Thank you for downloading this sample of Sonlight's Science D 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
- A 3-week Schedule
- Activity Sheets and Parent Answer Keys
- A Scope and Sequence of topics and skills your children will be developing throughout the school year

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
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 on Sonlight’s online chat tool and got the help I needed. The next day I was able to put her counsel into practice!”
Science (5-Day)

Biology, Taxonomy, and Human Anatomy

By The Sonlight Team

“The heavens declare the glory of God; the skies proclaim the work of his hands.”

Psalm 19:1 (NIV)
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NOTE TO PURCHASER
Sonlight Curriculum, Ltd. is committed to providing the best homeschool resources on the market. This entails regular upgrades to our curriculum and to our Instructor’s Guides. This guide is the 2018 Edition of the Sonlight Curriculum® “Intro to the World: Cultures” (5-Day) Instructor’s Guide and Notes. If you purchased it from a source other than Sonlight Curriculum, Ltd., you should know that it may not be the latest edition available.

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

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

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Printed in the United States of America.

For the latest information about changes in this guide, please visit www.sonlight.com/curriculum-updates.html. Please notify us of any errors you find not listed on this site. E-mail corrections to iGcorrections@sonlight.com and any suggestions you may have to iGsuggestions@sonlight.com.
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. No need to create your own plans.

2. Detailed Teaching Notes
   Notes explain each assignment and activity, point out fun facts about your reading, and provide extra information about important topics so you get the most from your materials.

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 reading and provide hands-on learning. Sonlight’s Science kits provide the key supplies . . . so you actually do the experiments.

Many experiments are intriguing, yet simple, activities—such as exploring taste buds using basic ingredients like lemon juice and sugar. Again, no planning necessary!

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

Try before you buy!
Get a three week sample of any Sonlight Instructor’s Guide—FREE!
sonlight.com/samples
I am so thankful for Sonlight Science,” writes Janine B of
Peoria, AZ. “The gentle overview of many topics in Science A has
kept both of us engaged all year. I love that the materials are all
provided in the Science Supply kit, so I’m not left scrambling for
uncommon items on the morning of Experiment Day. Thank you,
Sonlight, for making my job easy!” In this picture, Levi (7, Science A)
learns about carbonation with the help of some raisins.
Welcome!

In Science D, you will learn about physics, zoology, botany, and human anatomy. It also includes nine weeks of intensive experimental studies in plant biology.

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,” a child may say—late in the program. When the child studies biology again in future programs, the names and concepts will be vague, but recognizable, as the child gains 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.

The science experiments in this package, although not larger than life, work well.

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.

One quick note before you begin: The experiments also don’t coordinate with the other science reading. We have not found any single book that coordinates great information and exciting illustrations (as found in the majority of our science books) with great hands-on activities and experiments. We believe we have selected the best cluster of books for both interest and excitement, but know up front: the science reading will not match the experiments.

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 overarching explanation for all life, believing that evolution is responsible for significant changes in life forms such as a land-based mammal changing into an ocean-going 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 granting 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 phrasings 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 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

Behind 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 students’ 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.

A Practical Suggestion for Experiments

Please be aware that some of your books may imply that an experiment will knock your socks off: the results will be “bigger than life.” The reality, we’ve found, is rarely so exciting. Often what you should be looking for is a very small change. 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

For your convenience, we have created a website that is dedicated to providing you with links that we think may be helpful for supplementing the material your children will be learning. That website is http://www.sonlight.com/iglinks.html. Every time we have provided a corresponding link on this page, you will see this symbol:  . We hope you find this helpful!

Corrections and Suggestions

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

Whenever you find an error anywhere in one of our Instructor's Guides, please check our updates page for the latest information at www.sonlight.com/curriculum-updates.html  . Report new information by sending a short e-mail to: IGcorrections@sonlight.com. It would be helpful if the subject line of your e-mail indicated where the problem is. For instance, “Science D/Section Two/Week 1/Schedule.” If, while going through our curriculum, you think of any way we could improve our product, please e-mail your suggestions to: IGsuggestions@sonlight.com. If you know of a different book we should use, if you think we should read a book we assign at a different point in the year, or if you have any other ideas, please let us know.

