teaspoon of vanilla, 1 quart size ziploc plastic bag, 2 cups of crushed ice, 1 gallon size ziploc plastic bag, and $\frac{1}{2}$ cup of rock salt. Add the cream, milk, sugar, and vanilla to the quart size baggie. Close the baggie and shake it vigorously to mix well. Next, add the ice and rock salt to the gallon size baggie, mix well, and then nestle the quart size bag into the ice mixture. Seal the large baggie up tightly and begin massaging and shaking the baggies! (*Note—It will take about 10 to 15 minutes for ice cream to form. You can use a towel or oven mitt to hold the large baggie as you shake it, if it gets too cold to handle.*)

Week 1 Supply List

Weekly Experiment	
Supplies from CK01B Chemistry Kit	<input type="checkbox"/> None
Additional Supplies From Home	<input type="checkbox"/> None
Hands-on Activity	
Supplies Needed	<input type="checkbox"/> Heavy cream, Milk, Sugar, Vanilla, 1 Quart size ziploc plastic bag, Crushed ice, 1 Gallon size ziploc plastic bag, Rock salt

Week 1	Unit 1 (Honors Course)				5-Day
Weekly Topic					
→ This week will look at the principles of chemistry.					
	Day 1	Day 2	Day 3	Day 4	Day 5
Textbook and Experiment	<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Section 1.1.	<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Section 1.2.	<input type="checkbox"/> Read the background and procedure sections for the week's lab.	<input type="checkbox"/> Do the "Setup A Lab Notebook" lab on pg. 12 in <i>The Home Scientist Chemistry Laboratory Manual</i> .	<input type="checkbox"/> Do the optional Hands-on Assignment - Homemade Ice Cream.
Writing	<input type="checkbox"/> Add the vocabulary to the glossary section of your science notebook.	<input type="checkbox"/> Answer the assigned questions in the reading section of your science notebook.		<input type="checkbox"/> Record what you have done in the lab section of your science notebook.	<input type="checkbox"/> Complete the lab review questions for the week.
Events in Science	<input type="checkbox"/> Choose one of the Events in Science assignments to do and add your work to the events section of your science notebook.				
Other Notes					

Week 1		Unit 1 (Standard Course)			4-Day
Weekly Topic					
→ This week will look at the principles of chemistry.					
	Day 1	Day 2	Day 3	Day 4	
Textbook and Experiment	<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Section 1.1.	<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Section 1.2.	<input type="checkbox"/> Read the background and procedure sections for the week's lab.	<input type="checkbox"/> Do the "Setup A Lab Notebook" lab on pg. 12 in <i>The Home Scientist Chemistry Laboratory Manual</i> .	
Writing	<input type="checkbox"/> Add the vocabulary to the glossary section of your science notebook.	<input type="checkbox"/> Answer the assigned questions in the reading section of your science notebook.		<input type="checkbox"/> Record what you have done in the lab section of your science notebook.	
Other Notes					

Week 1	Unit 1 (Survey Course)		2-Day
Weekly Topic			
→ This week will look at the principles of chemistry.			
		Day 1	Day 2
Textbook	<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Section 1.1.		<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Section 1.2.
Writing	<input type="checkbox"/> Add the vocabulary to the glossary section of your science notebook.		<input type="checkbox"/> Answer the assigned questions in the reading section of your science notebook.
Events in Science	<input type="checkbox"/> Choose one of the Events in Science assignments to do and add your work to the events section of your science notebook.		
Other Notes			

Week 2 Notes - Matter and Change

Textbook Assignments

Reading

 CK-12 Chemistry Sections 2.1, 2.2, 2.3

Written

After you finish reading, answer questions #1,3,5 in section 2.1, questions #1-4 in section 2.2, and questions #4-7 in section 2.3. File your work in the reading section of your science notebook. Then, define the following terms in the glossary section of your science notebook:


- | | |
|--|--|
| <input type="checkbox"/> Intensive Property | <input type="checkbox"/> Homogeneous Mixture |
| <input type="checkbox"/> Extensive Property | <input type="checkbox"/> Precipitate |
| <input type="checkbox"/> Volume | <input type="checkbox"/> Product |
| <input type="checkbox"/> Distillation | <input type="checkbox"/> Reactant |
| <input type="checkbox"/> Heterogeneous Mixture | <input type="checkbox"/> Phase |

Experiment - Solubility As A Function of Temperature

Purpose

The purpose of this lab is to examine the solubility as a function of temperature


Pre-Reading

 Read the background and procedure sections for the “Solubility as a Function of Temperature” lab on pg. 35 in *The Home Scientist Chemistry Laboratory Manual*.

