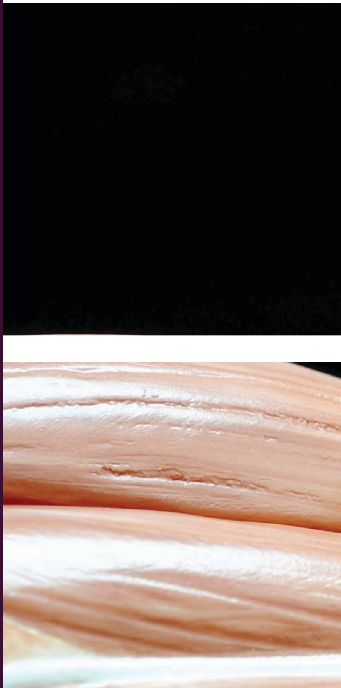


ADVANCED BIOLOGY

Level 550

SCHEDULE PLUS





Thank you for downloading this sample of Sonlight's Science 550 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 sonlight.com/advisors.

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

Blessings!

Sarita Holzmann,
Co-founder and president
of Sonlight Curriculum

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Science

Advanced Biology Schedule Plus

By the Sonlight Team

Sonlight Curriculum® Science 550 “Advanced Biology Schedule Plus,”
Twelfth 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 550 “Advanced Biology Schedule Plus.” If you purchased it from a source other than Sonlight Curriculum, Ltd., you should know that it may not be the latest edition available.

This guide is sold with the understanding that none of the Authors nor the Publisher is engaged in rendering educational services. Questions relevant to the specific educational or legal needs of the user should be addressed to practicing members of those professions.

The information, ideas, and suggestions contained herein have been developed from sources, including publications and research, that are considered and believed to be reliable but cannot be guaranteed insofar as they apply to any particular classroom or homeschooling situation.

The Authors and Publisher specifically disclaim any liability, loss, or risk, personal or otherwise, incurred as a consequence directly or indirectly of the use and application of any of the suggestions or contents of this guide.

Printed in the United States of America.

For the latest information about changes in this guide, please visit www.sonlight.com/curriculum-updates. Please notify us of any errors you find not listed on this site. E-mail corrections to IGcorrections@sonlight.com and any suggestions you may have to IGsuggestions@sonlight.com.

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INSTRUCTOR'S GUIDES

SCIENCE

Special features of Sonlight's Science Schedule Plus Guides:

1 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-by-day 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.

3 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.

4 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.

Week 1—Module 1					
Date:	Day 1	Day 2	Day 3	Day 4	Day 5
Discovering Design with Chemistry	pp. 1–5	pp. 6–9 (up to Converting Between Units)	pp. 9–13 (through Comprehension Check)	pp. 13–18 (up to Converting Between Volume Units)	pp. 18 (top)–22 (through Comprehension Check)
Comprehension Check	#1–2	#3–4	#5–6	#7–8	#9–12
Experiments		1.1		1.2	
Vocabulary ¹	☐	☐		☐	☐
Supplies ²	We Provide: 355-05—safety glasses, funnel, graduated cylinder, medicine dropper You Provide: ruler(s) with inches and centimeters, soft covered book, small cylindrical container, like a pill bottle or spice jar (must be able to hold water), water, sink				
Shopping/Planning List	For next week: We Provide: 355-05—safety glasses, graduated cylinder, mass scale ³ , medicine dropper, 250-mL beaker You Provide: water, cooking oil, table salt in a salt shaker				
Other Notes					

Do familiar with all words **bolded** in the text.

Week 1—Module 1

Significant figure: A digit in a measurement that contributes to the measurement's precision. [p. 4]

Rules for determining significant figures: [p. 4]

- All non-zero figures (1, 2, 3, 4, 5, 6, 7, 8, 9) are significant.
- A zero is significant if it is between two significant figures.
- A zero is significant if it's at the end of the number AND to the right of the decimal point.

