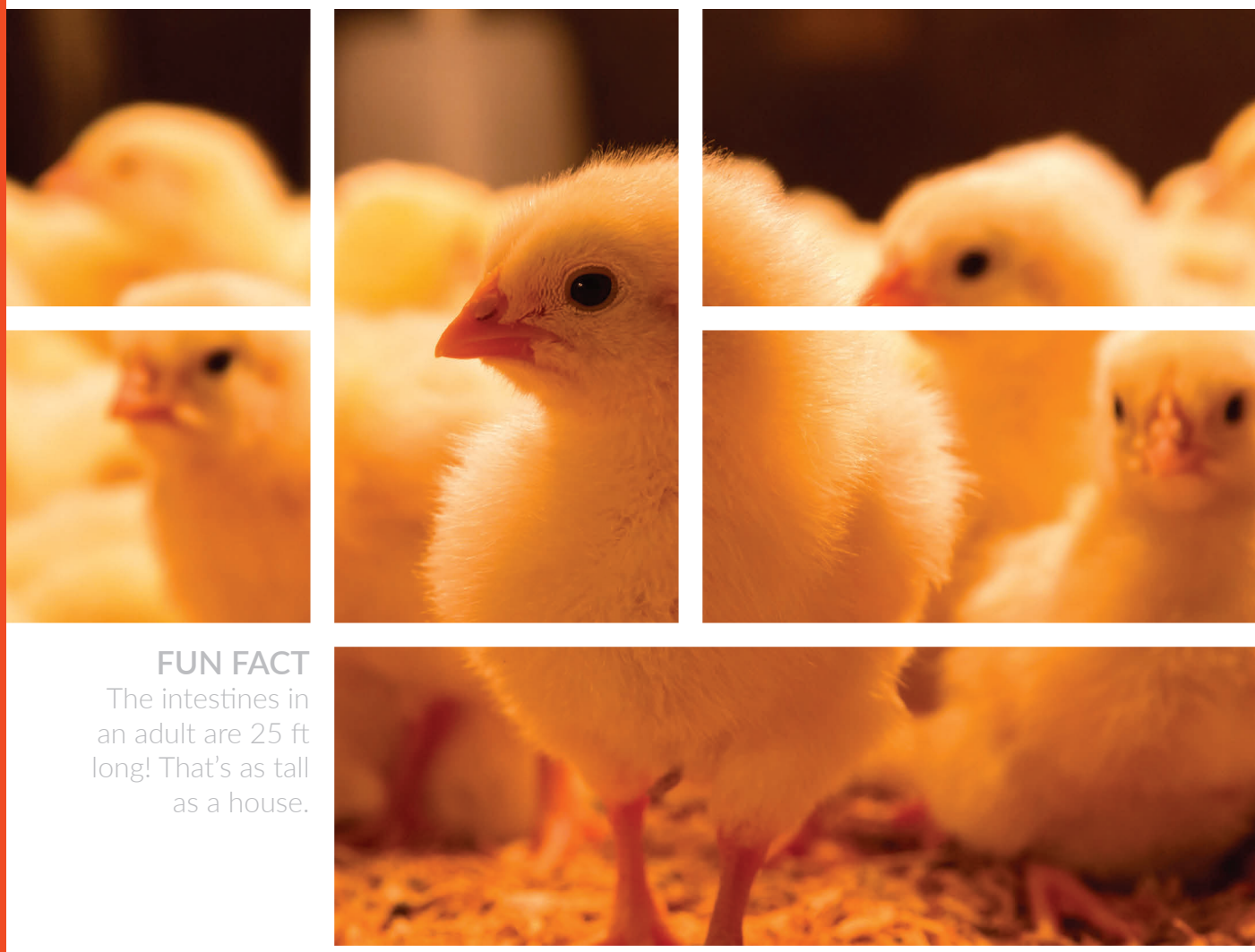
SCIENCE INSTRUCTOR'S GUIDE

# A LIGHT & SOUND WAVES, BIOLOGICAL FEATURES, SPACE SYSTEMS, & ENGINEERING DESIGN

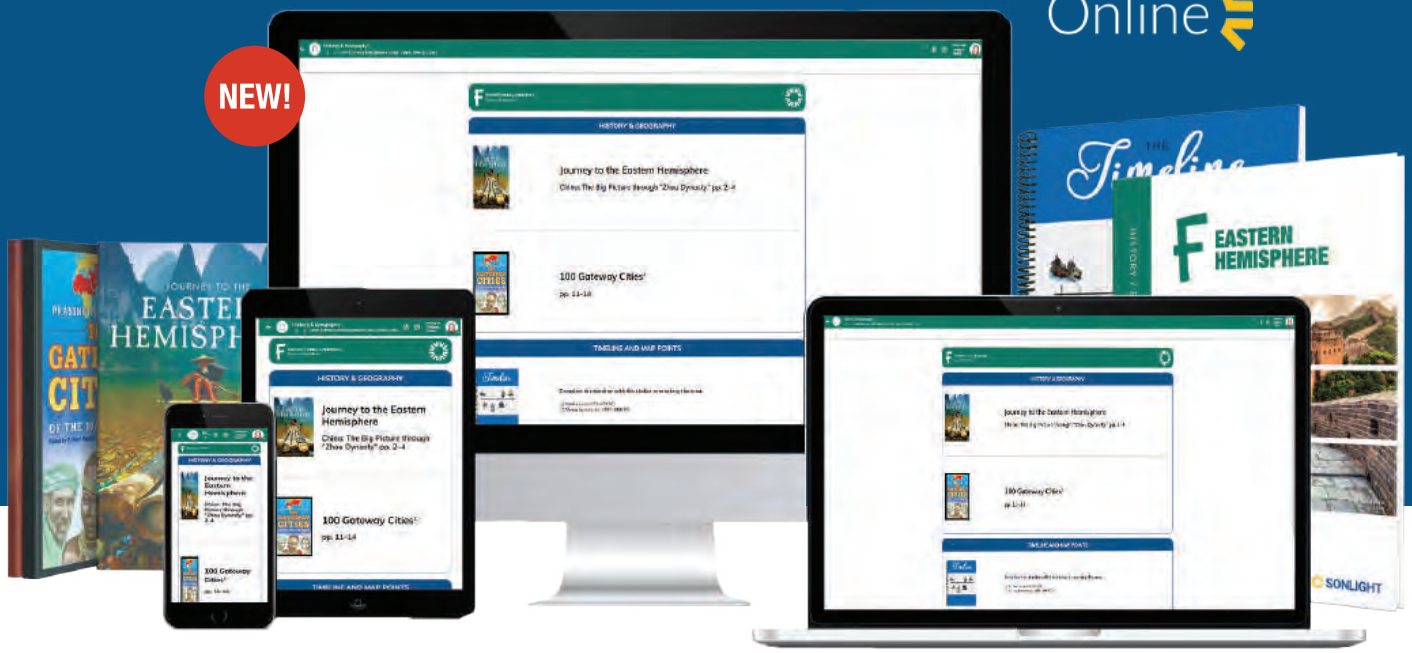


**FUN FACT**
The intestines in an adult are 25 ft long! That's as tall as a house.

4-DAY

SONLIGHT

SONLIGHT Online




# LITERATURE-BASED HOMESCHOOLING + ONLINE INSTRUCTOR'S GUIDE ACCESS!

Purchase a digital version of your Instructor's Guide and get 24/7 online access! Both parents and students will have access to lesson plans, daily schedules, notes and more. Upload completed assignments and worksheets, mark what you've completed, and simplify your recordkeeping—online!

- ⭐ Anytime Access
- ⭐ Fully-Planned
- ⭐ Upload Completed Work
- ⭐ Digital Recordkeeping
- ⭐ Excellent Organizational Tool

ONLINE GUIDES AVAILABLE FOR:

**HISTORY / BIBLE / LITERATURE**
Level K-W

**LANGUAGE ARTS**
Level K-4, D-W

**SCIENCE**
Level K-H

**MATH**
*Math-U-See, RightStart, Saxon, Singapore, Horizons & Miquon*

Purchase Online Instructor's Guides individually or add to your curriculum purchase.
**Get your online Instructor's Guide access at *sonlight.com/online-guides.***

# SONLIGHT

**Thank you** for downloading this sample of Sonlight's Science F 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
- Activity Sheets and Parent Answer Keys
- A Weekly Subject List

## 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

# Homeschool questions? Sonlight advisors have answers.

"I was feeling overwhelmed and afraid that I lacked what it takes to successfully homeschool my kids," writes Jennifer A of Battle Creek, MI. "I contacted an Advisor and got the help I needed!"

## Contact a Sonlight Advisor today–FREE

**CHAT**
sonlight.com/advisors

**CALL / TEXT**
303-730-6292

**EMAIL**
advisor@sonlight.com

SONLIGHT

SONLIGHT

A

Ages 6–8
Grades 1–3

# Science (4-Day)

Light and Sound Waves, Biological Features, Space Systems, and Engineering Design

by The Sonlight Team

*"The heavens declare the glory of God; the skies proclaim the work of his hands."*

Psalm 19:1 (NIV)

INSTRUCTOR'S GUIDES

# SCIENCE

## Special features of Sonlight's Science Instructor's Guides:

### 1 COMPLETE, READY-TO-USE LESSON PLANS

All your science books and experiments are fully scheduled for the entire year. The IG provides the framework for what books to read and when, what experiments to do and what videos to watch. No need to create your own lesson plans!