Procedure

- ✓ Do the lab entitled “Solubility as a Function of Temperature” on pg. 35 in *The Home Scientist Chemistry Laboratory Manual*.

Lab Notebook

 Write down on a sheet of paper or type out your notes as you do the experiment. After you are done, print out your lab notes and add them to the lab section of your science notebook.

Lab Questions

- ✎ Complete the review questions of the “Solubility as a Function of Temperature” lab on pg. 41 in *The Home Scientist Chemistry Laboratory Manual*. Record the answers in the lab section of your science notebook.

Online Lab - Lab 3: Counting by Measuring Mass

Purpose

The purpose of this online lab is to determine the mass of several samples of chemical elements and compounds and to use the data to count atoms.

Pre-Reading

 Print and read the section of the workbook for the “Counting by Measuring Mass” online lab.

Procedure

- ✓ Do the lab entitled “Counting by Measuring Mass” and answer the questions as you work through the online lab.

Lab Notebook

- ☞ Add the completed workbook pages that were printed to the lab notebook.

Events in Science

Current Events

- ⌚ Find a current events article relating to the field of chemistry and complete the article summary sheet found on pg. 245 of the Appendix. Once you are done, add the sheet to the events section of your science notebook.

Historical Figures

- ⌚ Continue to research the life and work of Dmitri Mendeleev.

Hands-on Activity

Optional Hands-on

- ✂ Watch water change from a solid to a liquid to a gas. You will need a cup, ice cubes, a pot, and a thermometer. Fill a small pot halfway with ice cubes. Place the pot on a burner and turn the burner on medium heat. Observe the thermometer as the ice begins to melt and record the temperature once all the ice melts. Continue to heat the water, observing the temperature on the thermometer as it heats up. Once you begin to see the water boiling and observe the presence of steam, record your last temperature measurement. Turn the burner off and remove the pot from the burner.

Week 2 Supply List

Weekly Experiment	
Supplies from CK01B Chemistry Kit	<input type="checkbox"/> Goggles, Beaker-250 mL, Thermometer
Additional Supplies From Home	<input type="checkbox"/> Gloves, Balance (optional), Microwave oven, Oven - baking dish, Refrigerator/freezer, Measuring spoons (optional), Soda bottle- pint/500 mL (empty and clean), Storage container (wide mouth, with lid), Sodium bicarbonate (baking soda), Distilled water
Hands-on Activity	
Supplies Needed	<input type="checkbox"/> Cup, Ice cubes, Pot, Thermometer

Week 2		Unit 1 (Honors Course)			5-Day	
Weekly Topic						
→ This week will look at matter and changes to matter.						
	Day 1	Day 2	Day 3	Day 4	Day 5	
Textbook and Experiment	<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Sections 2.1 and 2.2.	<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Section 2.3.	<input type="checkbox"/> Read the background and procedure sections for the week's lab.	<input type="checkbox"/> Do the "Solubility as a Function of Temperature" lab on pg. 35 in <i>The Home Scientist Chemistry Laboratory Manual</i> .	<input type="checkbox"/> Do the optional Hands-on Assignment - Changes in State.	
Writing	<input type="checkbox"/> Add the vocabulary to the glossary section of your science notebook.	<input type="checkbox"/> Answer the assigned questions in the reading section of your science notebook.	<input type="checkbox"/> Take the Chapter 1 Test from <i>CK-12 Chemistry</i> .	<input type="checkbox"/> Record what you have done in the lab section of your science notebook.	<input type="checkbox"/> Complete the lab review questions for the week.	
Events in Science	<input type="checkbox"/> Choose one of the Events in Science assignments to do and add your work to the events section of your science notebook.					
Other Notes						