When adding and subtracting measurements, you must report your answer to the same precision as the least precise number in the problem. [p. 6]

When multiplying and dividing measurements, you must report your answer with the same number of significant figures as the measurement which has the fewest significant figures. [p. 7]

There is always some error in the last significant figure of the measurement. [p. 9]

1 cm³ = 1 mL [p. 18]

Weight: A measure of how strongly gravity pulls on an object. [p. 20]

Mass: A measure of how much matter exists in an object. [p. 20] ■

Chemistry Experiment Write-Up—Example 1

Date: _____

Experiment: # _____

Title/Purpose: _____

Supplies: _____

Procedure: _____

Hypothesis: _____



At a Glance

As your student embarks upon a more advanced study of the human body, they will be amazed at how intricately we are created and how each system functions. What is also astounding is that there is still so much we don't know about how everything works together. Almost weekly there is a news article directly related to new research or an amazing and complex discovery that should cause us to be filled with wonder. There is no question that we are "fearfully and wonderfully made" (Ps. 139:14).

You may want to join your children in this adventure, offer support as needed, or allow them to work through this book on their own since it is written to the children. Some of the science concepts they have been exposed to in the past will now come into sharper focus with more detailed study in certain disciplines.

- The "Advanced Biology Schedule Plus" is an upper high school level course. The material in *The Human Body*, in conjunction with *Exploring Creation With Biology*, make up an advanced placement course.¹ According to Dr. Wile, before attempting this material your children must have the foundation from a first-year biology course, as well as a first-year chemistry course.
- We stress understanding of the systems and vocabulary at this level.

Your student:

- Will learn the 11 major systems, and what each entails, that make up the human body.
- Will have information reinforced through the labs and *The Anatomy Coloring Book*.
- Should increase proficiency at using a microscope and identifying major organs through dissection.

We include

- A sample lab write-up form to be used as you work through the scheduled microscope work. Please make enough copies for your student to complete the assignments throughout the year.
- Weekly vocabulary lists gathered in one place.
- 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.

1. Advanced Placement is a registered trademark of the College Board, which was not involved in the production of, and does not endorse, this product.

An Overview of this Year's Studies

Each of the 16 modules is broken down into daily assignments. Most modules are scheduled to be completed in two weeks, with four modules taking 3 weeks. It is important to read the introductory pages from the front of the text book and in the Solutions Manual. It may seem some assignments are longer than others, but this was designed to keep similar material together, or because a shorter section was particularly more involved.

Vocabulary

There are many vocabulary words found in this course. It may be helpful to put them on flash cards as you work through the lessons each day. Then your children can review these cards each day before starting the next lesson. At the end of the module, when it is time to do the vocabulary in the study guide, the words already will be very familiar. Some additional words from the module were added to the vocabulary section in the schedule because they are terms your student may come across again in other courses, or are generally used vocabulary that may be helpful to know.

Supplies

For each experiment you will find a list for the materials needed for the week and the materials looking ahead to the next week. The materials fall under three main groups: the microscope; the supplies specific to this biology course; and the dissection supplies. If you do not already own the dissection kit from a general biology course, you will want to purchase it. It is item #SS111.

There is also *The Anatomy Coloring Book* that is integral to this course. You will find it scheduled throughout the year and your student will need a set of colored pencils to complete those assignments.

Note

There is a histology link for the slides at <http://www.siuedu/~dking2/index.htm>. Once on the site, you can search for a slide you are most interested in seeing.

This is an excellent site to aid your children as they look at the various slides in the text. To help verify what your children actually see, the site provides a detailed and labeled view of most slides. In addition, with some images in the link, there is a narrative that provides added explanation about the organelles and tissue viewed. The images on the site are categorized according to body systems.

Review of *Fearfully and Wonderfully Made*

This book is an excellent aid to your children as they study *The Human Body: Fearfully and Wonderfully Made* by Dr. Jay Wile and Marilyn Shannon. Philip Yancy and Dr. Paul Brand do a remarkable job leading the reader through the function of the body as it relates to the believer as a part of

the body of the church. Dr. Brand pulls from his experiences in India practicing in a leprosy colony and his vast medical knowledge and background to place the reader in the world of medicine, hurt, and healing while using detailed human anatomy and physiology as the glue to give shared meaning to it all. The reader is taken through eye-witness accounts of God’s healing hand through medicine and miracles. The book allows the reader to experience the desperation of the physician and patient and the struggle between life and death. The inter-related function of many parts forming a whole, as Paul discusses the body in I Corinthians 12:12-30, is also clearly and precisely woven and illustrated throughout the book.