### 2 DETAILED TEACHING NOTES

Notes explain each assignment and activity, point out fun facts about your reading, include question prompts, explanations, hands-on activities (beyond the experiments), and additional notes to enhance the reading and reinforce what your students are learning.

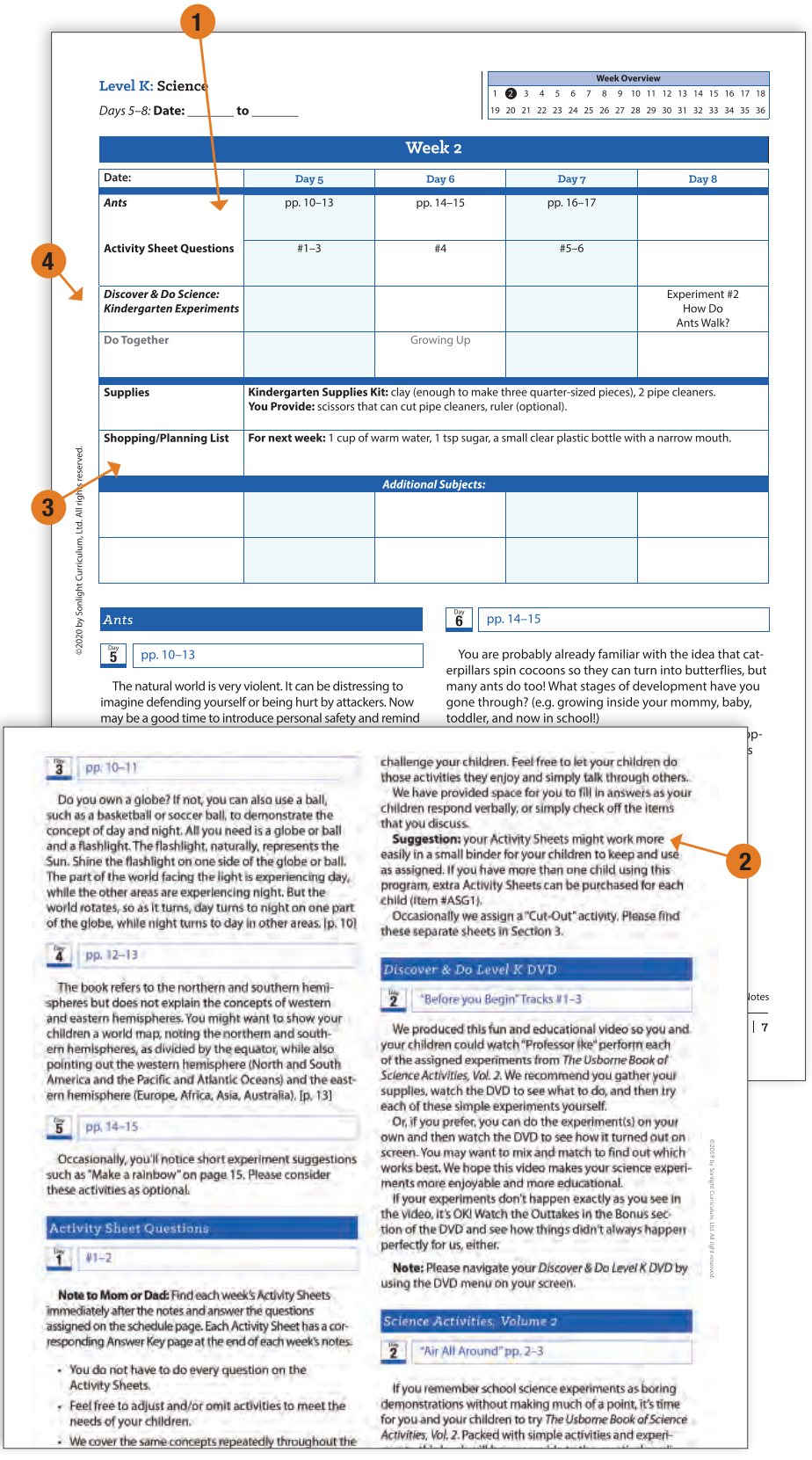
### 3 ORGANIZATIONAL TOOLS TO HELP YOU PLAN AHEAD

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.

### 4 WEEKLY ASSIGNMENTS AND ENGAGING ACTIVITIES

Simple, engaging experiments coordinate with your weekly reading. In levels K-E, these weekly experiments tie *directly* to that week's reading material for an even more linear progression from reading to doing. Experiments provide hands-on learning and reinforce and apply the concepts studied in the days previous so you can see your child's developing mastery of particular science concepts.

Most of the experiments can be done with common household items, but to minimize prep time, we've created a Science Supplies



Level K: Science

*Days 5–8:* **Date:** _____ **to** _____

Week Overview

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

**Week 2**

| Date: | Day 5 | Day 6 | Day 7 | Day 8 |
|---|---|---|---|---|
| *Ants* | pp. 10–13 | pp. 14–15 | pp. 16–17 | |
| Activity Sheet Questions | #1–3 | #4 | #5–6 | |
| *Discover & Do Science: Kindergarten Experiments* | | | | Experiment #2 How Do Ants Walk? |
| Do Together | | Growing Up | | |
| Supplies | **Kindergarten Supplies Kit:** clay (enough to make three quarter-sized pieces), 2 pipe cleaners. **You Provide:** scissors that can cut pipe cleaners, ruler (optional). | | | |
| Shopping/Planning List | **For next week:** 1 cup of warm water, 1 tsp sugar, a small clear plastic bottle with a narrow mouth. | | | |
| *Additional Subjects:* | | | | |
| | | | | |



*Ants*

Day 5 pp. 10–13

The natural world is very violent. It can be distressing to imagine defending yourself or being hurt by attackers. Now may be a good time to introduce personal safety and remind

Day 6 pp. 14–15

You are probably already familiar with the idea that caterpillars spin cocoons so they can turn into butterflies, but many ants do too! What stages of development have you gone through? (e.g. growing inside your mommy, baby, toddler, and now in school!)

Day 3 pp. 10–11

Do you own a globe? If not, you can also use a ball, such as a basketball or soccer ball, to demonstrate the concept of day and night. All you need is a globe or ball and a flashlight. The flashlight, naturally, represents the Sun. Shine the flashlight on one side of the globe or ball. The part of the world facing the light is experiencing day, while the other areas are experiencing night. But the world rotates, so as it turns, day turns to night on one part of the globe, while night turns to day in other areas. [p. 10]

Day 4 pp. 12–13

The book refers to the northern and southern hemispheres but does not explain the concepts of western and eastern hemispheres. You might want to show your children a world map, noting the northern and southern hemispheres, as divided by the equator, while also pointing out the western hemisphere (North and South America and the Pacific and Atlantic Oceans) and the eastern hemisphere (Europe, Africa, Asia, Australia). [p. 13]

Day 5 pp. 14–15

Occasionally, you'll notice short experiment suggestions such as "Make a rainbow" on page 15. Please consider these activities as optional.

Activity Sheet Questions

Day 1 #1–2

**Note to Mom or Dad:** Find each week's Activity Sheets immediately after the notes and answer the questions assigned on the schedule page. Each Activity Sheet has a corresponding Answer Key page at the end of each week's notes.

- You do not have to do every question on the Activity Sheets.
- Feel free to adjust and/or omit activities to meet the needs of your children.
- We cover the same concepts repeatedly throughout the

challenge your children. Feel free to let your children do those activities they enjoy and simply talk through others.

We have provided space for you to fill in answers as your children respond verbally, or simply check off the items that you discuss.

**Suggestion:** your Activity Sheets might work more easily in a small binder for your children to keep and use as assigned. If you have more than one child using this program, extra Activity Sheets can be purchased for each child (item #ASG1).

Occasionally we assign a "Cut-Out" activity. Please find these separate sheets in Section 3.

*Discover & Do Level K* DVD

Day 2 "Before you Begin" Tracks #1–3

We produced this fun and educational video so you and your children could watch "Professor Ike" perform each of the assigned experiments from *The Usborne Book of Science Activities, Vol. 2*. We recommend you gather your supplies, watch the DVD to see what to do, and then try each of these simple experiments yourself.

Or, if you prefer, you can do the experiment(s) on your own and then watch the DVD to see how it turned out on screen. You may want to mix and match to find out which works best. We hope this video makes your science experiments more enjoyable and more educational.

If your experiments don't happen exactly as you see in the video, it's OK! Watch the Outtakes in the Bonus section of the DVD and see how things didn't always happen perfectly for us, either.

**Note:** Please navigate your *Discover & Do Level K DVD* by using the DVD menu on your screen.

*Science Activities, Volume 2*

Day 2 "Air All Around" pp. 2–3

If you remember school science experiments as boring demonstrations without making much of a point, it's time for you and your children to try *The Usborne Book of Science Activities, Vol. 2*. Packed with simple activities and experi-

Kit that includes many of the supplies you need to conduct each experiment. No planning necessary and minimal prep time!

Your children will relish the discoveries they make throughout the year. And you'll love that they are actively exploring STEM (Science, Technology, Engineering, Math) concepts, and making their learning stick.

