## APOLOGIA CHEMISTRY Level 350







Thank you for downloading this sample of Sonlight's Science 350 Schedule Plus (referred to as the Science Schedule Plus at this level). In order to give you a full perspective on our Instructor's Guides, this sample will include parts from every section that is included in the full IG.

Here's a quick overview of what you'll find in this sample.

- A Quick Start Guide START HERE
- A 3-week Schedule & Detailed Teaching Notes
- Sample Experiment Forms

#### SONLIGHT'S "SECRET" COMES DOWN TO THIS:

We believe most children respond more positively to great literature than they do to textbooks. To properly use this sample to teach your student, you will need the books that are scheduled in it. We include all the books you will need when you purchase a package from sonlight.com.

Curriculum experts develop each IG to ensure that you have everything you need for your homeschool day. Every IG offers a customizable homeschool schedule, complete lesson plans, pertinent activities, and thoughtful questions to aid your students' comprehension. It includes handy teaching tips and pointers so you can homeschool with confidence all year long.

If you need any help using or customizing our IGs, please reach out to our experienced homeschool advisors at <u>sonlight.com/advisors</u>.

We hope you enjoy using this sample. For even more information about Sonlight's IGs, please visit: <u>sonlight.com/ig</u>. It would be our pleasure to serve you as you begin your homeschool journey. If you like what you see in this sample, visit <u>sonlight.com/science</u> to order your Science package.

**Blessings!** 

**Sarita Holzmann,** Co-founder and president of Sonlight Curriculum



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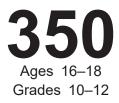
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## Science

Schedule Plus for Apologia Chemistry

By the Sonlight Team

Sonlight Curriculum<sup>®</sup> Science 350 "Schedule Plus for Apologia Chemistry," Sixteenth Edition

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"Do to others what you would have them do to you" (Matthew 7:12).

"The worker is worth his keep" (Matthew 10:10).

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#### NOTE TO PURCHASER

Sonlight Curriculum, Ltd. is committed to providing the best homeschool resources on the market. This entails regular upgrades to our curriculum and to our Instructor's Guides. This guide is the 2020 Edition of the Sonlight Curriculum® Science 350 "Schedule Plus. for Apologia Chemistry." If you purchased it from a source other than Sonlight Curriculum, Ltd., you should know that it may not be the latest edition available.

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- Sonlight Curriculum® "Apologia Chemistry"
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# INSTRUCTOR'S GUIDES

## Special features of Sonlight's Science Schedule Plus Guides:

#### A Weekly Schedule & Detailed Teaching Notes

All your books and experiments are fully scheduled for the entire year. The weekly schedules let you see your entire week at a glance. The first column lists the titles of each book or assignment. Follow either the Textbook OR the CD-ROM version (but not both). The remaining columns include the day-byday assigned pages or tasks.

#### 2 Organizational Tools to Help You Plan Ahead

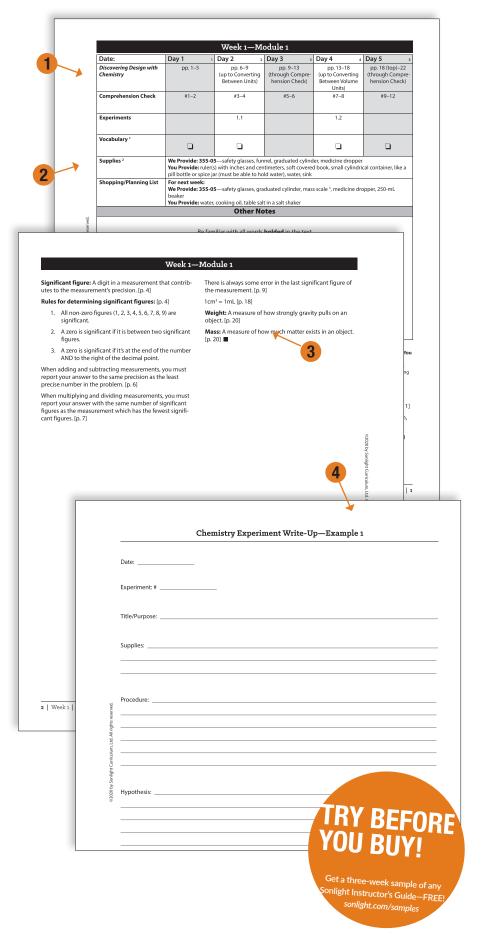
See at a glance the supplies you need for experiments this week and the following week. Know what supplies you'll find in the Sonlight Science Kits, and which household items you'll want to have ready.