Week 2	Unit 1 (Standard Course)			4-Day
Weekly Topic				
→ This week will look at matter and changes to matter.				
	Day 1	Day 2	Day 3	Day 4
Textbook and Experiment	<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Sections 2.1 and 2.2.	<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Section 2.3.	<input type="checkbox"/> Read the background and procedure sections for the week's lab.	<input type="checkbox"/> Do the "Solubility as a Function of Temperature" lab on pg. 35 in <i>The Home Scientist Chemistry Laboratory Manual</i> . OR <input type="checkbox"/> Do the online lab "Counting by Measuring Mass."
Writing	<input type="checkbox"/> Add the vocabulary to the glossary section of your science notebook.	<input type="checkbox"/> Answer the assigned questions in the reading section of your science notebook.	<input type="checkbox"/> Take the Chapter 1 Test from <i>CK-12 Chemistry</i> .	<input type="checkbox"/> Record what you have done in the lab section of your science notebook.
Other Notes				

Week 2		Unit 1 (Survey Course)		2-Day	
Weekly Topic					
→ This week will look at matter and changes to matter.					
		Day 1		Day 2	
Textbook		<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Sections 2.1 and 2.2.		<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Section 2.3.	
Writing		<input type="checkbox"/> Add the vocabulary to the glossary section of your science notebook. <input type="checkbox"/> Take the Chapter 1 Test from <i>CK-12 Chemistry</i> .		<input type="checkbox"/> Answer the assigned questions in the reading section of your science notebook.	
Events in Science		<input type="checkbox"/> Choose one of the Events in Science assignments to do and add your work to the events section of your science notebook.			
Other Notes					

Week 3 Notes - Measurements

Textbook Assignments

Reading

 CK-12 Chemistry Section 3.1, 3.2, 3.3

Written

After you finish reading, answer questions #1-4 in section 3.1, #1-6 in section 3.2, and #1-5 in section 3.3. File your work in the reading section of your science notebook. Then, define the following terms in the glossary section of your science notebook:


- | | |
|---|---|
| <input type="checkbox"/> International System of Units (SI) | <input type="checkbox"/> Accepted Value |
| <input type="checkbox"/> Joule | <input type="checkbox"/> Derived Unit |
| <input type="checkbox"/> Kinetic Energy | <input type="checkbox"/> pH |
| <input type="checkbox"/> Scientific Notation | <input type="checkbox"/> Polarity |
| <input type="checkbox"/> Conversion Factor | <input type="checkbox"/> Accuracy |
| <input type="checkbox"/> Dimensional Analysis | <input type="checkbox"/> Precision |

Experiment - Conductance of Ionic and Molecular Solutes

Purpose

The purpose of this lab is to examine the conductance of ionic and molecular solutes.


Pre-Reading

 Read the background and procedure sections for the “Conductance of Ionic and Molecular Solutes” lab on pg. 42 in *The Home Scientist Chemistry Laboratory Manual*.

Procedure

- ✓ Do the lab entitled “Conductance of Ionic and Molecular Solutes” on pg. 42 in *The Home Scientist Chemistry Laboratory Manual*.

Lab Notebook

 Write down on a sheet of paper or type out your notes as you do the experiment. After you are done, print out your lab notes and add them to the lab section of your science notebook.

Lab Questions

- ✎ Complete the review questions of the “Conductance of Ionic and Molecular Solutes” lab on pg. 48 in *The Home Scientist Chemistry Laboratory Manual*. Record the answers in the lab section of your science notebook.

Online Lab - Lab 2: Names and Formulas of Ionic Compounds

Purpose

The purpose of this online lab is to observe the formation of compounds and write their names and formulas.

Pre-Reading

- 🖨️ Print and read the section of the workbook for the “Names and Formulas of Ionic Compounds” online lab.

Procedure

- ✓ Do the lab entitled “Names and Formulas of Ionic Compounds” and answer the questions as you work through the online lab.

Lab Notebook

- 📁 Add the completed workbook pages that were printed to the lab notebook.