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!  ■
## Science D—Science Supplies

<table>
<thead>
<tr>
<th>DSK (Science Supplies Kit) Item</th>
<th>Week(s) Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>4”x6” index cards</td>
<td>20, 21, 22</td>
</tr>
<tr>
<td>aluminum foil</td>
<td>20, 21, 22, 24</td>
</tr>
<tr>
<td>clothespin</td>
<td>24</td>
</tr>
<tr>
<td>foil cutting map</td>
<td>20, 21, 22</td>
</tr>
<tr>
<td>kidney beans</td>
<td>24</td>
</tr>
<tr>
<td>lentils</td>
<td>28</td>
</tr>
<tr>
<td>magnifying glass</td>
<td>22, 25</td>
</tr>
<tr>
<td>masking tape (sticky tape, adhesive tape, etc.)</td>
<td>20, 24</td>
</tr>
<tr>
<td>paper clips</td>
<td>21, 24</td>
</tr>
<tr>
<td>pinto beans</td>
<td>24</td>
</tr>
<tr>
<td>plastic cups/lids</td>
<td>20, 21, 22, 24, 28</td>
</tr>
<tr>
<td>popcorn kernels</td>
<td>24</td>
</tr>
<tr>
<td>portion cups, plastic</td>
<td>20, 21, 22, 25</td>
</tr>
<tr>
<td>potting soil</td>
<td>20, 21, 22</td>
</tr>
<tr>
<td>radish seeds</td>
<td>25, 28</td>
</tr>
<tr>
<td>rubber bands</td>
<td>24, 25</td>
</tr>
<tr>
<td>straight pins</td>
<td>24</td>
</tr>
<tr>
<td>straws</td>
<td>24</td>
</tr>
<tr>
<td>styrofoam tray</td>
<td>20, 21, 22</td>
</tr>
<tr>
<td>wheat kernels</td>
<td>28</td>
</tr>
</tbody>
</table>
The book credits Carolus Linneaus as being the founder of taxonomy, but a case can be made for Aristotle (ca. 384–322 B.C.) being the founder of taxonomy. The beginnings of taxonomy, then, resulted from the interests of an ancient philosopher trying to make organizational sense out of life. It may be better to say that Linneaus refined taxonomy, resulting in its modern scientific form, or that he is the founder of “modern” taxonomy. [p. 3]

**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 that he enjoys 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.

**Remember:** This program is designed for you to use to meet your children’s needs. It is not meant to use you!

**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 #DSG1).
Do Together

Day 2  Kingdom Poster Board

For a fun time, help your children create a poster board about one of the five Kingdoms. You’ll need a piece of poster board, as well as pencils, pens, crayons, colored pencils, scissors, and glue.

Help your children choose one of the five Kingdoms that they would like to learn more about, and then help them find more information on the Internet. As they learn new and interesting facts, help them to make notes about this information. If they find interesting pictures, be sure to print some of them for your children to use on their poster board.

When they have learned a lot about their chosen Kingdom, help them to gather their pictures and facts. Which pictures and facts do they want to highlight on their poster board? Which things would other people most want to know about this Kingdom? Do they have pictures of sample species from within the Kingdom? When your children are finished with their poster board, find a place to hang it so that others can see their work.

Day 4  What’s in a Name?

And the LORD God said, “It is not good that man should be alone; I will make him a helper comparable to him.” Out of the ground the LORD God formed every beast of the field and every bird of the air, and brought them to Adam to see what he would call them. And whatever Adam called each living creature, that was its name. So Adam gave names to all cattle, to the birds of the air, and to every beast of the field. But for Adam there was not found a helper comparable to him. Genesis 2:18–20 (NKJV)

The process that scientists use today to name new species seems much more complicated than the plan God used with Adam. Ask your children: if they had been Adam, would they have enjoyed naming all the animals? Why or why not?

