



Science H



SCHEDULE PLUS



SONLIGHT

Thank you for downloading this sample of Sonlight's General Science Instructor's Guide (what we affectionately refer to as an IG). 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

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

Dear Prospective Sonlighter,

Thank you so much for downloading this sample Sonlight Instructor’s Guide (referred to as the Science Schedule Plus at this level). Here’s a quick overview of what you’ll find in the full IG...and in this sample.

Science consists of two main pieces:

- A weekly SCHEDULE
- Plus some EXTRA HELPS

SCHEDULE Overview

- The Science Schedule Plus 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.
- Check off or date each assignment as you go to create instant records of what you and your children have done.

Some customers follow our schedules rigidly: they do everything listed for the day during that day. Others read ahead, or drop an assignment, or work through several days’ worth of one type of assignment one day, and several days’ worth of another subject on another day. . . .

It’s your Instructor’s Guide. Use it as best suits your needs.

Book



The amount/task that needs to be done each day

Date:	Day 1	Day 2
<i>Exploring Creation with General Science</i>	pp. 1-3 (through "On Your Own")	pp. 3-5 (through 5th para. after Experiment 1.1)
<i>Exploring Creation with General Science-CD ROM</i>	"Introduction" through "On Your Own"	"True Science Begins to Emerge"

We list all Science supplies needed for hands-on experiments

Supplies ¹	You Provide: safety glasses, vegi vinegar, baking soda, red/purple ter jars (the same size), pan and s clear plastic 2-liter bottle, ice cub
Shopping/Planning List	For next week (by Tuesday): You Provide: safety glasses, pen the size of the sheet of paper. We Provide: HSKA—6 thumbsta

Date:	Day 1	Day 2	Day 3	Day 4	Day 5
<i>Exploring Creation with General Science</i>	pp. 1-3 (through "On Your Own")	pp. 3-5 (through 5th para. after Experiment 1.1)	pp. 5-7 (through "On Your Own")	pp. 8-11 (through "On Your Own")	pp. 12-13 (through Experiment 1.3)
<i>Exploring Creation with General Science-CD ROM</i>	through one "On Your Own"	"True Science Begins to Emerge" through 5th para. of "True Science ... 2"	"True Science Begins to Emerge ... 2" (pp. para. 1 through two "On Your Own")	"Three Other Notable Greek Scientists" through two "On Your Own"	"The Progress of Science Skills For A While" through "The Progress ... 2" (through 3rd para.)
On Your Own	1	1.1	1.2-1.3	1.4-1.5	
Multimedia Companion CD Experiments		1.1	Related to experiment 1.2	Related to geocentric system	1.3
Vocabulary²					
Supplies³	You Provide: safety glasses, vegetable oil, water, mugful or corn syrup, a grape, food coloring, clear vinegar, baking soda, red/purple cabbage (a few leaves), tall glass, two glass canning jars or peanut butter jars (the same size), pan and stove to boil water, funnel or butter knife, measuring cups, small rock, clear plastic 2-liter bottles, ice cubes. We Provide: HSKA—balloon (8-9"), piece of cork				
Shopping/Planning List	For next week (by Tuesday): You Provide: safety glasses, pencil, sheet of paper, piece of string (8" long), piece of cardboard at least the size of the sheet of paper. We Provide: HSKA—6 thumbsticks.				
OTHER NOTES					
<p>Note to Mom or Dad: Module 1 is a general introduction to the history of science and scientists. There are many names and terms introduced in this module. Do not become overwhelmed with all this information. Subsequent modules do not have such a large number of names and/or terms. This is a good module to begin practicing vocabulary and other important information by making flash cards with the appropriate information. Remember to memorize words that are centered and become familiar with words that are bold in the text.</p>					

1. The "Exploring Creation with General Science-CD ROM" schedule is for the full course CD ROM version of the text. It is identical to the page design, but green for the text. *Exploring Creation with General Science*. You will use either the textbook *Exploring Creation with General Science* or the CD ROM version. You do not need both versions to complete this course.

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

3. When supplies are listed as "We provide," they are materials found in your Science H Supplies Kit (HSKA). When supplies are listed as "You provide," they are materials you can generally find around your home.