## Instructor's Guides K-J also include:

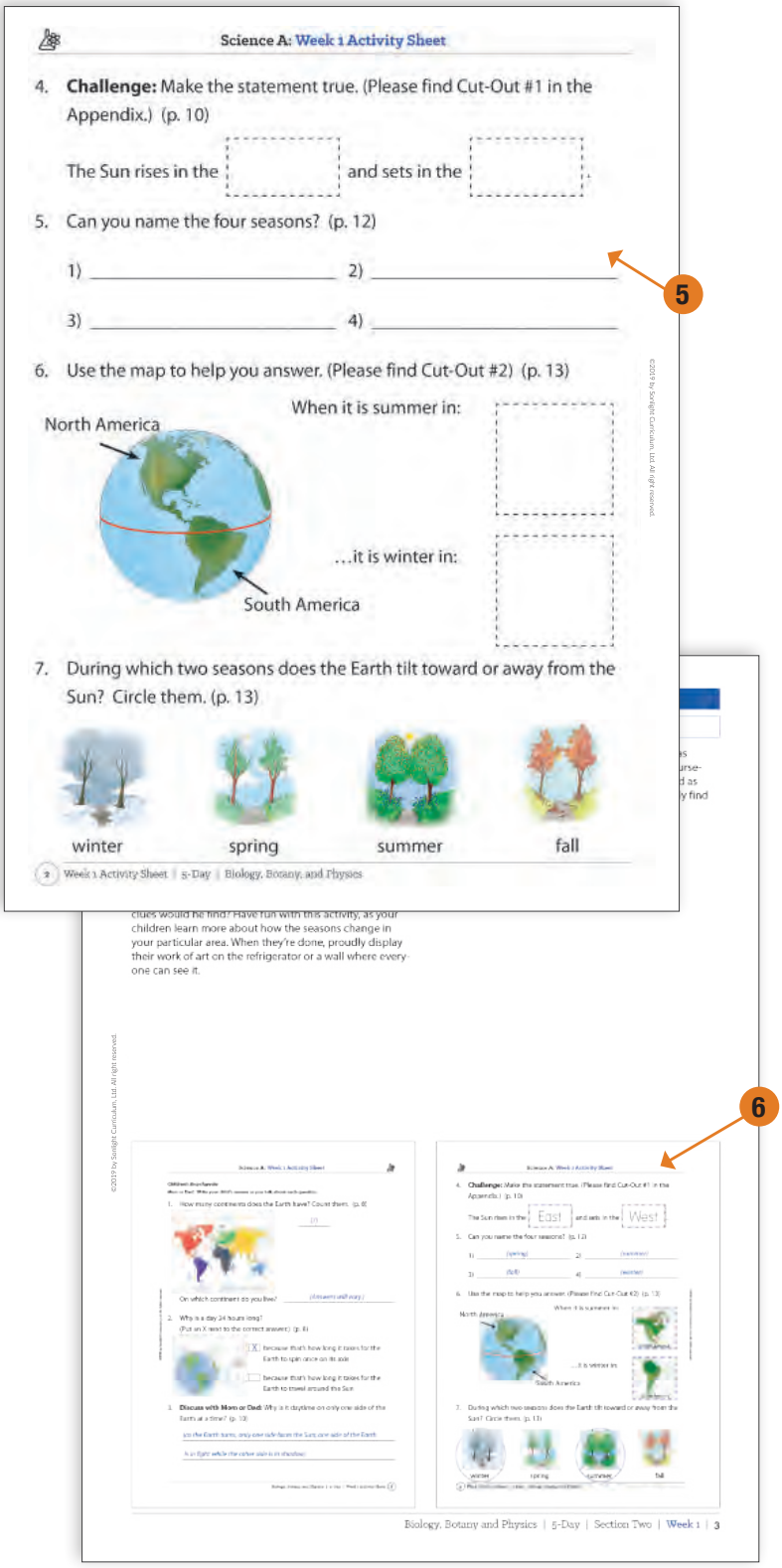
### 5 INTERACTIVE ACTIVITY SHEETS

Your Activity Sheets—with hundreds of activities, illustrations, charts, and pictures—help your children remember what they've learned. A variety of activity options coordinate with your students' science studies and draw on a range of skills and interests.

Activities progress with your children's abilities: from cutouts, matching, circle-the-answer, and dictation, to fill-in puzzles and sequencing analysis.

### 6 COMPLETE ANSWER KEYS

Separate Answer Keys mirror your Student Activity sheets for easy grading. No need to test—you have ongoing, reliable insight into your children's comprehension.




"I was hesitant to choose Sonlight just based on the cost compared to other curricula. But the ease of use is definitely worth the price for me, especially now that I'm navigating a toddler and two homeschoolers. We started using Sonlight just after I gave birth to my youngest. My husband was deployed and being able to just reach in the box and pretty much have everything ready … —I don't know how we could have continued schooling without that ease of use." —Kisha G, Livingston, TX

## Welcome!

In Science A, you will learn about light and sound waves, biological features, space systems, and engineering.

Sonlight Science programs include introductory studies in a range of experimental sciences. The main point of all the reading, activities, and (if you choose) experiments is to introduce your children to the scientific method and the joy of discovery.

We want children to be *introduced* to a lot of different subjects, *intrigued* by the concepts and ideas, and *enticed* to come back to the same themes again in the future. And so, you will find we follow a spiral pattern of education, touching on certain topics repeatedly this year and again in future years.

This way the basic *vocabulary* of science becomes ingrained not only in short-term, but also long-term memory. "Oh, yeah. I vaguely remember hearing about pistils and stamens earlier this year," children may say—late in the program. When children study biology again in future programs, the names and concepts will be vague, but recognizable, as children gain deeper understanding. Please don't expect mastery of the vocabulary at this age. That will come in time.

We want our children to *remember* what they have learned because they can't help it; because they want to. We don't want them merely to *memorize* what they are supposed to learn so they can pass a test.

As you do the experiments and demonstrate care in reading and following directions, recording data, and such, your children learn to follow your lead. An attitude of success—"Sure. We can do this!"—rubs off as well. These cannot be taught simply by reading books; they have to be modeled.

#### *My Downloads*

Find extra schedule pages, new user information (how to use a Sonlight guide) and further helpful information specific to the guide you have purchased from Sonlight on our website: www.sonlight.com. Go to Your Account and select the Downloads section to find all of the downloads for your guide.



## Evolution and the Age of the Earth

Two science-related issues require some special attention. The first has to do with evolution, while the second relates to the age of the Earth.

#### *Evolution*

Some of the book selections in our science programs contain material supportive of evolution. Why do we include these books? First, we include them because the majority of the content in these resources is of high quality, offering visually and intellectually appealing material. Second, we don't take an isolationist approach to knowledge. The subject of evolution is not something we want to teach children to avoid or put down without adequate understanding. Third, as the dominant perspective in contemporary science, evolution deserves mention and attention, even from those who disagree with its arguments. With that said, we do our best to provide balanced perspectives in relation to any potentially divisive content such as evolution.

When it comes to evolution, there are a few important points to keep in mind. In particular, differences between *macroevolution* and *microevolution* are crucial. These terms are sometimes used to clarify what is meant by evolution. *Macroevolutionists* accept evolution as the over arching explanation for all life, believing that evolution is responsible for significant changes in life forms such as a land-based mammal changing into an oceangoing mammal or dinosaurs allegedly evolving into birds. These supposed evolutionary changes are big, hence the term *macro*, meaning something very large in scale, is used in reference to this kind of evolution.

*Microevolution*, however, refers to small changes within different kinds of life. This approach grants the reality of changes within kinds such as birds or dogs. Obviously, there are many kinds and sizes of birds and dogs, but despite the variations, these creatures remain birds and dogs. As a result, someone can adhere to *microevolution* without embracing all the beliefs of *macroevolutionists*, who tend to accept the basic underlying principles of Darwinian evolution.

Religious objections to evolution tend to stem from the accusation that *macroevolution* leaves God out of the picture, instead leaving the entire process of the emergence and development of life to chance and time. Of course, this means that evolution is undirected by any sort of intelligence, while Christianity, for instance, believes in the reality of the existence of God as Creator. In other words, one approach to evolution is based on a worldview known as *naturalism*, while another is based on *theism*.

Naturalism here does not refer to enjoying nature, as in being a naturalist, but in a worldview that denies the existence of anything beyond the material world. In other words, anything supernatural, such as the existence of God, is rejected by naturalists.

Theistic evolutionists accept the existence of God, but view Him as being active in the process of evolution. Christian theistic evolutionists may appeal to Scripture supporting God's active involvement in His creation (such as 1 Corinthians 8:6, Hebrews 1:3, etc.). In areas where a naturalist sees random processes and events, the theistic evolutionist argues that God is actively involved in directing matters.

Theism accepts that there is more to reality than the material world. There is a supernatural world and God exists as a personal being, active in His creation. By definition, naturalism excludes God. Christian theists who reject macroevolution and theistic evolution argue that God is Creator and Designer, having made all life without resorting to any macroevolutionary processes.

Scientific objections to *macroevolution* include, for instance, allegations that the fossil record lacks transitional forms, that genetic mutations are commonly harmful not helpful, and claims that life shows signs of intelligent design.

One goal we have at Sonlight is to present fair and balanced perspectives on issues, including science and evolution. As a result, some of the materials we choose to utilize will at times present evolutionary points of view, while other selections will not. As the parent, we encourage you to provide guidance for your children on these topics. In our assessment, it's better for your children to have some exposure to controversial topics at home, with intelligent and caring guidance, rather than have them be surprised by ideas they will eventually encounter anyway.

#### *The Age of the Earth*

Another issue that will come up in the course of studying science has to do with questions about the age of the Earth. Secular books in some of our science programs will at times refer to "millions" or "billions" of years. For Christians who hold to a young Earth perspective, believing the Earth may only be several thousand years old rather than billions, such phrases pose a problem.