Today, give them a chance to do just that. That’s right! Let them name some animals. Use an encyclopedia or the Internet to find some pictures of animals that your children may not recognize. Pick 5 or 10 animals and then show the pictures to your children. What would they name the animal? Why? When they’re done, share with them the real names of the animals. Did they come close on any of them?

If they enjoy this activity, feel free to repeat it with additional animals. Have fun!

Optional: Lyrical Life Science 1

Day 1  Introduction

Note to Mom or Dad: The publisher of Lyrical Life Science has created 2 new songs for volume 1: one song about cell organelles and the other about protists. To accompany these songs, they have created new text and workbook pages. All of these new materials are now available for FREE on their website.
4. Write the names of the five kingdoms scientists use below. (1.3)

5. Which characteristic determines the kingdom in which an organism will be placed? Circle your answer. (1.3)
- where it lives
- bone structure
- its coloring
- cell structure

6. Fill in the chart below with the missing information about the different kingdoms. (1.3)

<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Sample Creature</th>
<th>Interesting Fact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animalia</td>
<td>________________________________</td>
<td>All animals have animal cells.</td>
</tr>
<tr>
<td>Fungi</td>
<td>________________________________</td>
<td>Members of this kingdom were once grouped with plants in the Plant Kingdom.</td>
</tr>
<tr>
<td>Monera</td>
<td>________________________________</td>
<td>Most members are _______________________; which contains they only have one cell.</td>
</tr>
</tbody>
</table>

7. Why aren't frogs and cats part of the same class? (1.4)
- because frogs live on both land and water and cats nurse their young.
- because frogs live in the water and cats live on land.
- (Answers will vary.)

Science D: Week 1 Activity Sheet

1. Write the meanings of the two Greek words that make up the word biology below. (1.1)
   - bios: ________________________________
   - logos: ________________________________
   - Write your own definition of biology here: ____________________________________________________________

2. Circle the characteristics of living things. (1.1)
   - require food
   - have skin
   - they reproduce
   - some move freely in their environment
   - have legs
   - breathe air

3. Why is taxonomy helpful to scientists? (1.2)
- because it better shows scientists each animal's particular color
- because it organizes living things into groups that help scientists better know what to feed them at the zoo
- because it helps scientists share the work of studying them
- (Answers will vary.)

Write the name of the scientist who founded taxonomy here: __________________________

(Carl Linnaeus)
8. Match the characteristic descriptions to the animal pair that best define each. Write the letter on the line. (1.4)

   a. has a horny beak / is cold-blooded
   b. has a soft body / has a backbone
   c. sharply hooked beak / flightless; live near oceans

   Phylum: Mollusca
   Class: Aves
   Order: Sphenisciformes
   Order: Falconiformes

9. Use the words in the box to order the classification categories. Write them in the funnel below. (1.4–1.5)

   Phylum: Chordata
   Class: Reptilia
   Order: Sphenisciformes
   Phylum: Mollusca
   Class: Aves
   Order: Falconiformes

10. Are you a Homo sapien? (1.5)

   Yes
   No
Real Science 4 Kids: Biology Level 1

1. Write the meanings of the two Greek words that make up the word biology below. (1.1)

Remember, it is okay for you to act as a scribe on these sheets until your child is proficient at writing.

bios: ___________________________ logos: ___________________________

Write your own definition of biology here: ___________________________________________________________
_______________________________________________________________________________________________

2. Circle the characteristics of living things. (1.1)

- can smile
- they reproduce
- have skin
- require food
- some move freely in their environment
- have legs
- breathe air
- eventually die