Events in Science

Current Events

- 🕒 Find a current events article relating to the field of chemistry and complete the article summary sheet found on pg. 245 of the Appendix. Once you are done, add the sheet to the events section of your science notebook.

Historical Figures

- 🕒 Continue to research the life and work of Dmitri Mendeleev.

Hands-on Activity

Optional Hands-on

- ✂️ Practice units of measurements using the information in the following post: <https://elementalscience.com/blogs/science-activities/units-of-measurement>.

Week 3 Supply List

Weekly Experiment	
Supplies from CK01B Chemistry Kit	<input type="checkbox"/> Goggles, Beaker-250 mL, Beaker-100 mL, Centrifuge tube-50 mL, Pipettes, Reaction plate 24-well, Spatula, Acetic acid 6M, Ammonia 6M, Hydrochloric acid 6M, Magnesium sulfate, Sodium hydroxide 6M
Additional Supplies From Home	<input type="checkbox"/> Gloves, Digital multimeter (DMM) with probes, Microwave oven, Paper towels, Soda bottle (clean and dry), Sucrose (table sugar), Distilled water
Hands-on Activity	
Supplies Needed	<input type="checkbox"/> None

Week 3		Unit 1 (Honors Course)				5-Day
Weekly Topic						
→ This week will look at units of measurement.						
	Day 1	Day 2	Day 3	Day 4	Day 5	
Textbook and Experiment	<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Sections 3.1 and 3.2.	<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Section 3.3.	<input type="checkbox"/> Read the background and procedure sections for the week's lab.	<input type="checkbox"/> Do the "Conductance of Ionic and Molecular Solutes" lab on pg. 42 in <i>The Home Scientist Chemistry Laboratory Manual</i> .	<input type="checkbox"/> Do the optional Hands-on Assignment - Units of Measurement.	
Writing	<input type="checkbox"/> Add the vocabulary to the glossary section of your science notebook.	<input type="checkbox"/> Answer the assigned questions in the reading section of your science notebook.	<input type="checkbox"/> Take the Chapter 2 Test from <i>CK-12 Chemistry</i> .	<input type="checkbox"/> Record what you have done in the lab section of your science notebook.	<input type="checkbox"/> Complete the lab review questions for the week.	
Events in Science	<input type="checkbox"/> Choose one of the Events in Science assignments to do and add your work to the events section of your science notebook.					
Other Notes						

Week 3		Unit 1 (Standard Course)			4-Day
Weekly Topic					
→ This week will look at units of measurement.					
	Day 1	Day 2	Day 3	Day 4	
Textbook and Experiment	<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Sections 3.1 and 3.2.	<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Section 3.3.	<input type="checkbox"/> Read the background and procedure sections for the week's lab.	<input type="checkbox"/> Do the "Conductance of Ionic and Molecular Solutes" lab on pg. 42 in <i>The Home Scientist Chemistry Laboratory Manual</i> . OR <input type="checkbox"/> Do the online lab "Names and Formulas of Ionic Compounds."	
Writing	<input type="checkbox"/> Add the vocabulary to the glossary section of your science notebook.	<input type="checkbox"/> Answer the assigned questions in the reading section of your science notebook.	<input type="checkbox"/> Take the Chapter 2 Test from <i>CK-12 Chemistry</i> .	<input type="checkbox"/> Record what you have done in the lab section of your science notebook.	
Other Notes					

Week 3	Unit 1 (Survey Course)		2-Day
Weekly Topic			
→ This week will look at units of measurement.			
	Day 1		Day 2
Textbook	<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Sections 3.1 and 3.2.		<input type="checkbox"/> Read <i>CK-12 Chemistry</i> Section 3.3.
Writing	<input type="checkbox"/> Add the vocabulary to the glossary section of your science notebook. <input type="checkbox"/> Take the Chapter 2 Test from <i>CK-12 Chemistry</i> .		<input type="checkbox"/> Answer the assigned questions in the reading section of your science notebook.
Events in Science	<input type="checkbox"/> Choose one of the Events in Science assignments to do and add your work to the events section of your science notebook.		
Other Notes			