#### Extra Helps

Immediately following each week's schedule page, you will find vocabulary your children will need to memorize. Your primary task: read the assigned pages in the Textbook or on the computer (CD-ROM) listed in the schedule, then memorize the vocabulary terms. You'll find comprehension questions throughout the textbook or CD-ROM as well as tests for each module. Tests can be printed out from the CD-ROM or sold as a separate packet with the Textbook version.

#### Experiment Forms

The back section of the Science Schedule Plus includes experiment write-ups to use in conjunction with the labs you complete each week. Use the examples to help your student record pertinent information from their labs. Feel free to copy as many as your student needs. Each experiment is scheduled out for you.



## At a Glance

Our goal in teaching science to high school students is to make them aware of the amazing realities around them and how complex and detailed this world is in which we live. You may want to join your student in this adventure, offer support as needed, or allow him to work through this book on his own since it is written to the student. Many of the science concepts he has been exposed to in the past will now come into sharper focus with more detailed study in certain disciplines.

- *Exploring Creation With Chemistry* includes a basic study in the field of chemistry.
- It is a good place to start for students in high school.
- We stress mastery of concepts and vocabulary at this level.

Your student:

- Will be introduced to atoms and molecules, chemical and physical changes, stoichiometry, atomic and molecular structure, acids and bases, as well as other related topics, along with the corresponding vocabulary.
- Will have concepts reinforced through the labs.
- Can use this class as a stepping-stone into Advanced Chemistry.

#### We include:

- Sample Experiment Forms to be used as you work through the scheduled labs.
- Weekly vocabulary lists.
- A weekly planning list to determine the lab materials needed for the coming week, as well as a look ahead to the needed items for the next week.

## An Overview of this Year's Studies

Each of the 16 modules is broken down into daily readings. Most modules are scheduled to be completed in two weeks, with four modules taking three weeks. It is important to read the introductory pages in the textbook and the Solution's Manual.

In each week's schedule, we have noted the science supplies needed from the Apologia Chemistry Supplies Kit (**350–15**). You may have also purchased the optional rubber gloves. If you do not own the Apologia Chemistry Supplies Kit or the gloves, the book gives some other suggestions, such as glasses to take the place of beakers. Please heed the warnings about breakage. Also, note the instructions on cleaning and the reuse of household items after using them in an experiment. You will find this information on page vii of the textbook. You will need some type of mass scale to do those experiments. We also strongly recommend rubber gloves as some of the materials (such as toilet bowl cleaner and lye) can burn your skin. To enable you to plan ahead, we will alert you to supplies we think you might need to purchase before you do the next week's experiments. We list these items the week before the experiment. We hope this feature will enable you to feel wellprepared and organized for your science adventure!

Your student will want to use a scientific calculator for this class. It is most helpful if it at least has the option to use parentheses, and put in exponents in addition to other basic functions. If you would like to use the same calculator for physics, then it should also have sin, cos, tan<sup>-1</sup>, sin<sup>-1</sup>, and square root capabilities. Tips for using the calculator follow, along with notes about typical pitfalls for many students.

You will also find **Experiment Forms** at the back of this guide. Guidelines for how you might expect your student to use them are in this Introduction. You are welcome to copy these as needed for your family's use. Or you may prefer to come up with your own form.

#### Testing

There is a test for each of the 16 modules throughout the year. Because of this, we have not scheduled any of the quarterly tests as this would have taken away some of the extra time given for some of the harder modules. You may add a quarterly test after every four modules, if you prefer. One way of scheduling would be to complete the three week modules in two weeks and placing a quarterly test after every fourth module.