We suggest two solutions. First, whenever you encounter "millions" or "billions" in a science book, feel free to rephrase the sentences in question with phrases such as "a long time," "a very long time," or variations of this phrasing. Second, you may wish to state that although the book uses millions and billions of years, there are other perspectives on the age of the Earth and the age of the universe.

If your children ask why there is disagreement on the age of the Earth and/or universe, you can explain that not everyone interprets the data in the same way. In addition, not everyone employs the same research methods or believes in the same data. Young Earth creationists, for example, include their interpretation of the Bible as a primary source of data. Those who hold to an old Earth view tend either to ignore the Bible (if they are non-Christian) or interpret the biblical creation account in such a way that allows for an old Earth without diminishing essential Christian doctrine. The Bible, from this old Earth perspective, may be a supplementary witness regarding the question of the age of the Earth, but traditional interpretations of it in reference to the age of the Earth need to remain open to reinterpretation.

You may also wish to add, "We aren't sure about how old the Earth is, but I happen to believe …" then state your position on the matter.

Our goal here is not to present a definitive position on the age of the Earth or to present nuanced arguments for each side in the debate, but to leave it to you, as parent, to discuss with your children as you see fit.

Discussion and disagreement about the age of the Earth leads to another important point: is a particular view of the age of the Earth an essential Christian doctrine? Sometimes nonessential beliefs can lead to problems with essential beliefs, so this point needs to be approached carefully and thoughtfully. In general, however, we do well to follow the maxim, "In essentials unity, in nonessentials liberty, and in all things charity." In other words, we should foster Christian unity on essentials, rather than division about nonessentials.

## Student Activity Sheets

After each week's notes you will find Activity Sheets to reinforce what you are teaching and engage your student. Each Activity Sheet lists the week it is used at the top of the page. The questions coordinate with what you are reading and each activity is assigned on the schedule page.

It is not necessary to complete every activity provided. These are merely suggestions and you, as the teacher, can determine which are best suited for your children. You will find a variety of activities included in the Activity Sheets that are designed to draw on different skills and interests. Please feel free to assist your children by doing the hard work of handwriting the answers.

We have also included corresponding Instructions and Answer Key pages for all activities. You may want to file the Activity Sheets in a separate binder for your student's use.

**Note:** If you might reuse your Instructor's Guide and Student Activity Sheets in the future (for a younger child, for instance), we strongly suggest that you purchase an extra set of Activity Sheets when you buy the Instructor's Guide. That way, when we update our Instructor's Guides you will have matching Activity Sheets when you need them. Please contact us if you are looking for Activity Sheets from the past.

## Helpful Hints for Using the Cut-Out Sheets

We hope that the Cut-Out sheets included in Section 3 will be a wonderful resource for you and your children. They should provide your children with another avenue for demonstrating comprehension, even though they have not yet mastered the written language. Some of the questions on the Activity Sheets ask the student to write simple words (usually terms they are studying in the material at the time). Whenever this occurs, we have structured the sheet to already include the word in dashed letters. We suggest your children practice forming letters to produce a word that grow familiarity with science concepts while minimizing the work involved. More importantly, these

exercises also allow your children to practice their writing skills in a very practical way. By integrating handwriting and science skills, your children will begin to see how two separate subjects are related and how each is important to the other.

So why the dashed letters? This relates to an educational concept called "scaffolding." When you "scaffold" knowledge, you give them a little information that they didn't have before to get them to a higher level of comprehension than they might have been able to achieve on their own. For example: students are asked to label the four stages of a butterfly's life. It would be very difficult for children to recognize the "pupa" stage, think of the word "pupa," remember that the letters p-u-p-a spell "pupa," and then get their pencil to actually write p-u-p-a without transforming a "p" to a "b" or a "q" in the process!

With the dashed letters, students are provided with the correct letters in the correct order, and as they trace them, they are helping to memorize how to form the letters correctly in the future. Be sure to talk with your children as they trace to help them read the word and recognize it as something you've been talking about—not just tracing.

***Fifth-Day Assignments***

Because our goal for the 4-Day program is to provide high-interest and enjoyable titles, we choose to not include Activity Sheet questions. simply read the scheduled pages and enjoy!

## Painted Lady Caterpillars

This year, your children will be studying butterflies. However, if you plan to order the caterpillars, you may wish to reschedule your study of butterflies to better fit your seasonal situation. In order for the butterflies to survive after their release, the average daily temperature must be 55 degrees Fahrenheit.

It is possible to inexpensively order Painted Lady Butterfly Caterpillars that you and your children can nurture through metamorphosis and then watch them emerge as live butterflies! Caterpillars even come in kits with everything you'll need to make this project a success. This is an incredible way to bring a topic of study to life with an activity they'll always remember. There are a number of places to obtain these materials. Make sure you plan ahead so that you will have the materials when you need them. Plan on ordering them three or four weeks before you use them.

We recommend:

The Earth's Birthday Project

Phone: (800) 698-4438

Address: Earth's Birthday Project
PO Box 1536
Santa Fe, NM 87504-1536
or: Insect Lore

## A Few Other Helpful Hints

1. Write or color first, then cut out. Small pieces of paper are hard to work with, even if your children have fully developed fine motor skills. Eliminate some frustration for your children (and mess for you!) by cutting out pieces last.
2. Assist with cutting! Always help your children with scissors. Safety scissors with the rounded tips are best (especially for younger children), but they can still cause damage to items you'd rather not cut, or even to children themselves. Cut with care as a pair! **Also**: a few of the pieces may be small or require a little fancier scissor-work. We recommend that an adult cut out these pieces (to save frustrating your children), or share the cutting project—give your children some to do (larger, more basic pieces) while you work on the harder ones.
3. Resist the temptation to do it all! No matter how prepared you'd like to be for a day of teaching, don't think that you need to cut things out ahead of time. Your children will love to help! Not only will they achieve a sense of accomplishment when they have finished, but they are also learning a valuable life skill while developing their fine motor skills.

## A Practical Suggestion

The experiments suggested in your books are basic ideas. Try them; improve them! If you figure something out that works better than the instructions in your book, please tell us! Some experiments work every time, some may take several tries. Even the most famous scientists have had to try the same (or similar) experiments over and over. If an experiment does not work the first time, please try again.

## Supplementary Websites

We know that there are times throughout our curriculum when we simply cannot cover all the material on a given subject. In these instances we will provide Internet search instructions for you to find more information. Please use caution and your own discretion as you look at different sites. We highly recommend that you as the parent and teacher look before allowing your student to do the search with you or on their own. We hope you find this helpful!

## Corrections and Suggestions

Since we at Sonlight Curriculum are constantly working to improve our product, 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, "Science A schedule pages" or "Introduction to World History, Part 1 Study Guide."

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.

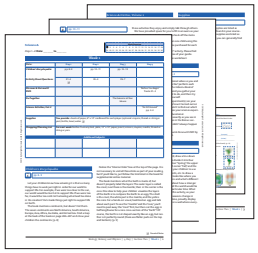
## Summary

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! ■

# Quick Start Guide—Science

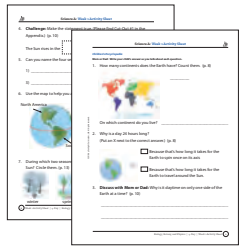
The Sonlight Instructor's Guide (IG) is designed to make your educational experience as easy as possible. We have carefully organized the materials to help you and your children get the most out of the subjects covered. Subjects are interwoven to avoid redundancy and to get the most out of your day.

This IG includes an entire 36-week schedule, notes, assignments, readings, and other educational activities. Sonlight's unique literature based approach to education promotes an enjoyable learning experience that will keep your children asking for "just one more chapter, please." What helpful features can you expect from the IG?



**Easy to use**
Schedule pages are laid out so a quick glance will tell you exactly what to do each day. Check off each assignment as you go to create instant records. Notes for each book follow directly behind the schedule page.

**Activity Sheets**
Engage your students with easy-to-follow Activity Sheets to express their growing knowledge as they explore and discover. Same-view answer keys make it easy to check your student's work.



**Science Experiments**
Truly explore with hands-on science experiments. Sonlight Science Supply kits contain the hard-to-find materials to complete science experiments.

**Notes**
When relevant, you'll find notes about specific books to help you know why we've selected a particular resource and what we hope children will learn from reading it. Keep an eye on these notes to also provide you with insights on more difficult concepts or content (look for "Note to Mom or Dad").

Day 10 Disaster Relief

Discuss the various weather-related disasters that have occurred in your area in recent memory. Have there been tornadoes? Hurricanes? Floods? Drought? Talk with your children about how people are affected by these disasters. Also discuss what ways—if any—are available to avoid or lessen the effects of such disasters. Finally, brainstorm ideas of how your family might be able to help people affected by recent weather-related disasters (or ones yet to come). Could you donate money or supplies needed by

**Instructor's Guide Resources** and **New User Information**
Don't forget to familiarize yourself with some of the great helps you get when purchasing a guide from Sonlight. In the **My Downloads** section of your Sonlight Account, you will find New User Information, extra schedule pages, field trip planning sheets and so much more. An overview of topics covered is located in **Section Three** of the guide.