It is not practical to divide the book into reading sections to correspond with the modules in Dr. Wile’s *Human Body: Fearfully and Wonderfully Made*. A working knowledge of the first six modules is necessary to receive the maximum impact from *Fearfully and Wonderfully Made*. It is best read as a companion to the text beginning in the second half of the year.

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 www.sonlight.com/curriculum-updates. Report new information by sending a short e-mail to: IGcorrections@sonlight.com. It would be helpful if the subject line of your email indicated where the problem is. For instance, “Advanced Biology/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.

Shipping Restrictions

Due to strict import regulations, it is illegal to ship biological matter to certain countries (including New Zealand and Australia). If you requested your science supplies shipped to a country with such restrictions, we have removed that kit from your order and reduced your charge accordingly.

Summary

We hope that you enjoy your adventure this year and that it helps you learn more about the world we live in. If we can be of any assistance, please do not hesitate to e-mail us at main@sonlight.com, call us at (303) 730-6292, or better yet, join our Sonlight Connections Community (sonlight.com/connections), where you can chat with others who are going through this same program. You can ask questions, learn new ideas, share with others what you have learned, problem-solve, or just talk. Happy exploring! ■

Advanced Biology—Science Supplies

550-15 Advanced Biology Microscopy Slide Set	Week(s) Used
Bacteria from Human Intestine ¹	
Human blood smear	22, 35
Human bone tissue	7
Human cerebellum ¹	
Human cerebrum	13
Human heart muscle ¹	
Human liver tissue	28
Human lung	3, 29
Human mouth, epithelial cells ¹	
Human red bone marrow	7
Human salivary gland	3
Human skin	3, 7
Human skin with t.s. hairs	5
Human spermatozoa	35
Human stomach	3, 27
Human striated muscle	9
Human testis	35
Human tonsil with lymph nodes	25

550-16 Advanced Biology Dissection Animals & Tray	Week(s) Used
Disposable gloves	19, 23, 36
3 disposable dissection pans	19, 23, 36
Dissection kit	19, 23, 36
Blood-typing kit	23
Cow eye	19
Sheep heart ²	23
Fetal pig—double injected (arteries-red, veins-blue)	36

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1. These slides are included in the slide set used for this program; however, they are not scheduled in the activities. We suggest using these slides to apply what is learned within the text in a new situation.

2. The text will ask for a cow's heart. Please use the sheep's heart, as the two can be used interchangeably.

Section Two

Schedule and Notes

Week 1—Module 1

Date:	Day 1 ¹	Day 2 ²	Day 3 ³	Day 4 ⁴	Day 5 ⁵
The Human Body (2nd Edition)	pp. 3–8	pp. 9–13	pp. 13–17	pp. 17–18	pp. 19–23
Kaplan Anatomy Coloring Book	Exercise 1.1–1.2 pp. 10–15, 7		Exercise 1.3 pp. 22–23, a–p		
On Your Own	1.1–1.2	1.3–1.6	1.7–1.8		1.9–1.10
Vocabulary ¹	<input type="checkbox"/>	<input type="checkbox"/>			

Other Notes

The Human Body (2nd Edition)

End your readings at the purple section break on each page, unless otherwise noted in the schedule. If there is no purple header, read the entire page.

We have scheduled the *Anatomy Coloring Book* as it is used in the textbook, *The Human Body: Advanced Biology in Creation*. While the textbook refers to exercises (ex. Exercise 1.1-1.3) the *Anatomy Coloring Book* does not use this numbering system. We have used both the exercise numbers and the page numbers for your reference.

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1. Define vocabulary terms and names found in each day's reading, then place a check in the box.

Vocabulary | Terms and Important Facts

Introduction

Gross anatomy: The study of the macroscopic structures of an organism. [p. 4]

Microscopic anatomy: The study of the microscopic structures of an organism. [p. 4]

Physiology: The study of the functions of an organism and its parts. [p. 3]

Organizational Levels of the Human Body

Organ: A group of tissues specialized for a particular function. [p. 7]

Tissues: Groups of cells specialized for a particular function. [p. 7]

Homeostasis

Homeostasis: A state of equilibrium in the body with respect to its functions, chemical levels, and tissues. [p. 9]

Control of Homeostasis: Feedback Systems

Effector: A structure in the body that can change the value of a variable. [p. 11] ■