While we do feel that the quarterly tests are a useful evaluation tool, we don't feel they are "required." Certainly the end-of-module study guide questions and tests are sufficient to determine your student's understanding of the material. If you are concerned about long-term retention, you may find the quarterly tests to be helpful.

## **Tips for Using your Calculator**

It is very important that you become familiar with how to use the calculator due to the large amount of math in this course. Many times the final answer is wrong, not because of the set-up, but because it was entered into the calculator incorrectly.

There are numerous calculators on the market. Not all scientific calculators are marked the same way or have all the same options. Therefore the following may need to be adapted for yours in particular.

Here we offer help with the most common errors. We have not included units in these demonstration equations so you can generalize for any similar math set-up. However, it is very important to keep track of your units when doing the actual problem.

#### **Basics**

Whether you have a standard scientific calculator or a graphing calculator, you will need to find:

- parenthesis ()
- the EE, EXP, 10x (or something similar) button. Often any one of these might be used with the "2<sup>nd</sup>" or "shift" button.

**4** | Section One | Apologia Chemistry

- $x^2$  = this button will square the number you enter. i.e.  $15^2 = 15 x^2 = 225$
- $\wedge$  = this is used when you have to multiply a number by itself more than twice: i.e.,  $15^3 = 15 \land 3 = 3375$ (or  $3.4 \times 10^3$ ) using significant figures
- Square root  $\sqrt{}$
- ANS (answer key; again may be in conjunction with the yellow "2<sup>nd</sup>" key)

#### **Before You Begin**

First check to make sure your calculator is in DEG (degree) mode. You can usually see the DEG on the screen once it is turned on. If it says anything different, check your manufacturer's directions for changing it back to Degree mode.

#### Let's Practice

A number is made negative by using the (-) or (+/-) button which is often found by the decimal point. Do not use the subtraction sign to designate a negative number.

You will enter multiple numbers that are in scientific notation ( $5.6 \times 10^6$ ). This is quickly entered by

#### 5.6EE6

Remember to get the EE, EXP, 10x or whatever your calculator uses for this function, you may need to push the "2nd" button or "shift" button first.

Try it as a number with a negative exponent:  $5.6 \times 10^{-6}$ 

5 . 6 EE (-) 6

Remember the (-) is not the subtraction sign.

Some students are in the habit of using the "x 10  $^{\prime\prime}$  keys for these same numbers, but that is not recommended since it oftentimes results in wrong answers unless the student remembers to use parentheses when using that process. For an understanding of what is happening, the number 4.5 x 10^3 is telling the calculator it has two numbers that are being multiplied together (4.5 is multiplied by 10^3), whereas 4.5 EXP 3 is identifying the entry as one complete number.

#### **Equations**

$$\frac{0.15 \cdot 32}{27} = .15 \times 32 \div 27 =$$

And your answer should be .17777 rounded to .18

However, when you have multiple numbers in the denominator it is most efficient to use parentheses.

$$\frac{0.15 \cdot 32}{27 \cdot .30} = (.15 \times 32) \div (27 \times .30) = .59$$

Many students want to put this type of problem in as follows:  $.15 \times 32 \div 27 \times .30 =$  but their answer will be wrong (.053) because you have just multiplied .30 to the answer so far rather than dividing it out since it is in the denominator.

Your other option is to remember what you are doing (dividing out each number in the denominator).

$$15 \times 32 \div 27 \div .30 = .59$$

#### Square Root

If you need to get the square root of the answer above (once you obtain the .59) then press the  $\sqrt{}$  button (which may first require pressing the "2<sup>nd</sup>" or "shift" button). Then press the ANS button (which may first require pressing the "2<sup>nd</sup>" or "shift" button). This last button will take your previous answer and solve for the square root.

Remember your parentheses help to separate sections. It is also important to close the parentheses.