# Section Two

Schedule, Notes, and Activity Sheets

## Level A: Science

*Days 1–4:* **Date:** _____ **to** _____

| Week Overview | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |

# Week 1

| Date: | Day 1 | Day 2 | Day 3 | Day 4 |
|---|---|---|---|---|
| ***The Usborne Children's Encyclopedia*** | pp. 8–9 | pp. 10–11 | pp. 12–13 | |
| **Activity Sheet Questions** | #1–2 | #3–4 | #5–7 | |
| ***Discover & Do: Level A Science Experiments*** | | | | #1: What Makes Day, Night, and the Seasons? N |
| ***Discover & Do A Videos*** | | | | Track 1 |
| **Optional: Do Together** | | | The Seasons at Your House | |
| **Supplies** N | **Level A Supplies Kit:** 3" Styrofoam ball, wooden skewer, rubber band, thumbtack, flashlight<br>**Paper Packet:** What Makes Day, Night, and Seasons? Test Data Sheet<br>**You Provide:** sandwich-sized clear plastic bag, twist tie, lamp, permanent marker | | | |
| **Shopping/Planning List** | **For Next Week:** room that can be darkened, white paper, drinking glass, plate or shallow dish, table, measuring cup or small pitcher, water, camera (optional), colored pencils or crayons, pencil | | | |
| ***Additional Subjects:*** | | | | |
| | | | | |
| | | | | |



## *Children's Encyclopedia*

Day 1 — pp. 8–9

Let your children know how amazing it is that so many things have to work just right in order for our world to support life. For example, if we were too close to the Sun, our world would be too hot to support life. If we were too far, it would be too cold. Isn't it amazing what God has done in His creation? He's made things just right to support life on Earth.

The book mentions continents, but doesn't list them. The seven continents are North America, South America, Europe, Asia, Africa, Australia, and Antarctica. Find a map at the back of the book on page 286–287 and show your children the continents. [p. 8]

Notice the "Internet links" box at the top of the page. It is not necessary to visit all these links as part of your reading, but if you'd like to, just follow the link listed in the book for supplemental online material.

The book mentions what the Earth is made of, but doesn't properly label the layers: The outer layer is called the crust; next there is the mantle; then in the center is the core. One idea to help your children visualize the layers of the Earth is to compare the Earth to an egg. The shell is the crust, the white part is the mantle, and the yolk is the core. For a hands-on visual, hard-boil an egg and talk about each part. To see the "mantle" and the "core," you'll need to peel away the "crust" first, but then cut the egg in half lengthwise for a nice cross-section of the "Earth"! Of course, the Earth is not shaped exactly like an egg, but neither is it perfectly round (there are flatter parts on the top and bottom). [p. 9]

On the picture of the earth from space there is text that is difficult to read. It says, "Blue Seas and Oceans". [p. 8]

N Parental Notes

The different parts of the earth have specific names. The middle of the earth that is made of solid metal is called the inner core. The part that has hot, soft metal is called the outer core. The hot, sticky rock that moves is called the mantle, while the outside that is made up of solid rock is called the crust. [p. 9]

Please forgive the grammar error on the first line of the section about the atmosphere. It should read, "a large blanket", not, "an large blanket". [p. 9]

Day 2 | pp. 10–11

Do you own a globe? If not, you can also use a ball, such as a basketball or soccer ball, to demonstrate the concept of day and night. All you need is a globe or ball and a flashlight. The flashlight represents the Sun. Shine the flashlight on one side of the globe or ball. The part of the world facing the light is experiencing day, while the other areas are experiencing night. But the world rotates, so as it turns, day turns to night on one part of the globe, while night turns to day in other areas. [p. 10]

The path that the earth takes as it travels around the sun is called its orbit. [p. 10]

Day 3 | pp. 12–13

The book refers to the northern and southern hemispheres but does not explain the concepts of western and eastern hemispheres. You might want to show your children a world map, noting the northern and southern hemispheres, as divided by the equator, while also pointing out the western hemisphere (North and South America and the Pacific and Atlantic Oceans) and the eastern hemisphere (Europe, Africa, Asia, Australia). [p. 13]

Under the section, "What Makes The Seasons Happen?", the paragraphs explain the earth  pointing toward the sun, away from the sun, and getting "more hot sunlight" when the earth is facing the sun. This description may be a bit misleading. The little descriptions on the diagram below this section talk about "direct sunlight". This is a more accurate description. Direct sunlight means that the light from the sun is concentrated on a smaller area. Likewise, heat, which is one component of sunlight, is also focused on a smaller area. On the other hand, indirect sunlight is spread out over a larger area, and therefore the heat is also spread out. [p. 13]

## Activity Sheet Questions

Day 1 | #1–2

**Note to Mom or Dad:** Find each week's Activity Sheets immediately after the notes and answer the questions assigned on the schedule page. Each Activity Sheet has a corresponding Answer Key page at the end of each week's notes.

- You do not have to do every question on the Activity Sheets.
- Feel free to adjust and/or omit activities to meet the needs of your children.
- We cover the same concepts repeatedly throughout the year (and years to come!) to enable students to learn "naturally" through repetition and practice over time.
- Any question marked **Challenge:** will be just that—a challenge for your children. While we believe the material covered in the challenge questions is worthwhile for your children to know, it may not be specifically explained in their reading assignment. As always, if you think any question is too difficult for your children, please feel free to skip.

Please don't expect your children to write the answers until they gain considerable proficiency at handwriting. We have provided a variety of activities to interest and challenge your children. Feel free to let your children do those activities they enjoy and simply talk through others.

We have provided space for you to fill in answers as your children respond verbally, or simply check off the items that you discuss.

**Suggestion:** your Activity Sheets might work more easily in a small binder for your children to keep and use as assigned. If you have more than one child using this program, extra Activity Sheets can be purchased for each child (Item #ASG1).

Occasionally we assign a "Cut-Out" activity. Please find these separate sheets in Section 3.

## *Discover & Do: Level A Experiments*

Day 4 | #1: What Makes, Day, Night, and the Seasons?

**Note to Mom or Dad:** Save the Earth model you make in this experiment. It will be used again. The laser pointer in the supply kit has a flashlight function. Press the second button twice.

## *Discover & Do A Videos*

As a busy parent, you may not have the time to demonstrate every experiment for your children. With Discover & Do Experiment Videos, your students will be able to watch the experiments and learn to do it on their own. Your student can learn the key aspects of each lesson and explore the world even if you are unable to get to an experiment in a busy week.

We recommend you gather your supplies, watch the video with your children to see what to do, and then try each of these simple experiments together. Or, if you prefer, you can do the experiment first, following the experiment book, and then watch the video to see how it turned out on screen. You may want to mix and match to find out what works best.

Filled with fascinating activities and peppered with humor, these highly entertaining videos reenact all the experiments your students perform and provide reinforcement of the concepts observed during the experiment. These videos provide tons of additional information, instructional content, and bring the experiments to life in a way that can't be done at home—they truly enhance your science experience.

To access these videos, log into your Sonlight account at sonlight.com. Click on your name at the top of any page and select **Videos**.



## Optional: Do Together

Day 3 — The Seasons at Your House

Using a large piece of poster board, draw a line down the middle in each direction so as to divide it into four equal parts. Label the upper left corner "Spring," the upper right corner "Summer," the lower left corner "Fall," and the lower right corner "Winter." Now ask your children to use crayons, markers, paint, colored pencils, etc. to draw a picture of what each of the seasons looks like where you live. As they draw, discuss the seasons and what's different about each one. Ask them to think about how a stranger who just flew in from halfway around the world would be able to tell what season it is at any particular time. What clues would they find? Have fun with this activity, as your children learn more about how the seasons change in your particular area. When they're done, proudly display their work of art on the refrigerator or a wall where everyone can see it.

## Supplies

Day All — You Provide

**Note to Mom or Dad:** When supplies are listed as **Level A Supplies Kit**, they are materials found in your course-specific kit of supplies (item 1SK). When supplies are listed as **You provide**, they are materials you can generally find around your home. We will also help provide a list of materials that will be needed for the following week, to help you prepare in advance.

One set of the consumable **Discover & Do Level A Experiment Paper Packet** worksheets are included in the Experiment book with each experiment. If you have more than one student, or do not wish to cut pages out of your book, be sure to purchase an additional Level A Experiment Paper Packet from sonlight.com. ■

***The Usborne Children's Encyclopedia***

**Mom or Dad: Write your child's answer as you talk about each question.**

1. How many continents does the earth have? Count them. (p. 8)


*(7)*

On which continent do you live? *(Answers will vary.)*

2. Why is a day 24 hours long?
(Put an X next to the correct answer.) (p. 8)

[X] because that's how long it takes for the earth to spin once on its axis

[ ] because that's how long it takes for the earth to travel around the sun

3. **Discuss with Mom or Dad:** Why is it daytime on only one side of the earth at a time? (p. 10)

*(As the earth turns, only one side faces the sun; one side of the earth is in light while the other side is in shadow.)*





Science A: Week 1 Activity Sheet

4. **Challenge:** Make the statement true. (Circle the correct answer.) (p. 10)

The sun rises in the **East** or **West** and sets in the **East** or **West**.

5. Can you name the four seasons? (p. 12)

1) *(Spring)* 2) *(Summer)*

3) *(Fall)* 4) *(Winter)*

6. Use the map to help you answer. (Please find Cut-Out #1) (p. 13)


When it is summer in:

… it is winter in:



7. During which two seasons does the earth tilt toward or away from the sun? Circle them. (p. 13)


winter


spring


summer


fall



©2023 by Sonlight Curriculum, Ltd. All rights reserved.