Illustrations from the Sonlight 2018 Science H Schedule Plus

EXTRA HELP Overview

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.

The back section of the Science Schedule Plus includes experiment write-ups to use in conjunction with the labs you complete each week. Each experiment is scheduled out for you.

Enjoy your sample. . . . And we look forward to serving you in the very near future.

Sincerely,

Sarita Holzmann, President

PS: For more information about Sonlight's Instructor's Guides, please visit sonlight.com/IGs

Vocabulary →
Tackle scientific terms little by little each week. Make note cards and check off on the schedule page when your student learns them all.

Vocabulary | Terms and Names

Introduction

Science: An endeavor dedicated to the accumulation and classification of observable facts in order to formulate general laws about the natural world. [p. 1]

The First Inklings of Science

Vocabulary | Terms and Names

Introduction

Science: An endeavor dedicated to the accumulation and classification of observable facts in order to formulate general laws about the natural world. [p. 1]

The First Inklings of Science

Papyrus: An ancient form of paper, made from a plant of the same name. [p. 2]

True Science Begins to Emerge

Thales, Anaximander, and Anaximenes: Viewed as first real scientists. [p. 3]

Leucippus and Democritus: Ancient Greek scientists who proposed all matter was really made of little units called "atoms." [p. 4]

True Science Begins to Emerge 2

Density: How tightly packed the matter in a substance is. [p. 6]

Three Other Notable Greek Scientists

Classification: Ordering facts in a reasonable and systematic way. [p. 8]

Spontaneous generation: The idea that living organisms can be spontaneously formed from non-living substances. [p. 8]

Aristotle: Father of life sciences—also believed in spontaneous generation. [pp. 8–9]

Ptolemy: Thought the earth was the center of the universe and the planets and stars orbited about the earth in a series of circles. Also called the Ptolemaic system or geocentric system and does not move. [p. 10]

Geocentric: The thought that the earth was at the center of the universe and does not move. [p. 11]

The Progress Of Science Stalls For A While

Alchemy: A way by which lead (or other inexpensive substance) could be transformed into gold (or other precious substances). [p. 12] ■

Experiment Write-Ups

→
Use the examples to help your student record pertinent information from their labs. Feel free to copy as many as your student needs.

Week 1—Module 1

Date: _____

Experiment: _____

Lab Write-Up Form

Hypothesis: _____

Observation: _____

Inference: _____

Advanced Biology | Lab Write-Up Form

Science

General Science Schedule Plus

By Sandy Hotz

An Overview of this Year's Studies

Dr. Wile's material is written in an easy, conversational style. The book is laid out with stopping point questions ("On Your Own") to practice the information just read. The answers to those questions are at the end of each module in the textbook.

At the end of the module are "Study Guide ..." questions. When your children have a good grasp of the answers to these questions, they will be ready for the test.

You will find the answers to the Study Guide questions in the *Solutions and Tests for Exploring Creation with General Science*. You will also find a test for each module and the answers to the test in the solutions manual.

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

CD ROM

For those using the full course of *Exploring Creation with General Science* on CD ROM, you will find an additional line in the schedule. Since the full course CD does not have page numbers, but is identified by sub-headings, usually it is suggested you read "through" a section. Many of these sections have questions at the end entitled "On Your Own." If they follow a section, they are meant to work through in order to "complete" that section. Also, since the "On Your Own" questions are not numbered, you will need to keep track that you have done the correct number of them for the day. For instance, if you see that you were to do 6.3–6.7, then you would need to complete five questions during your reading time that day. For your convenience, we tried to let you know how many to expect for the day's reading.

Parents, please note all Study Guide Questions along with their solutions are found in a separate CD titled "Solutions and Tests." At the end of each module, you will be asked to print off the appropriate pages for the module. Your student is then to practice the material and have it corrected before you print out the test. The solutions for the tests are also found on that same CD.

Multimedia Companion CD

There is also a schedule for those who purchased the supplemental *Multimedia Companion CD*. The CD contains extra helps including explaining some of the examples, pronunciations and demonstrations of a concept. If you own the full course on CD ROM, you will find the material from the *Multimedia Companion CD* included on your full course CD ROM.