One last try ...

$$\frac{1.14^2}{.121 \cdot .234^3} = .14 \text{ x } 2 \div ( .121 \text{ x } .234 \wedge 3 ) = 838$$

## **Corrections and Suggestions**

Since we at Sonlight Curriculum are constantly working to improve our product development, we would love it if we could get you to help us with this process.

Whenever you find an error anywhere in one of our Instructor's Guides, please check our updates page for the latest information at <u>www.sonlight.com/curriculum</u> <u>-updates</u>. Report new information by sending a short e-mail to: IGcorrections@sonlight.com. It would be helpful if the subject line of your e-mail indicated where the problem is. For instance, "Apologia Chemistry Schedule Plus/Section Two/Week 1/Schedule."

If while going through our curriculum you think of any way we could improve our product, please e-mail your suggestions to: IGsuggestions@sonlight.com. If you know of a different book we should use, if you think we should read a book we assign at a different point in the year, or if you have any other ideas, please let us know.

### How to Use the Experiment Forms

#### Question/Title

This usually comes directly from the title of the experiment/lab title at the top of the experiment in the book. It may help to put it into a question so you can fit the pieces together when you get to the inference at the end. If the title isn't revealing enough, make sure you read the experiment carefully all the way through. Then look at the subheading and read the paragraph preceding the experiment. All those things will help you write a more informative title.

#### Materials

List those materials that help you identify the experiment.

#### Method

Briefly write down what is to be done during this experiment. It does not need to restate each step as listed in the book, as you should know what the experiment involves. If there are several parts to the procedure, write each down. **For example:** If you are to hold a comb just above small pieces of aluminum foil first without pulling the comb through your hair and then again after pulling the comb through your hair, write both parts down. Do not skip a part of the procedure even if you know nothing will happen.

#### Hypothesis

A hypothesis is an educated guess. Often you know what should happen after reading the experiment. Still, write down what you expect to happen. You do not need to write "why" because that will come later.

Do not add inference to your hypothesis. For instance: "The steady stream of water will bend toward the

charged comb because the partial positive charges are attracted to the negative charge in the comb whereas the steady stream of oil will not bend because it is a purely covalent compound ..."

Instead write down just what you expect to see.

"The steady stream of water will bend toward the charged comb, however there will be no change in the steady stream of oil."

#### **Observation**

Be detailed. Write down what you see in more than general terms.

For instance: to say something bubbled is not enough. That statement can cover small bubbles forming in a substance to bubbling so rapidly and violently it comes to the top of the beaker and spills over! So, you shouldn't use the same description for both of these scenarios. It is important to be detailed in your descriptions.

"The toilet bowl cleaner quickly foamed approximately halfway up the beaker where it stayed as it continued to react with the eggshell." –Or– "Once the yeast was added and the beaker swirled, then the reaction included large bubbles which rose quickly until they hit the watch glass and still pushed out of the spout to the outside of the beaker. Much of the yeast could still be seen sitting on the top of the bubbles."

#### Inference

This is the heart of the experiment. So far you wrote down what you were looking for (question), what you used (materials), what you did (procedure), what you expected to happen (hypothesis), and what actually did happen (observation/data). Now it is time to write up what you learned. This is not a place to say "... it is just as I expected" Or "... my hypothesis was correct." Write what you actually learned by tying your question and hypothesis together and then looking at your data.

Often you will find the information just following the experiment. The authors are careful to help you see what you should have learned. But sometimes you have to remind yourself what you were looking for. And you need to be complete.

To say that the yeast sped up the reaction, but nothing more, is not enough. Yeast doesn't necessarily cause every reaction it joins to speed up. You should mention that the yeast was the catalyst that sped up the decomposition of hydrogen peroxide while it didn't get used up in the process. This information could actually be found in the title of that particular experiment (14.2).