Week 2—Module 1

Date:	Day 1 ⁶	Day 2 ⁷	Day 3 ⁸	Day 4 ⁹	Day 5 ¹⁰
The Human Body (2nd Edition)	pp. 23–26	pp. 27–31	Study Guide Questions pp. 34–35 #1(a–h); 2–11; Review	Study Guide Questions pp. 34–35 #1(i–k); 12–21; Review	Module 1 Test
Kaplan Anatomy Coloring Book		Exercise 1.4 p. 23 q–w			
On Your Own	1.13	1.14–1.15			
Vocabulary	<input type="checkbox"/>	<input type="checkbox"/>			
Shopping/Planning List¹	For next week: We Provide: 550-15 —Prepared slides: (Human lung, Human stomach, Human skin (not one with follicles) and Human salivary gland.				

Other Notes

1. When supplies are listed as “**We provide:**” they are materials found in either your **Advanced Biology Microscopy Slide Set (550–15)**, or the **Advanced Biology Dissection Animals & Tray (550–16)**. When supplies are listed as “**You provide:**” they are materials you can generally find around your home.

Vocabulary | Terms and Important Facts

Functions of the Plasma Membrane

Selective permeability: The ability to let certain materials in or out while restricting others. [p. 23]

Membrane Transport Process

Endocytosis: The process by which large molecules are taken into the cell. [p. 28]

Exocytosis: Transportation of material from inside the cell to outside the cell. [p. 29] ■

Week 3—Module 2

Date:	Day 1 ¹¹	Day 2 ¹²	Day 3 ¹³	Day 4 ¹⁴	Day 5 ¹⁵
The Human Body (2nd Edition)	pp. 36–40	pp. 41–44	pp. 44–47 (Experiment 2.1)	pp. 47–52 (skip Experiment 2.1)	pp. 52–57
Kaplan Anatomy Coloring Book	Exercise 2.1 pp. 24–25, a–c	Exercise 2.2–2.3 pp. 26–27, a–b; p. 27, d–h		Exercise 2.4 pp. 28–29, a–g	Exercise 2.5 pp. 30–33
On Your Own	2.1–2.2	2.3–2.4 (on p. 47)		2.5–2.6	2.7
Experiments			Microscope 2.1	Microscope 2.2	
Vocabulary	☐			☐	☐
Supplies	We Provide: 550-15 —Prepared slides: Human lung, Human stomach, Human skin (not one with follicles) and Human salivary gland.				

Other Notes

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Vocabulary | Terms and Important Facts

Introduction

Histology: The study of tissues. [p. 36]

Granular Epithelium

Exocrine glands: Glands that secrete substances outward through a duct. [p. 44]

Endocrine glands: Ductless glands that secrete hormones into the bloodstream. [p. 44]

Merocrine glands: Exocrine glands that secrete without losing cellular material. [p. 48]

Apocrine glands: Exocrine glands that have cytoplasm in their secretions. [p. 48]

Holocrine glands: Exocrine glands whose secretions are made up of disintegrated cells. [p. 48]

Connective Tissue

Extracellular matrix: The chemical substances located between connective tissue cells. [p. 52]

Connective Tissue Proper

Fibroblasts: Spindle-shaped cells that form connective tissue proper. [p. 54] ■

Lab Write-Up Form

Date: _____

Experiment: _____

Question/Title: _____

Materials: _____

Method: _____

Hypothesis: _____

Data/Observation: _____

Inference: _____

Lab Write-Up Form

Date:

Experiment: #

Title/Question:

Materials:

Method:

Hypothesis:

Observation:

Inference:

Microscope Lab Documentation

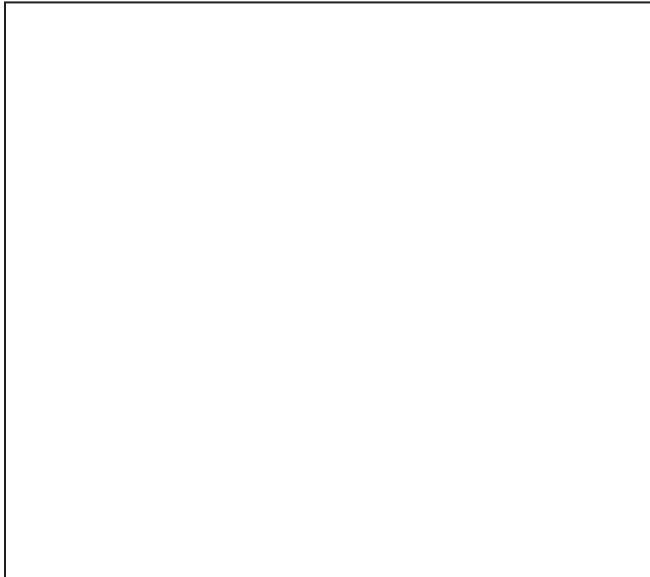
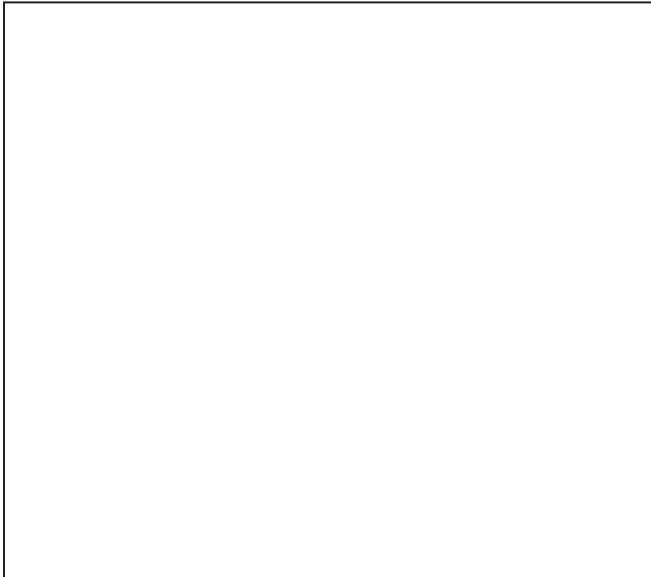
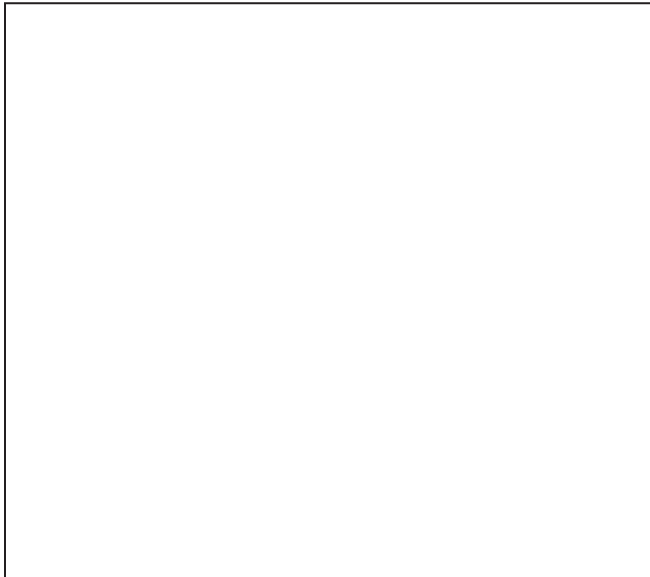
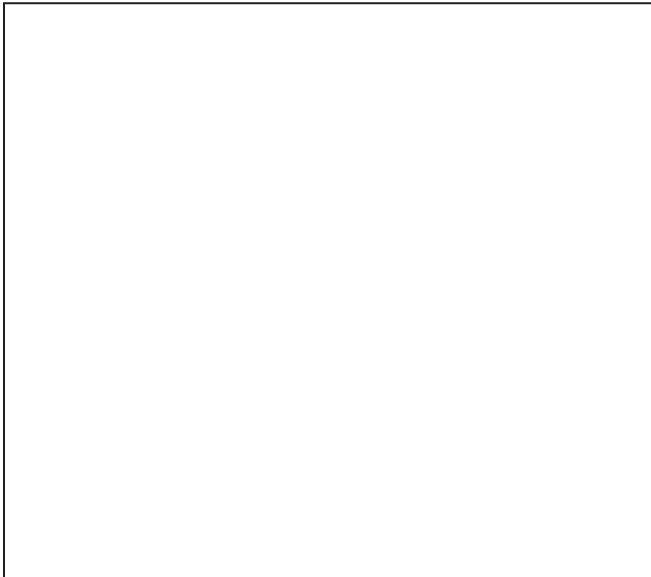
Date _____

Experiment Title and Number _____

Supplies Used _____

Object _____

Observation (Illustrate with colored pencils)



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Note: You might want to answer lab questions from your book on a separate piece of paper. Be sure to clearly identify the question and answer.