Chemistry for High School

Appendix

Additional Supplies from Home Master Supply List

Unit 1: Introduction to Chemistry

Week	Supplies Needed
1	<i>No additional supplies needed</i>
2	Gloves, Balance (optional), Microwave oven, Oven - baking dish, Refrigerator/freezer, Measuring spoons (optional), Soda bottle- pint/500 mL (empty and clean), Storage container (wide mouth, with lid), Sodium bicarbonate (baking soda), Distilled water
3	Gloves, Digital multimeter (DMM) with probes, Microwave oven, Paper towels, Soda bottle (clean and dry), Sucrose (table sugar), Distilled water
4	Gloves, Balance (optional), Foam cups (or similar containers), Freezer, Measuring spoons (if no balance), Sodium chloride (table salt), Sucrose (table sugar), Distilled water, Ice (crushed or chipped)
5	Gloves, Microwave oven, Refrigerator, Soda bottles (empty), Watch or clock with second hand, Distilled white vinegar (supermarket), Graphing paper/calculator/software
6	Gloves, Microwave oven, Oven mitts or tongs, Paper (sheet of copy paper or similar), Paper towels, Refrigerator/freezer, Tablespoon (measuring or standard), Teaspoon (measuring or standard), Sodium bicarbonate (baking soda), Sodium chloride (table salt)
7	Gloves, Cotton swabs, Pencil, Hair dryer (optional), Paper towels, Scissors, Toothpicks-plastic, Transparent tape, Additional felt-tip pens (optional), Isopropyl alcohol (70%, 91%, or 99%)
8	<i>No additional supplies needed.</i>
9	<i>No additional supplies needed.</i>

Unit 2: Bonding and Reactions

Week	Supplies Needed
1	Gloves, Butane lighter (or other flame source), Sheet of white paper
2	Gloves, Butane lighter (or other flame source), Sodium bicarbonate (baking soda)
3	Gloves, Butane lighter (or other flame source), Rubber band, Digital multimeter (optional), Water-distilled
4	Gloves, Microwave oven, Sodium chloride (table salt), Water-distilled
5	Gloves, Paper-white
6	Gloves, Desk lamp or other strong light source, Sheets of white and black paper, Distilled water
7	Gloves, Distilled water
8	Gloves, Soda bottle (2-liter, clean and empty), Vegetable oil
9	Gloves, Freezer, Microwave oven, Ice, Vegetable oil

Unit 3: Water and Equilibrium

Week	Supplies Needed
1	Gloves, Scissors, Toothpicks plastic, Water (distilled)
2	Gloves, Desk lamp or other strong light source, Paper or cloth (black), Water (distilled)
3	Gloves, Balance (optional), Foam cup (with lid), Soda bottle 2-liter (empty), Sodium chloride (table salt)
4	Gloves, Aluminum foil, Digital multimeter (DMM), Knife, Lemon
5	Gloves, Balance (optional), Foam cups (with lid), Ice
6	Gloves, Balance (optional), Foam cup (with lid), Microwave oven, Paper towels, US cent coins
7	Gloves, Foam cup (with lid)
8	<i>No additional supplies needed.</i>

Unit 4: Organic Chemistry and More

Week	Supplies Needed
1	Gloves, Household materials to test (see text), Scissors, Distilled water
2	Gloves, Desk lamp (or other strong light source), Distilled water, Paper, Vinegar-distilled white
3	Gloves, Desk lamp or other strong light source, Sheet of white paper, Toothpicks, Distilled water
4	Gloves, Aluminum foil, Desk lamp or other incandescent light, Fluorescent light source, Foam cups, Paper (white copy or similar), Water-distilled, Watch or clock
5	Gloves, Butane lighter or other flame source, Dishwashing detergent or liquid soap, Drinking glasses or jars (see text), Laser pointer (optional; see text), Milk (whole or 2% homogenized), Smoke source (see text), Sodium chloride (table salt), Soft drink (e.g. club soda or 7-Up), Starch water (see text), Talcum - baby or foot powder, Vegetable oil
6	Gloves, Desk lamp or other bright light source, Clock or watch with second hand, Toothpicks, Newspaper or other printed matter, Distilled water, Graphing paper/calculator/software
7	Gloves, Desk lamp or other strong light source, Foam cups, Paper towel, Starch water (see text), Urine specimen(s) (see text), Vitamin C tablet(s), Water distilled
8	Gloves, Desk lamp or other strong light source, Knife, Paper towels, Specimens (see text), Vinegar - distilled white, Water distilled
9	<i>No additional supplies needed.</i>