3. Why is taxonomy helpful to scientists? (1.2)

☐ because it better shows scientists each animal’s particular color
☐ by organizing types of living things, scientists can better study their similarities and differences
☐ by organizing types of living things, scientists better know what to feed them at the zoo
☐ because organizing living things into groups helps scientists share the work of studying them

Write the name of the scientist who founded taxonomy here:

___________________________________________________
4. Write the names of the five kingdoms scientists use below. (1.3)

P ___________ P ___________ A ___________ M ___________ F ___________

5. Which characteristic determines the kingdom in which an organism will be placed? Circle your answer. (1.3)

where it lives  bone structure  its coloring  cell structure

6. Fill in the chart below with the missing information about the different kingdoms. (1.3)

<table>
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<tbody>
<tr>
<td>Animalia</td>
<td>________________</td>
<td>All animals have animal cells.</td>
</tr>
<tr>
<td>____________________</td>
<td>Sycamore tree</td>
<td>All plants have ________________ cells.</td>
</tr>
<tr>
<td>Fungi</td>
<td>________________</td>
<td>Members of this kingdom were once grouped with plants in the Plant Kingdom.</td>
</tr>
<tr>
<td>________________</td>
<td>Euglenas, Amoebas</td>
<td>Some members in this group have plant-like features, and others have ________________ features.</td>
</tr>
<tr>
<td>Monera</td>
<td>Common creature shapes include rods, spheres and spirals.</td>
<td>Most members are ________________, which means they only have one cell.</td>
</tr>
</tbody>
</table>

7. Why aren't frogs and cats part of the same class? (1.4)

☐ because frogs live on both land and water and cats nurse their young.
☐ because frogs live in the water and cats live on land.
8. Match the characteristic descriptions to the animal pair that best define each. Write the letter on the line. (1.4)

a. has a horny beak / is cold blooded
b. has a soft body / has a backbone
c. sharply hooked beak / flightless; live near oceans

Phylum: Mollusca
Phylum: Chordata

Class: Aves
Class: Reptilia

Order: Falconiformes
Order: Sphenisciformes

9. Use the words in the box to order the classification categories. Write them in the funnel below. (1.4–1.5)

- Species
- Family
- Kingdom
- Class
- Order
- Phylum
- Genus

10. Are you a Homo sapien? (1.5)

Yes        No
Week 2

<table>
<thead>
<tr>
<th>Date:</th>
<th>Day 6</th>
<th>Day 7</th>
<th>Day 8</th>
<th>Day 9</th>
<th>Day 10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity Sheet Questions</strong></td>
<td>#1–3</td>
<td>#4–9</td>
<td>#10–13</td>
<td>#14–16</td>
<td>#17–21</td>
</tr>
<tr>
<td><strong>Incredible Creatures That Defy Evolution I (DVD)</strong></td>
<td>Giraffe (track III)</td>
<td>Platypus (track VIII)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Do Together</strong></td>
<td>Let’s Fight!</td>
<td></td>
<td></td>
<td>Grins and Grimaces</td>
<td></td>
</tr>
<tr>
<td><strong>Optional:</strong> Lyrical Life Science 2</td>
<td></td>
<td>chap. 3</td>
<td>chap. 4</td>
<td>chap. 8</td>
<td>chap. 5</td>
</tr>
</tbody>
</table>

Additional Subjects:

### Mysteries and Marvels of Nature

**Day 6** pp. 14–15

While not overtly supporting macroevolution (see our note in the Introduction), the phrase, “Mammals have developed” is at least suggestive of evolution. The book covers many “mysteries and marvels” of nature, but appears to presuppose that these mysteries and marvels are simply the result of chance and time. Interestingly, page 27 notes, “Every part of a cheetah’s streamlined body is designed for speed.” So are the amazing creatures featured throughout the book the product of randomness or design? You really can’t have both because design entails intelligence, while chance does not. [pp. 26–27].