The point of an experiment is to demonstrate and reinforce a concept you have learned in a particular section of your chemistry book. Take advantage of spending the time to see what you are supposed to be learning from each experiment. If you remember your experiments, you can refer back to them when reviewing the concepts. Remember the experiments are not put there for something to do, but rather to apply what you have learned in the written word by seeing it in action. ■

350–15 (Apologia Chemistry Supplies Kit) Item	Week(s) Used
Safety glasses	1, 2, 3, 4, 5, 9, 10, 11, 14, 16, 19, 20, 22, 23, 25, 26 27, 28, 31, 32, 33, 35, 36
Balloons	1, 16, 25
100-ml beaker	3, 4, 20, 22, 23, 31, 32, 33
250-ml beaker	3, 4, 20, 22, 23, 26, 31, 33
Watch glass	3, 19, 32
Mass scale	3,11, 16, 20, 22, 25, 27, 28
Stirring rod	3, 4, 14, 19, 20, 22, 31, 35
9 volt battery	3
Insulated wire	3, 36
Funnel	4, 16, 22
Filter paper	4, 22
Alcohol burner and stand	4, 20, 22, 26, 31
Aluminum foil	5
Styrofoam cups	9, 27
Test tubes	10, 19, 22, 31, 33
Test tube brush	10,
50-ml graduated cylinder	11, 14, 16, 20, 22, 23, 25, 32
Eyedroppers	14, 20, 33, 35
Blue litmus paper	19
Red litmus paper	19
Thermometer	22, 23, 25, 26, 27, 28
lodine	35

		Week 1—Mo	odule 1		
Date:	Day 1 1	Day 2 2	<b>Day 3</b> 3	Day 4 4	Day 5 ₅
Exploring Creation with Chemistry	pp. 1–7 (top)	pp. 7 ("Manipulat- ing Units")–13 (through "On Your Own")	pp. 13 ("More Complex")–19 (through "On Your Own")	pp. 19 ("Making Measure- ments")–25 (mid-page)	pp. 25–29
On Your Own		1.1–1.5	1.6–1.11	1.12	1.13–1.14
Experiments	1.1 and 1.2				
Vocabulary <sup>1</sup>					
Supplies <sup>2</sup>		<b>5</b> —2 large balloons, s stick, string, tape, tall		nk.	
Shopping/Planning List	For next week: We Provide: 350-1 You Provide: book,	<b>5</b> —safety glasses. Metric/English ruler(s	.)		
		Other No	tes		
1. Define vocabulary terms and	names found in each da	swer will be consid	ered incorrect [p. 5]		
2. When supplies are listed as "I provide:" they are materials you Vocabulary   Importan	a can generally find arou	nd your home.	<b>leter:</b> The metric u		
<b>Chemistry:</b> The study of r		·	oot: The English ur	-	
Matter: Anything that has	-		olume: A measure		

occupies. [p. 6]

 $(1 \text{ cm}^3 = 1 \text{ mL}). [p. 17]$ 

Liter: The metric unit for volume. [p. 6]

Gallon: The English unit for volume. [p. 6]

1 cubic centimeter is the same as 1 millimeter

Meniscus: The curved surface of a liquid. [p. 21]

Seconds: The metric and English units for time. [p. 6]

Gram: The metric unit for mass. [p. 6]

**Mass:** Measures how much matter exists in an object. [p. 6]

**Weight:** Measures how hard gravity pulls on that object [p. 6]

Slug: The English unit for mass. [p. 6]

Pounds: The English unit for weight. [p. 6]

Newton: The metric unit for weight. [p. 6]

**Accuracy:** An indication of how close a measurement is to the true value. [p. 21]

#### Week 1—Module 1

**Precision:** An indication of the scale on the measuring device that was used. [p. 21]

#### **Significant figures:**

- 1. All nonzero digits are significant.
- 2. All zeros in front of the first 1-9 digit are not significant.
- 3. All zeros between two significant figures are significant.
- 4. All zeros at the end of a number *and* to the right of the decimal point are significant. [p. 23]

#### **Scientific Notation Rules:**

- 1. Place only one digit (not a zero) in front of the decimal point.
- 2. Only significant figures go in front of the multiplication sign. [p. 26]

## Adding and Subtracting with Significant Figures: When adding and subtracting measurements, round your an-

swer so that it has the same precision as the least precise measurement in the calculation. [p. 28]