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 (for example: Week 9 could be a study week for a quarterly test if you complete Module 1 in Weeks 1 and 2).

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.

Science Experiments and Supplies

There are several items that will be needed over the course of this year that are typically discarded. Knowing what is needed ahead of time will allow collection and timing of the experiments to go more smoothly. These items include:

- 2-liter bottle (needed Weeks 1 and 29)
- 1-gallon jug with lid (screw-on lid would be best, needed Week 29)
- Several (3-4) margarine tubs (first one not needed until Week 11). A substitute would be tubs that hold dips or cream cheese spread, sour cream tubs, or small disposable tart/pie tins found in the grocery store, in which a banana fits.
- Several jars: 2 canning jars that are the same size (or jars that can handle boiling water, Week 1); 1 large jar with a lid (Weeks 11 and 17-20, a potted plant needs to fit in it); 1 large jar that fits a banana.

We have included a complete list of the Science H Supplies Kit (**HSKA**). Then, in each week's schedule, we have noted the science supplies from the kit that you will need to do the experiments.

We also alert you to supplies that you need to provide. If there is anything we think you might need to purchase before you do the next week's experiments (we figure you shouldn't need to purchase, say, water or dust!), we have also included a list of those materials. That way, we hope, you will be prepared before the time comes. If you shop less often than once a week, or if you live far away from a major shopping area, we **strongly** encourage you to look ahead a few weeks to find those items that you may be needing shortly.

We hope this feature will enable you to feel well prepared and organized for your science adventure!

You will find **Experiment Write-Up** forms at the back of this guide. We have included two different types of forms for you to choose from. You are also free to use them as examples and come up with your own form. You are welcome to copy these as needed for your family's use.

Vocabulary Terms and Names

You may want to consider making flash cards for the vocabulary and names that occur throughout each module. The first module has many vocabulary words, important terms, and names. You should memorize any words that are centered in your book and become familiar with the words that are in bold.

Supplementary Websites

Dr. Wile has also added links to additional material related to this course as stated on page v of the student text. To visit the website, go to <http://www.apologia.com/bookextras>. You will gain access to the material related to *Exploring Creation with General Science*.

Corrections and Suggestions

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

If you find an error in one of our products, please check our updates page for the latest information at www.sonlight.com/curriculum-updates.html. If you don't find the correction, please e-mail us at IGcorrections@sonlight.com.

We appreciate you taking the time to let us know what you find. Thanks for your help!

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 these instructions help you. If we can be of any further assistance, please don't hesitate to write or call or, better yet, visit us at forums.sonlight.com . We would love to be of service.

I would especially like to encourage you to visit the Sonlight® Forums. There you can converse with other homeschoolers, seek advice, offer your insights, and join our community. If you are looking for help and encouragement, our forums are just for YOU! ■

Week 1—Module 1

Date:	Day 1 ¹	Day 2 ²	Day 3 ³	Day 4 ⁴	Day 5 ⁵
Exploring Creation with General Science	pp. 1–3 (through “On Your Own”)	pp. 3–5 (through 5th para. after Experiment 1.1)	pp. 5 (last para.)–7 (through “On Your Own”)	pp. 8–11 (through “On Your Own”)	pp. 12–13 (through 3rd para. after Experiment 1.3)
Exploring Creation with General Science-CD ROM¹	“Introduction” through one “On Your Own”	“True Science Begins to Emerge” through 5th para. of “True Science ... 2”	“True Science Begins to Emerge 2” (6th para.) through two “On Your Own”	“Three Other Notable Greek Scientists” through two “On Your Own”	“The Progress of Science Stalls For A While” through “The Progress ... 2” (through 3rd para.)
On Your Own	1.1		1.2–1.3	1.4–1.5	
Multimedia Companion CD			Related to experiment 1.2	Related to geocentric system	
Experiments		1.1	1.2		1.3
Vocabulary²	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supplies³	<p>You Provide: safety glasses, vegetable oil, water, maple or corn syrup, a grape, food coloring, clear vinegar, baking soda, red/purple cabbage (a few leaves), tall glass, two glass canning jars or peanut butter jars (the same size), pan and stove to boil water, funnel or butter knife, measuring cups, small rock, clear plastic 2-liter bottle, ice cubes.</p> <p>We Provide: HSKA—balloon (6–9”), piece of cork</p>				
Shopping/Planning List	<p>For next week (by Tuesday):</p> <p>You Provide: safety glasses, pencil, sheet of paper, piece of string (8" long), piece of cardboard at least the size of the sheet of paper.</p> <p>We Provide: HSKA—6 thumbtacks.</p>				