***The Usborne Children's Encyclopedia***

**Mom or Dad: Write your child's answer as you talk about each question.**

1. How many continents does the earth have? Count them. (p. 8)


_____

On which continent do you live? _____

2. Why is a day 24 hours long?
(Put an X next to the correct answer.) (p. 8)

☐ because that's how long it takes for the earth to spin once on its axis

☐ because that's how long it takes for the earth to travel around the sun

3. **Discuss with Mom or Dad:** Why is it daytime on only one side of the earth at a time? (p. 10)

_____

_____

4. **Challenge:** Make the statement true. (Circle the correct answer.) (p. 10)

   The sun rises in the **East** or **West** and sets in the **East** or **West**.

5. Can you name the four seasons? (p. 12)

   1) _____ 2) _____

   3) _____ 4) _____

6. Use the map to help you answer. (Please find Cut-Out #1) (p. 13)


When it is summer in:

… it is winter in:

7. During which two seasons does the earth tilt toward or away from the sun? Circle them. (p. 13)


winter


spring


summer


fall

## Level A: Science

*Days 5–8:* **Date:** _____ **to** _____

| Week Overview | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |

# Week 2

| Date: | Day 5 | Day 6 | Day 7 | Day 8 |
|---|---|---|---|---|
| ***The Usborne Children's Encyclopedia*** | pp. 14–15 | pp. 16–17 | pp. 18–19 | |
| **Activity Sheet Questions** | #1–3 | #4–5 | #6–7 | |
| ***Discover & Do: Level A Science Experiments*** | | | | #2: What Causes Rainbows? |
| ***Discover & Do A Videos*** | | | | Track 2 |
| **Optional: Do Together** | | | Rock Star & Fossil Fun | |
| **Supplies** | **Level A Supplies Kit:** flashlight, small mirror<br>**Paper Packet:** What Causes Rainbows? Test Data Chart<br>**You Provide**: room that can be darkened, white paper, drinking glass, plate or shallow dish, table, measuring cup or small pitcher, water, camera (optional), colored pencils or crayons, pencil | | | |
| **Shopping/Planning List** | **For Next Week:** an additional flashlight for each partner, pencil, scissors, bowl or container to hold strips of paper to draw from | | | |
| ***Additional Subjects:*** | | | | |
| | | | | |
| | | | | |



## *Children's Encyclopedia*

Day 5 — pp. 14–15

Occasionally, you'll notice short experiment suggestions such as "Make a rainbow" on page 15. Please consider these activities as optional.

When the book describes wind at the top of page 15, it gives three examples with corresponding names for different strengths of wind. The third example uses the term "hurricane" as the strongest type of wind, when in actuality a hurricane is a type of storm with very strong winds. Additionally, the second example uses the term "gale". Gale is a nautical term that describes a strong, sustained wind over maritime areas, like the sea. Wind over land may not technically be a gale, but could still have the same wind strength. [p. 15]

To explain how a rainbow forms, explain to your children that light is made up of a lot of colors. Specifically, the colors are red, orange, yellow, green, blue, indigo, and violet. When light passes through the water, it is broken up into the colors seen in a rainbow.

Day 6 — pp. 16–17

The photograph at the bottom of page 16 shows a hurricane. Earth is not the only planet to have storms. Jupiter, for example, has many huge storms, such as the Great Red Spot. If you look at images of Jupiter, the spot looks like part of the planet, but is actually an enormous storm that has been occurring for many years.

N Parental Notes

Day 7 | pp. 18–19

People disagree on the amount of time it takes to form fossils. Some claim this process must take millions of years, as noted in the book, while others believe fossil formation could happen much faster. For example, when the Roman city of Pompeii was covered by a volcano eruption in 79 A.D., scientists discovered "fossils" of people and dogs that formed at that instant. For our note on addressing the age of the Earth and "millions of years" issues, see the note on "Evolution and the Age of the Earth" in the Introduction.

At the bottom right corner of page 19, the book explains that the Colorado River formed the Grand Canyon by wearing the rock away (erosion) over millions of years. Again, this is an area of disagreement, with some agreeing with this conclusion and others believing the formation of the Grand Canyon could have taken place rapidly, possibly as a result of the biblical flood. One thing is certain—the Grand Canyon is amazing!

Please note that when this book discusses dating for things like rocks and fossils, it assumes an old earth perspective that is in line with most scientific schools of thought. Refer to Section 1 of this guide for more information about dating methods.

The section that talks about the hot, sticky, fiery rocks refers to magma when it is inside the earth. Once the magma reaches the surface of the earth, it is called lava. Both magma and lava are essentially the same thing, but the name is determined by its location (i.e., inside the earth versus on the surface). When the authors use the work "sticky", they are describing that the rock is so hot that it has melted into a liquid form. [p. 18]

## Optional: Do Together

### Day 7 | Rock Star

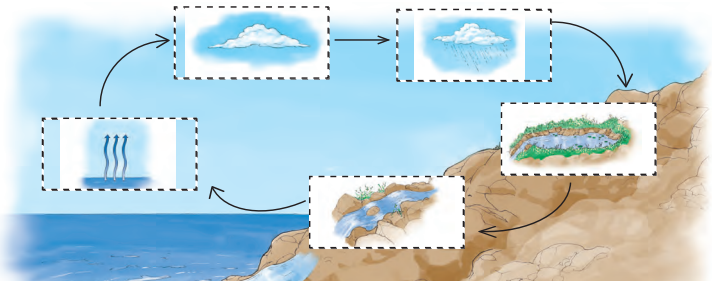
Have your children ever wanted to be a rock stars? Well, now they can be one! A star at collecting and analyzing rocks, that is. Grab a pad of paper, something to write with, perhaps some colored pencils, a magnifying glass, and a jackhammer. OK, forget the jackhammer, but grab the rest of the stuff and head outside to collect some rocks. Look around your house and your neighborhood. How many different types of rocks can you and your children find? After they collect several samples of different types of rocks, make notes about each one. What your children see? What do the rocks feel like? Do they have similar or different smells? What sounds do the rocks make when your children drop them? Have your children draw a picture of each of the rock samples. When they're done, have them show off their work to another family member and discuss the discoveries with them.

### Day 7 | Fossil Fun

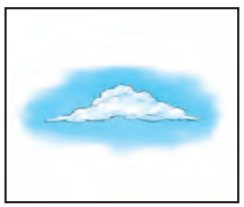
Help your children create their own fossil. First, make some fossil dough. You'll need: ½-cup cornstarch, 1 cup baking soda, and ½-cup cold water. Put the ingredients in a saucepan and stir over medium heat for four minutes until the mixture thickens to look like moist mashed potatoes. Then place the mixture on a plate and cover with a damp cloth until cool. Knead it like dough, and then shape it into 1-inch balls. Provide each student with a square of wax paper. For the remainder of this activity, you will need: wax paper, materials to make an imprint (leaves, acorns, shells, etc.), and possibly some paints. Give your children a 1-inch ball of fossil dough. On the wax paper, press the dough ball into a disc the size of a half-dollar. Then use a leaf, acorn, shell, etc. to make an imprint in the dough. Set the future fossil aside to dry and repeat the steps to make additional fossils. When the fossils are dry, let your children paint them or decorate them. ■

***The Usborne Children's Encyclopedia***

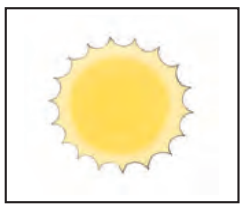
1. Describe the water cycle. (Please find Cut-Out #2.)
   Then add arrows to show which way the water moves. (p. 14)



2. Draw a picture to record the weather each day this week. (pp. 14–15)



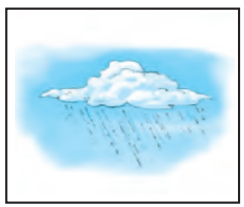
Day 1



Day 2

*(Possible Answers)*

Day 3



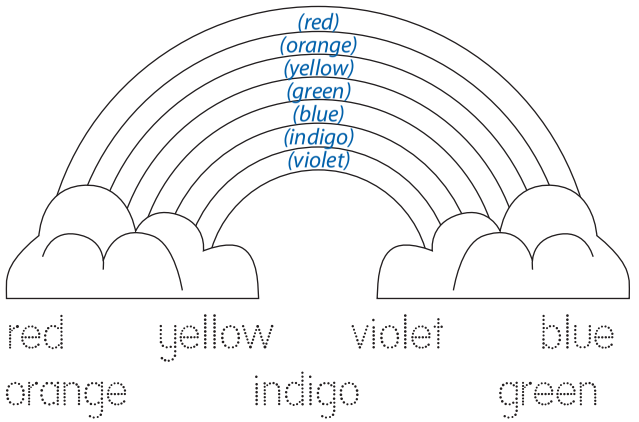
Day 4







3. Label and color the correct colors on the rainbow. (p. 15)




4. Draw lines to match each storm feature to the picture that shows what each is like. (p. 16)

5. Why do floods happen? Talk through these causes with your children. (p. 17)

*(1. too much rain falls in a short time)*

*(2. undersea volcanoes or earthquakes send huge waves to shore)*

*(3. ice and snow melt when the ground is too frozen to absorb it)*

*(4. monsoon winds bring heavy rain from the ocean)*

6. How are the two types of rock formed? (p. 18)

Sedimentary: *(layers of sediment build up slowly and get squeezed together to become rock)*

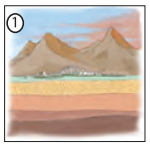
Igneous: *(hot sticky rock pours out of a volcano. when it hardens, it becomes igneous rock)*