#### Multiplying and Dividing with Significant Figures:

When multiplying and dividing measurements, round the answer so that it has the same number of significant figures as the measurement with the fewest significant figures. [p. 28]

The definitions of the prefixes in the metric system and the integers used in fractions are not considered when determining the significant figures in the answer. [p. 29]

		Week 2—M	odule 1			
Date:	Day 1 6	Day 2 7	Day 3 8	Day 4 9	Day 5	1
Exploring Creation with Chemistry	pp. 30–33 (through "On Your Own")	pp. 33 (begin at "What about the other…")–37	pp. 41–43 Review #1–14 Practice #1–11	p. 615 Extra Practice #1–13; Review for Test	Module 1 Test	t
On Your Own	1.15–1.16	1.17				
Experiments	1.3					
Vocabulary						
Supplies	We Provide: 350-15 You Provide: book,	—safety glasses. Metric/English ruler(s	;).	I		Ī
	2 pieces of wire <sup>2</sup> , sat You Provide: measu	<sup>f</sup> ety glasses, rubber g Iring spoon, lye <sup>1</sup> , whi	0-ml beaker, watch gl loves (if purchased se ite vinegar, red cabba ing soda, sugar, scisso	parately). ge, water, pot for boi	ling water,	er
	rubber gioves.	Other No	toc			
		Other No	iles			

1. Note for Experiment 2.1 for next week. Your text states the lye is commonly sold with the drain cleaners in hardware stores and supermarkets. Make sure that your bottle/container is labeled 100% lye or something similar. If you cannot find lye, you can order it online. It may be listed under its chemical name, sodium hydroxide.

2. Experiment 2.2 for next week. They mention an optional set up. You can find a cap that will fit 9V batteries at stores like Radio Shack. The cap has wires that will replace the need for wires, scissors or wire cutters, and tape listed above.

**Vocabulary** | Important Terms, Facts, and Principles

**Three Temperate Scales:** Fahrenheit, Celsius, and Kelvin. [p. 31]

If ice and water are thoroughly mixed: the temperature of the mixture will stay the same (0.0°C or 32.0°F), regardless of the amount of ice or water present. [p. 32]

Boiling water is always at the same temperature:  $(100.0^{\circ}C \text{ or } 212.0^{\circ}F$  at standard atmospheric pressure) whether it is boiling rapidly or hardly boiling at all. [p. 32]

**Absolute temperature scale:** Kelvin temperature scale is described as an absolute temperature scale because you can never get to or go below 0 Kelvin. [p. 33]

**Hypothesis:** An educated guess that attempts to explain some aspect of the world around us. [p. 35]

**Theory:** A hypothesis that is confirmed by more rigorous experimentation. [p. 35]

Scientific Law: A theory that has been confirmed over and over again by experimentation. [p. 35] ■