Other Notes

Note to Mom or Dad: Module 1 is a general introduction to the history of science and scientists. There are many names and terms introduced in this module. Do not become overwhelmed with all this information. Subsequent modules do not have such a large number of names and/or terms. This is a good module to begin practicing vocabulary and other important information by making flash cards with the appropriate information. Remember to memorize words that are centered and become familiar with words that are **bold** in the text.

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

3. When supplies are listed as “**We provide:**” they are materials found in your Science H Supplies Kit (**HSKA**). When supplies are listed as “**You provide:**” they are materials you can generally find around your home.

Vocabulary | Terms and Names

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Science: An endeavor dedicated to the accumulation and classification of observable facts in order to formulate general laws about the natural world. [p. 1]

The First Inklings of Science

Papyrus: An ancient form of paper, made from a plant of the same name. [p. 2]

True Science Begins to Emerge

Thales, Anaximander, and Anaximenes: Viewed as first real scientists. [p. 3]

Leucippus and Democritus: Ancient Greek scientists who proposed all matter was really made of little units called “atoms.” [p. 4]

True Science Begins to Emerge 2

Density: How tightly packed the matter in a substance is. [p. 6]

Three Other Notable Greek Scientists

Classification: Ordering facts in a reasonable and systematic way. [p. 8]

Spontaneous generation: The idea that living organisms can be spontaneously formed from non-living substances. [p. 8]

Aristotle: Father of life sciences—also believed in spontaneous generation. [pp. 8–9]

Ptolemy: Thought the earth was the center of the universe and the planets and stars orbited about the earth in a series of circles. Also called the Ptolemaic system or geocentric system and does not move. [p. 10]

Geocentric: The thought that the earth was at the center of the universe and does not move. [p. 11]

The Progress Of Science Stalls For A While

Alchemy: A way by which lead (or other inexpensive substance) could be transformed into gold (or other precious substances). [p. 12] ■

Week 2—Module 1

Date:	Day 1 ⁶	Day 2 ⁷	Day 3 ⁸	Day 4 ⁹	Day 5 ¹⁰
Exploring Creation with General Science	pp. 13 (last para.)–16 (through “On Your Own”)	pp. 16–18 (through “On Your Own”)	pp. 18–21 (through 2nd para. after Experiment 1.4)	pp. 21 (3rd para.)–23 (through “On Your Own”)	pp. 23–26 (mid page)
Exploring Creation with General Science-CD ROM	“The Progress of Science ... 2” (begin 4th para.) through one “On Your Own”	“Science Begins to Pick Up Steam” through one “On Your Own”	“The Renaissance ...”–“The Renaissance ... 2” (through 2nd para.)	“The Renaissance ... 2” (3rd para.) through one “On Your Own”	“The Era of Newton” through “The ‘Enlightenment’ and the Industrial Revelation” through one “On Your Own”
On Your Own	1.6	1.7		1.8	1.9
Multimedia Companion CD			Related to Heliocentric System Related to Experiment 1.4		
Experiments			1.4		
Vocabulary		☐	☐	☐	☐
Supplies	You Provide: safety glasses, pencil, sheet of paper, piece of string (8" long), piece of cardboard at least the size of the sheet of paper. We Provide: HSKA— 6 thumbtacks.				
Other Notes					

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Vocabulary | Terms and Names

Science Begins To Pick Up Steam

Robert Grosseteste: Father of the scientific method. [pp. 16–17]

The Renaissance: The “Golden Age” of Science

Heliocentric: The thought that the sun is at the center of everything and assumption that all of the planets, including the earth, travel around the sun. [p. 18]

Nicolaus Copernicus: Believed the sun was at the center of everything and assumed that all of the planets traveled around the sun. Also called the heliocentric system or Copernican system. [p. 18]