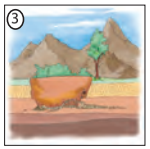




7. How do fossils form? Use the pictures to help you describe the process to Mom or Dad. (p. 19)



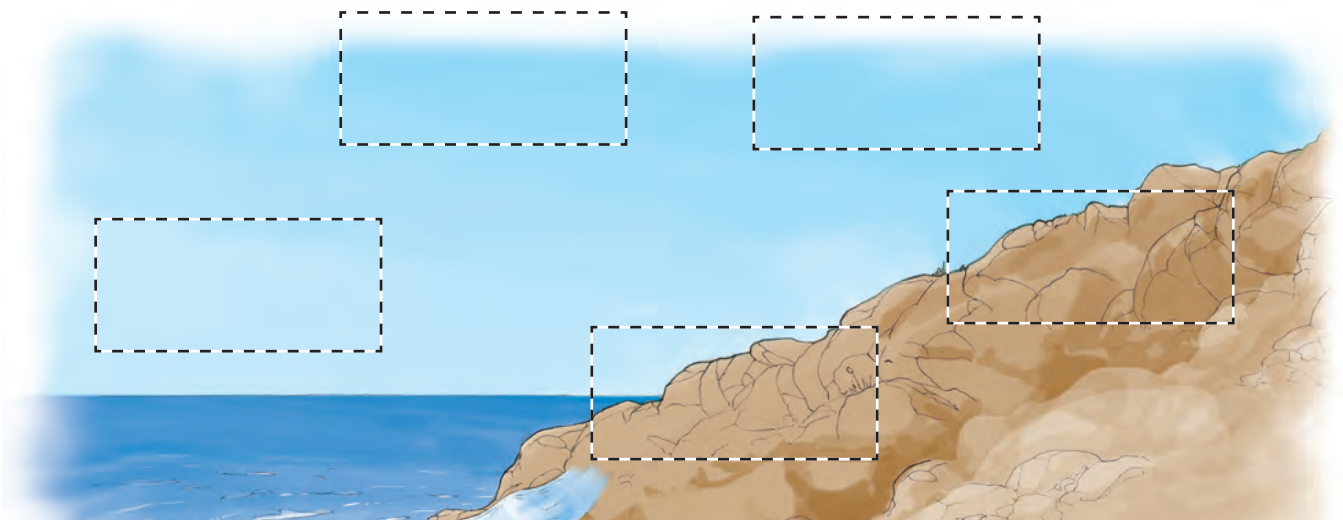





*(Possible: The soft parts of dead animals rot away, but the bones may sink into the mud and get covered with sediment. After time passes, the mud hardens into rock but keeps the shape of the animal bones.)*

***The Usborne Children's Encyclopedia***

1. Describe the water cycle. (Please find Cut-Out #2.)
   Then add arrows to show which way the water moves. (p. 14)



2. Draw a picture to record the weather each day this week. (pp. 14–15)

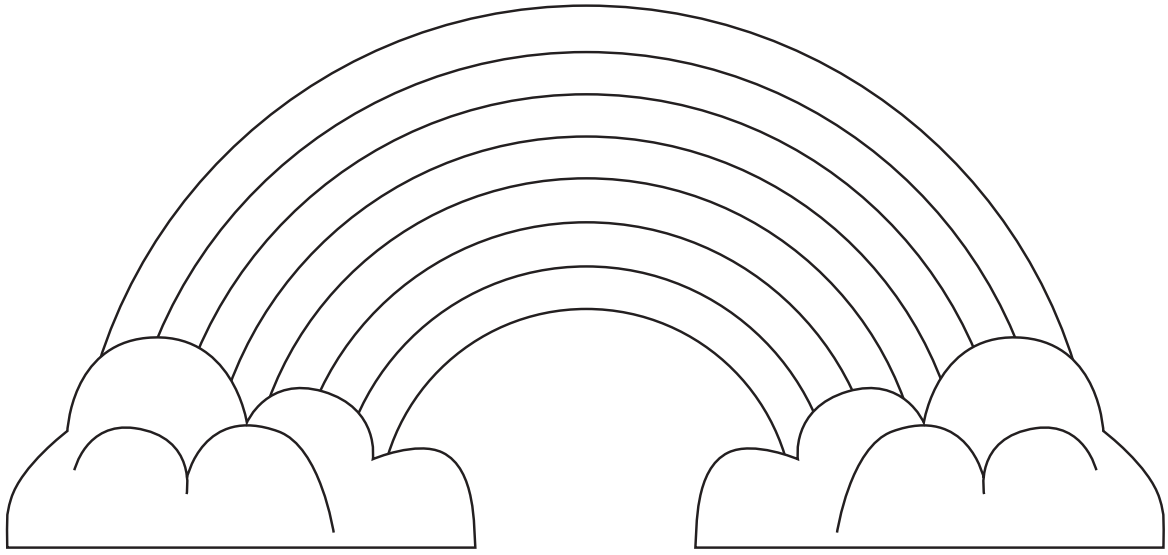
Day 1

Day 2

Day 3

Day 4

3. Label and color the correct colors on the rainbow. (p. 15)



red yellow violet blue

orange indigo green

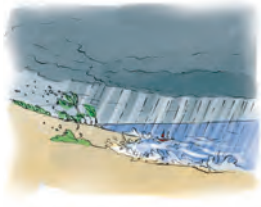
4. Draw lines to match each storm feature to the picture that shows what each is like. (p. 16)

spark

wind and rain

sucks things up

hurricane



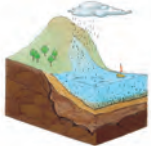
lightning

tornado

5. Why do floods happen? Talk through these causes with your children. (p. 17)

6. How are the two types of rock formed? (p. 18)

Sedimentary: _____

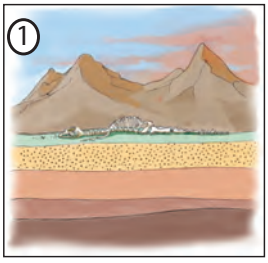


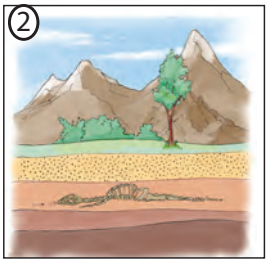
_____

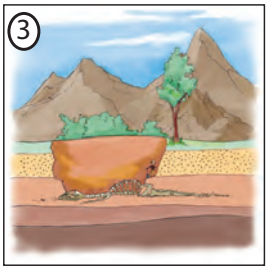
Igneous: _____

_____

7. How do fossils form? Use the pictures to help you describe the process to Mom or Dad. (p. 19)

① 

② 

③ 

## Level A: Science

*Days 9–12:* **Date:** _____ **to** _____

| Week Overview | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |

# Week 3

| Date: | Day 9 | Day 10 | Day 11 | Day 12 |
|---|---|---|---|---|
| ***The Usborne Children's Encyclopedia*** | pp. 20–21 | pp. 22–23 | pp. 24–25 | |
| **Activity Sheet Questions** | #1–2 | #3–5 | #6–8 | |
| ***Discover & Do: Level A Science Experiments*** | | | | #3: Can I Send a Message with a Light? |
| ***Discover & Do A Videos*** | | | | Track 3 |
| **Optional: Do Together** | My Fault | Volcano Eruption | | |
| **Supplies** | **Level A Supplies Kit:** flashlight<br>**Paper Packet:** Can I Send a Message With Light? Design Planning Sheet, Code Design Sheet, Situation Challenge Sheet<br>**You Provide:** an additional flashlight for each partner, pencil, scissors, bowl or container to hold strips of paper to draw from | | | |
| **Shopping/Planning List** | **For Next Week:** measuring tape, single location outside where you can use the sidewalk chalk, pencil, alarm (optional), Earth model made earlier this year (Styrofoam ball, skewer, rubber band, thumbtack) | | | |
| ***Additional Subjects:*** | | | | |
| | | | | |
| | | | | |



## *Children's Encyclopedia*

Day 9 — pp. 20–21

Earthquakes can be scary. Is this the way God intended the world to be? Let your children know that the Bible tells us that the world isn't the way it was originally created. After the Fall, the world changed from being completely good as God intended. In the New Testament the Apostle Paul wrote, "We know that the whole creation has been groaning" (Romans 8:22, NIV). But someday, God will restore His wonderful creation so there will no longer be terrible earthquakes.

To expand your knowledge of earthquakes, you may want to research the different types of earthquakes. Some earthquakes produce waves like you might expect to feel in the ocean, and others that are more like a shaking movement.

Day 10 — pp. 22–23

The largest volcano on Earth is Mauna Loa, which makes up about half the island of Hawaii. The name of the volcano means "long mountain." The largest volcano in the solar system is Olympus Mons on Mars. It is about sixteen miles high. The book makes no mention of the famous volcano eruption of Pompeii, which erupted in 79 A.D. You can learn more about this eruption in *Pompeii … Buried Alive*! by Edith Kunhardt.

**Note:** Not all people accept that the world is millions of years old.

N Parental Notes

Day 11 | pp. 24–25

As you discuss the path from the river to the ocean, number 6 in the book may sound a bit confusing. At the end of a river, it is true that rivers typically get wider, but it is also true that the outer edge of the bend of a river at the end of its course is typically deeper. [p. 25]

## Optional: Do Together

Day 9 | My Fault

Do you live in an area prone to earthquakes? When was the last time an earthquake occurred in your area? As you talk about these questions, discuss earthquake preparedness with your children. Do they know what to do in case of an earthquake?