ChemistryI (through "On Your Own")("Elements")–54 (through "On Your Own")pounds")–57 (through "On Your Own")I (through "On Your Own")On Your Own2.12.2–2.42.5–2.62.7–2.82.9Experiments2.112.2–2.42.5–2.62.7–2.82.9VocabularyImage: Comparison of the second of the s	Date:	Day 1 11	Day 2 12	Day 3 13	Day 4 14	Day 5 11
Experiments2.11Image: Constraint of the second secon		(through	("Elements…")–54 (through	pounds")–57 (through	(through	pp. 63–66 (through "On Your Own")
Vocabulary Image: Constraint of the second seco	On Your Own	2.1	2.2–2.4	2.5–2.6	2.7–2.8	2.9
Supplies We Provide: 350-15—100-ml beaker, 250-ml beaker, watch glass, mass scale, stirring rod, 9-volt beaker, 250-ml beaker, watch glass, mass scale, stirring rod, 9-volt beaker, 2 pieces of wire <sup>2</sup> , safety glasses, rubber gloves (if purchased separately).   You Provide: measuring spoon, lye <sup>1</sup> , white vinegar, red cabbage, water, pot for boiling water, measuring cup, stove, distilled water, baking soda, sugar, scissors <sup>2</sup> , tape <sup>2</sup> (electrical tape is best), rubber gloves.   Shopping/Planning List For next week:	Experiments	2.11				2.2 <sup>2</sup>
2 pieces of wire <sup>2</sup> , safety glasses, rubber gloves (if purchased separately).   You Provide: measuring spoon, lye <sup>1</sup> , white vinegar, red cabbage, water, pot for boiling water, measuring cup, stove, distilled water, baking soda, sugar, scissors <sup>2</sup> , tape <sup>2</sup> (electrical tape is best), rubber gloves.   Shopping/Planning List For next week:	Vocabulary					
	Supplies	<b>You Provide:</b> measuring spoon, lye <sup>1</sup> , white vinegar, red cabbage, water, pot for boiling water, measuring cup, stove, distilled water, baking soda, sugar, scissors <sup>2</sup> , tape <sup>2</sup> (electrical tape is best),				
(such as a stove or alcohol burner), safety glasses. <b>You Provide:</b> sand, table salt, water, teaspoon, denatured alcohol <sup>3</sup> if using the alcohol burner.	Shopping/Planning List	For next week: We Provide: 350-15—100-ml beaker, 250-ml beaker, funnel, filter paper, stirring rod, heat source (such as a stove or alcohol burner), safety glasses.				
Other Notes		Tour rovide. sand, c				

1. Note for Experiment 2.1 for Monday of this week. Your text states the lye is commonly sold with the drain cleaners in hardware stores and supermarkets. Make sure that your bottle/container is labeled 100% lye or something similar. If you cannot find lye, you can order it online. It may be listed under its chemical name, sodium hydroxide.

2. Experiment 2.2 for Friday of this week. They mention an optional set up. You can find a cap that will fit 9V batteries at stores like Radio Shack. The cap has wires that will replace the need for wires, scissors or wire cutters, and tape listed above.

3. If using an alcohol burner instead of a stove, you will need to purchase denatured alcohol to fuel the alcohol burner. You may be able to purchase this at your local hardware store.

#### Vocabulary | Important Terms, Facts and Principles

**Continuous theory of matter:** The concept once thought that substances were composed of long, unbroken blobs of matter. [p. 45]

**Discontinuous theory of matter:** The concept that matter is composed of tiny individual particles. [p. 46]

**The Law of Mass Conservation:** Matter cannot be created or destroyed; it can only change forms. [p. 46]

**Decomposition:** The process by which a substance is broken down into it constituent elements. [p. 50]

**Element:** Any substance that cannot be broken down (decomposed) into simpler components. [p. 50]

Even though hydrogen is left of the jagged line, it is always considered a nonmetal. [p. 53]

**Metalloids:** Elements that have some metal properties and some nonmetal properties. [p. 53]

**Compound:** Substances that can be decomposed into elements by chemical means. [p. 54]

**The Law of Definite Proportions:** The proportion of elements in any compound is always the same. [p. 54]

**Dimensionless quantities:** Numbers that have no units. [p. 57]

#### Week 3—Module 2

**The Law of Multiple Proportions:** If two elements combine to form different compounds, the ratio of masses of the second element that react with a fixed mass of the first element will be a simple, whole-number ratio. [p. 57]

Atoms: The basic building blocks of matter. [p. 61]

**Element:** A substance that consists of identical atoms. [p. 61]

Molecule: When atoms join together. [p. 61]

**Compound:** (second definition) A substance that consists of identical molecules. [p. 61]

**lonic compound:** A compound contains at least one metal atom and at least one nonmetal atom. [p. 66]

**Covalent compound:** A compound that is made up solely of nonmetal atoms. [p. 66] ■

Date:	
Experiment: #	
Title/Purpose:	
Supplies:	
Procedure:	
Hypothesis:	

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Data/Observation	
Inference: (What was learned)	

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#### Date:

#### Experiment: #

Purpose (from the introduction):

Supplies:

#### **Observation/Data:**

(what happened)

#### **Conclusion:**

(what was learned)

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