Johannes Kepler: Used mathematical data to support the heliocentric system and found the oval or ellipse pattern the planets use to travel around the sun. [pp. 19–20]

The Renaissance: The “Golden Age” of Science 2

Galileo Galilei: Compiled evidence to support the heliocentric view, even though the Roman Catholic church forced him to stop officially promoting the view. [pp. 21–22]

The Era of Newton

Sir Isaac Newton: Laid down three laws of motion, laws of gravity, developed calculus and showed white light is composed of many different colors of light. One of the greatest scientists of all time. [p. 23]

Week 2—Module 1

Robert Boyle: Founder of modern chemistry. [p. 24]

Antoine Laurent Lavoisier: Credited with what came to be known as the Law of Mass Conservation. [p. 26]

Law of Mass Conservation: Matter cannot be created or destroyed. It can only change form. [p. 26]

John Dalton: His work was related to atoms—founder of modern atomic theory. [p. 26] ■

Week 3—Module 1

Date:	Day 1 ¹¹	Day 2 ¹²	Day 3 ¹³	Day 4 ¹⁴	Day 5 ¹⁵
Exploring Creation with General Science	pp. 26–29 (through “On Your Own”)	pp. 29–31 & Study Guide p. 33 Questions #1–11	Study Guide pp. 33–34 Questions #12–28 Review	Summary of Module 1 pp. 443–444	Test for Module 1
Exploring Creation with General Science-CD ROM	“The Rest of the Nineteenth Century” through one “On Your Own”	“Modern Science” through “Module Conclusion”; Module 1 Study Guide Questions #1–11	Module 1 Study Guide Questions #12–28 ¹	Summary of Module 1 ¹	Test for Module 1
On Your Own	1.10				
Multimedia Companion CD		Review of some of the great scientists			
Vocabulary	☐	☐			
Shopping/Planning List	For next week: You Provide: safety glasses, heavy book, working flashlight, cardboard about the same size as book, regular paper about the size of the book, small rock (lighter than the cardboard). We Provide: HSKA —heavy paper about the same size as the book, paper clip.				
Other Notes					

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1. Study Guide and Summary of Module found on “Solutions and Tests” CD.

Vocabulary | Terms and Names

The Rest of the Nineteenth Century

Charles Darwin: Known for his theory of evolution, which explains how we got here without reference to a creator. [pp. 26–27]

Immutability of the species: The mistaken idea that living creatures cannot change. [p. 27]

Louis Pasteur: Destroyed the idea of spontaneous generation and was known for his work with vaccines. [p. 27]

Gregor Mendel: Known for his study of reproduction or genetics. [p. 28]

Genetics: The study of how traits are passed on from parent to offspring. [p. 28]

James Maxwell: Founder of modern physics. [p. 28]

James Joule: Came up with the First Law of Thermodynamics. [p. 28]

First Law of Thermodynamics: Energy cannot be created or destroyed. It can only change forms. [p. 28]

Modern Science

Niels Bohr: Developed a picture of the atom and even had a model named after him. [pp. 29–30]

Albert Einstein: Known for his theory of relativity and quantum mechanics. [pp. 29–30] ■

2019-2020 CATALOG



HISTORY / BIBLE / LITERATURE: Elementary

A Intro to the World: Cultures

Grades: K-2 | Ages: 5-7



Estimated Daily Time (plus your other subjects)
Student: 1½-2 hrs
Parents: 1-1½ hrs

Young adventurers: Explore God's big world

Set the stage for future learning with a gentle introduction to formal academics. In Sonlight A, children develop a big-picture understanding that past civilizations existed and that people live differently throughout the world. In this 36-week program, you'll introduce your children to the amazing diversity in the world. They will also better understand the past and the present. Sonlight A helps children start to see that not everyone lives like they do! As a result, they are able to look at situations from another person's point of view and to relate to others who are different from them. They also develop a healthy curiosity about the world around them. The books naturally lead to conversations—about faith, about character, about relationships. These books present worthy heroes who display courage and honesty, who work hard, who love their families, and who do the right thing. From hands-on activities, to stories they'll remember their entire lives, get ready for lots of laughs and joy. May you discover together that learning really is fun!

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