Day 10 | Volcanic Eruption

If you're in the mood for a really messy experiment (and, really, who isn't?), then this volcano simulation is for you! Here's what you'll need: an aluminum pie tin (or paper plate), newspaper, baking soda (3–4 tablespoons), vinegar ( ½-cup), liquid dishwashing detergent, a small plastic bottle (a soda bottle will work fine), modeling clay (or any type of clay—use our recipe provided below or check the Internet for homemade clay recipes), a funnel, measuring spoons and cups, and food coloring. Put the bottle on the pie plate (or paper plate). Using the clay, make a volcano around the bottle. Leave the area around the top of the bottle open and don't get any clay inside the bottle. Feel free to decorate the volcano any way you'd like. Using the funnel (make sure it's dry), put 3–4 tablespoons of baking soda into the bottle. Then add a few drops of liquid dishwashing detergent and about a half-cup of water. Put a few drops of food coloring into a half-cup of vinegar. Using the funnel, pour the vinegar mixture into the bottle. Quickly remove the funnel, as the volcano will erupt immediately! When the vinegar reacts with the baking soda, carbon dioxide gas is formed and the bubbles push the "lava" out of the "volcano." Be prepared for a mess! This is one of those experiments best done outside. Have fun!

**Recipe for clay**: mix 1 cup salt, 2 cups flour; slowly add 1 cup of water. Knead seven to ten minutes. ■

***The Usborne Children's Encyclopedia***

1. What causes an earthquake? (p. 20)

- [ ] Huge animals make the ground shake.
- [ ] When trees fall, it causes the earth to shake violently.
- [x] Huge rocks deep under the earth slip and push against each other, which causes the ground above to shake.

2. Why are tsunamis (or giant waves) dangerous? (p. 21)

- [ ] Because they are like a bad earthquake.
- [x] Because if the enormous wave reaches the shore, it will cause a lot of damage.

3. A tall and steep volcano forms because … (p. 22)

*(the lava is thick and sticky and does not flow far before it hardens.)*

4. A flatter volcano forms when … (p. 22)

*(the lava is thin and runny and spreads out quickly before it hardens.)*







5. Label the activity of each volcano below. (Please find Cut-Out #3.) (p. 23)

active alive

dormant asleep

extinct dead

6. The place where a river begins and gathers lots of its water is called its _____*(source)*_____ (p. 24)

7. Circle the correct answers to complete the sentence. When a river goes over a waterfall, the water travels very **fast** **slow** , and when the river begins to loop through meanders, it travels **fast** **slow** . (pp. 24-25)

8. How does a waterfall form? (p. 25) *(A river wears the soft rock away faster than hard rock, creating a step to fall over.)*

***The Usborne Children's Encyclopedia***

1. What causes an earthquake? (p. 20)

   ☐ Huge animals make the ground shake.

   ☐ When trees fall, it causes the earth to shake violently.

   ☐ Huge rocks deep under the earth slip and push against each other, which causes the ground above to shake.



2. Why are tsunamis (or giant waves) dangerous? (p. 21)

   ☐ Because they are like a bad earthquake.

   ☐ Because if the enormous wave reaches the shore, it will cause a lot of damage.

3. A tall and steep volcano forms because … (p. 22)

_____

_____

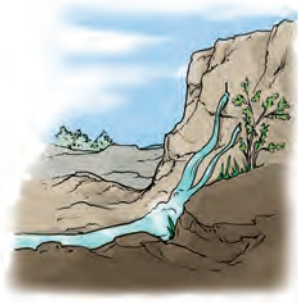
4. A flatter volcano forms when … (p. 22)

_____

_____

5. Label the activity of each volcano below. (Please find Cut-Out #3.) (p. 23)

6. The place where a river begins and gathers lots of its water is called its _____ (p. 24)



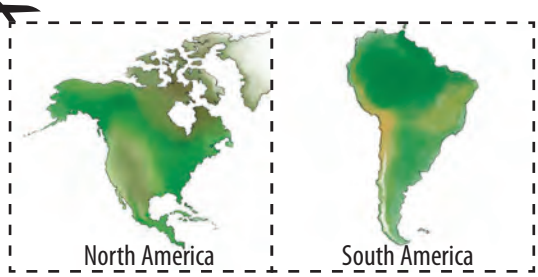
7. Circle the correct answers to complete the sentence. When a river goes over a waterfall, the water travels very **fast** **slow** , and when the river begins to loop through meanders, it travels **fast** **slow** . (pp. 24-25)

8. How does a waterfall form? (p. 25) _____

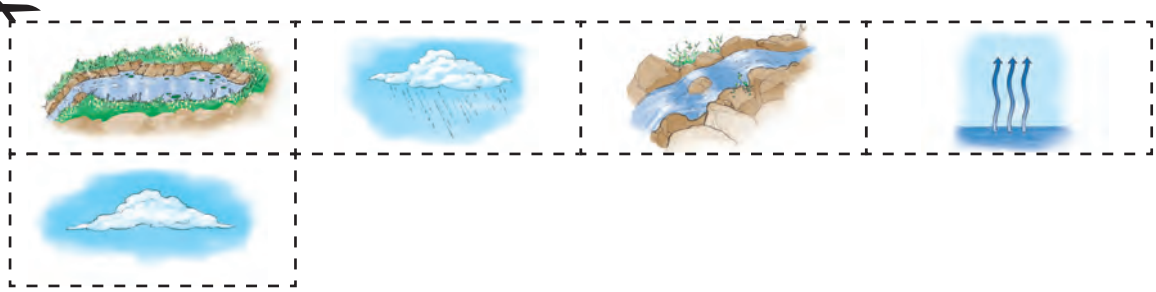
# Appendix 1: Science A—Weekly Subject List

| Week | Subject |
|---|---|
| 1 | our planet; day and night; seasons |
| 2 | weather, rain, wind snow; storms & floods; rocks & fossils |
| 3 | earthquakes; volcanoes; rivers |
| 4 | mountains; deserts; grasslands |
| 5 | rainforest; seas & oceans; waves |
| 6 | currents/tides; coasts; poles, iceberg, icy world |
| 7 | caves, caverns; coal, oil, wind, water, solar; pollution, damage, extinct |
| 8 | global warming/solutions; living things characteristics; cells |
| 9 | Pasteur; animal categories |
| 10 | mammal characteristics; baby mammals; bird characteristics |
| 11 | bird bodies & beaks; nests & chicks; reptile characteristics |
| 12 | amphibians; insects/spiders; butterflies / metamorphosis |
| 13 | seashore life; fish characteristics; coral reefs |
| 14 | sharks/whales; dolphins; deep sea |
| 15 | plant types; how plants grow; trees, leaves/fungi |
| 16 | body, organs, blood, skin; bones & muscles; digestion |
| 17 | brain & senses; babies - how and birth; health, eat, clean, fit, sleep, doctors |
| 18 | illness; germs; |
| 19 | germ invasion; body fights back; allergies |
| 20 | how illness spreads; accidents; go to doctor |
| 21 | where you live; health: eat, clean, careful, feelings; what is science |
| 22 | what scientists do; atoms & molecules; solids, liquids, gases |
| 23 | how materials change; energy; forces |
| 24 | hot & cold; gravity; floating |
| 25 | friction; magnets; light & color |
| 26 | light |
| 27 | sound |
| 28 | sound \| electricity; space; |
| 29 | space shuttle; spacesuits/gear; life in space |
| 30 | satellites & probes; solar system; moon |
| 31 | sun; Mercury & Venus; Mars |
| 32 | Jupiter & Saturn; Uranus & Neptune; Pluto & beyond |
| 33 | space pieces; galaxies; night sky |
| 34 | Engineering |
| 35 | machines; robots; building big |
| 36 | helping people; help planet; create culture |

## Cut-Out #1



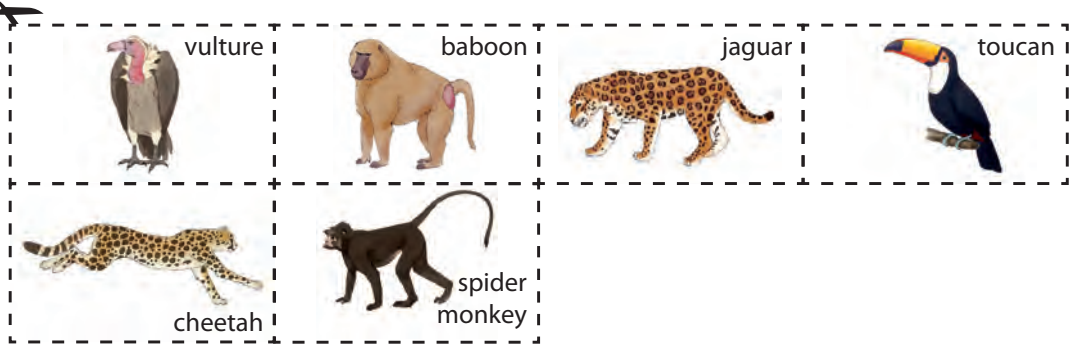

## Cut-Out #2



## Cut-Out #3

| | | |
|---|---|---|
| alive | asleep | extinct |
| active | dead | dormant |

## Cut-Out #4




## Cut-Out #5

| | |
|---|---|
| animal cell | plant cell |

# SONLIGHT

2023–2024 Catalog


# Request A FREE COPY!

SONLIGHT.COM