Hands-on Activities Master Supply List

Unit 1: Introduction to Chemistry

Week	Supplies Needed
1	Heavy cream, Milk, Sugar, Vanilla, 1 Quart size ziploc plastic bag, Crushed ice, 1 Gallon size ziploc plastic bag, Rock salt
2	Cup, Ice cubes, Pot, Thermometer
3	<i>No supplies needed.</i>
4	Honey, Karo syrup, Liquid dish soap, Water, Vegetable oil, Rubbing alcohol, Lamp oil, Glass jar
5	Blue, brown, and red colored beads or mini-M&M's (at least 30 of each), <i>Atoms and Isotopes</i> game board and cards
6	4 Pipe cleaners, 9 Round beads in three different colors (3 of each color)
7	6 Small balloons, Tape
8	<i>No supplies needed.</i>
9	Sample liquids (oil, fruit juice, water, saltwater, and so on), Ice cube tray, Instant thermometer

Unit 2: Bonding and Reactions

Week	Supplies Needed
1	Cake frosting, Red and yellow bite-sized candies
2	Cake frosting, Red and yellow bite-sized candies
3	Supplies will vary based on the activities you choose to do.
4	Baking soda, White vinegar, Cup
5	<i>No supplies needed.</i>
6	Penny, Water, Eye dropper
7	Dry ice, Cup, Water, Dish soap, 2 Plates
8	Medicine dropper, 2 Mini-marshmallows
9	Sample liquids (oil, fruit juice, water, saltwater, and so on), Ice cube tray, Instant thermometer

Unit 3: Water and Equilibrium

Week	Supplies Needed
1	Ziploc baggie, Vinegar, Baking soda, Paper towel, Scale
2	Glass jar, Pipe cleaner, String, Pencil, Water, Borax
3	3 Cups, Water, Food coloring, Salt, Instant-read thermometer
4	Water, Food coloring, 3 Clear cups

5	Epsom salts, Water, Cup, Instant-read thermometer
6	Hydrogen peroxide, Dish soap, Yeast, Water, Bottle, Cup
7	<i>No supplies needed.</i>
8	Balloon, Scissors

Unit 4: Organic Chemistry and More

Week	Supplies Needed
1	Head a red cabbage, Variety of items from your kitchen to test (such as lemon juice, baking soda, soda, or detergent)
2	White vinegar, Ammonia, Water, Cabbage juice indicator, (<i>from week 1</i>) Eyedropper, Cup
3	Piece of silver, Aluminum foil, Heat-resistant container, Hot water, Baking soda, Salt
4	LED bulb, 4 Lemons (fresh and juicy), 4 Clean pennies, 4 Galvanized nails, 5 Alligator clips, Wire
5	Timer, 32 Bite-sized pieces of food, such as raisins, cereal puffs, or M&M's
6	Glue (Elmer's white or clear, gel will work), Food coloring, Cornstarch, 2 Small mixing cups, Plastic spoon, Water, Borax
7	Absorbent material (coffee filter or white cotton material both work well), Rubbing alcohol (at least 80% Isopropyl or above), Eyedropper, Coffee can (or a wide-mouthed jar or bowl), Rubber band, Permanent markers in a variety of colors, Newspaper
8	Sand, Rubbing alcohol, Baking soda, Sugar, Heat proof surface, Bowl, Matches
9	Sliced fruit (a banana, strawberry, kiwi, or tomato will all work), Dish soap, Salt, Ice-cold Isopropyl alcohol (70% or higher), Zipper-style plastic bag, Coffee filter, Funnel, Wooden coffee stirrer, Test tube (or clear glass)