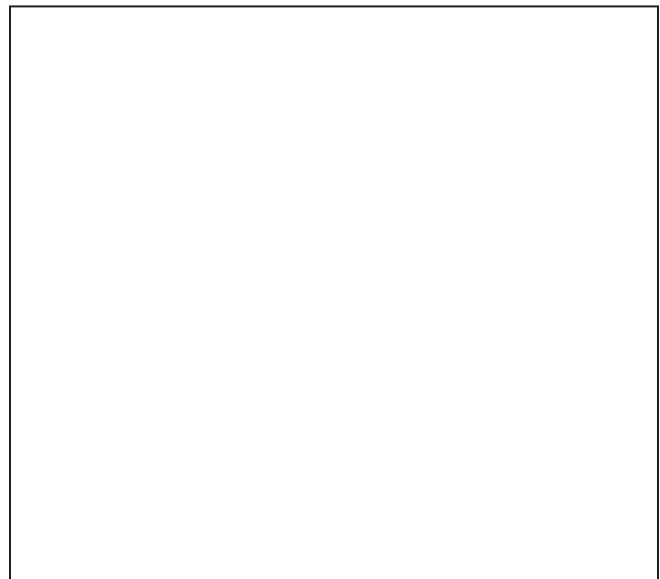
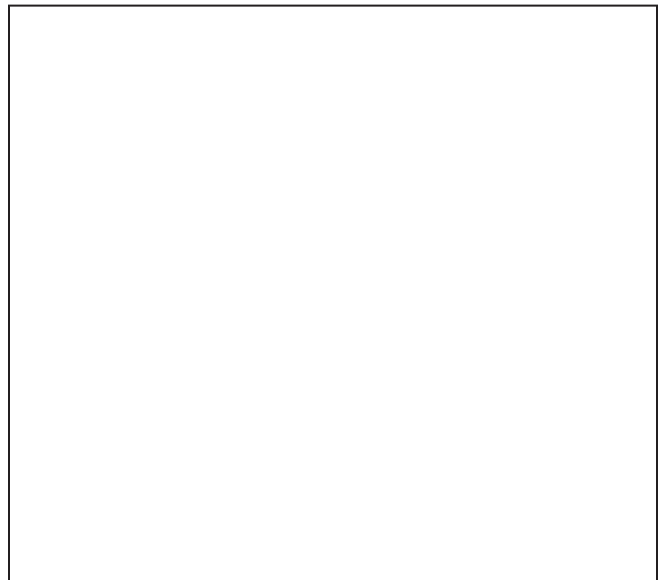
Date _____

Experiment Title and Number _____

Supplies Used _____

Object _____

Observation (Illustrate with colored pencils)



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Note: You might want to answer lab questions from your book on a separate piece of paper. Be sure to clearly identify the question and answer.



SONLIGHT

2020-2021 CATALOG

MAXIMIZE YOUR CURRICULUM
Following subjects to your preference to complete your year.

SUBJECTS

History Primer \$14.95
 History Set \$14.95
 Different level or program, see p. 76 \$14.95
 Reading Without Tears Pre-K \$14.95
 Reader's Guide \$14.95
 Different level or method, see p. 72 \$14.95

RECOMMENDED ITEMS

Resources
 The Three R's by Ruth Beechick \$24.95
 The Little Prince-K \$14.95
 Language Materials \$14.95
 Language Blocks (p. 85) \$14.95
 Language Blocks A, B, C set (p. 86) \$14.95
 See also see pp. 87-91 for options

When we chose to transition to Sonlight with Sonlight, we discovered the preschool package is second, not knowing how much we love it," writes Whitney N. of King's. "I'm thrilled that she has been reading in her cozy room reading light. We've introduced us to so many great preschool-appropriate books that we would have known about if we had a great collection of books to suggest kids." Here Lane L. from the same town (6, Level K (book) and Schen (1 month)).

ESTIMATED DAILY TIME:
 Student: 1.5-2 hrs | Parents: 1-1.5 hrs

HISTORY / BIBLE / LITERATURE: Elementary

K Exploring American History

Grades: Kindergarten-1 | Ages: 5-6

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