### Incredible Creatures That Defy Evolution I

**Day 6** Giraffe (track III)

Note: Incredible Creatures That Defy Evolution I offers some amazing insights that coincide well with other things you and your children will learn about animals. As a result, we’ve scheduled different tracks on the DVD to fit with studies in Mysteries & Marvels of Nature and The Magic School Bus: Inside the Human Body. However, if you prefer, you are welcome to watch the entire 50-minute DVD in one sitting.

### Do Together

**Day 7** Let’s Fight!

Most children find it fascinating to study the peculiar defense mechanisms that many animals possess. Who wouldn’t be intrigued by the poisonous spurs of the duck-billed platypus? Or the vicious tusks of the Arctic walrus?

But what about us humans? Do we have any special defense mechanisms? We don’t mean guns and knives either! Ask your children to brainstorm about what they might use to defend themselves in the wild.

After they’ve thought about it for a while, challenge them to either (1) write a short story, (2) draw a picture, or (3) give a brief oral report that highlights at least two human defense mechanisms. Some candidates: teeth, hands (fists), fingers (nails, claws), feet (kicking), etc.
In today’s reading, your children learned that some animals, such as the mandrill, communicate using facial expressions and body language. Do human beings do the same thing? You bet!

For fun, challenge your children to use only facial expressions or body language to communicate for a certain period of time. No speaking allowed! Are they hungry? Do they have to go to the bathroom? Make them tell you with only their facial expressions or body language.

If possible, communicate your answers back to them in the same way. No words—just body language and facial expressions. Explain to your children that what other people see in their faces and body language can communicate as loudly as if they had spoken. For example, just because they say “OK” doesn’t mean that someone can’t tell from their body language that they don’t want to do something. We always need to strive for clarity in communication, whether it be with our words, our facial expressions, or our body language.
7. How do many mammals impress their mates? (Circle the correct answer.)
   (p. 38)
   - by fighting with each other
   - by their plumage
   - by their small

8. Match each animal below with the "weapon" it uses to win a mate or territory.
   (pp. 38–39)

   - walrus
   - spur

   - moose
   - tusks

   - platypus
   - antlers

9. Challenge: Circle the correct answer to complete the sentences. (p. 39)
   Antlers or Horns are shed each year and regrown.
   (Hint: a bull moose has these)

   Antlers or Horns are permanent.
10. How does a mammal’s fur usually help to defend the animal? (p. 50)  
- A) it provides camouflage  
- B) it’s too thick to bite  
- C) it keeps the animals warm

11. Why does a zebra’s black and white stripes help it to blend in with the green and yellow grasslands where it lives? (p. 50)  
(because its black and white striped coat blends in with the way grasses grow, providing great camouflage.)

12. Check the boxes in front of two ways a polar bear’s coat helps it to survive. (p. 51)  
- Clear hairs reflect light which makes them look white so they easily blend in with their surroundings.  
- Hollow hairs trap and magnify sunlight which helps keep the bear warm.

13. Does a skunk warn attackers before it sprays its smelly liquid, or will it spray without warning? (p. 51)  
(A skunk will move into a warning position—raising its tail—when it feels threatened.)

14. How do bats help some flowering plants to reproduce? (p. 62)  
(by transferring pollen from one plant to the next as they feed.)

15. When do pangolins (anteaters) NOT eat ants? (p. 62)  
(when a pangolin’s scales need cleaning, it will allow ants to crawl underneath them to eat pests.)

16. What lives in a cow’s digestive system that helps it digest food? (p. 63)  
- A) bacteria  
- B) viruses  
- C) algae

17. Mammals communicate by (Circle all that apply) (pp. 74–75)  
- their coloring  
- their scent  
- grooming each other  
- winking  
- phoning calls

18. True or False? Animals in the wild work together. (pp. 74–75)  
___________________________________________________________________________

19. When prairie dogs “talk” to each other, they actually touch (Circle the correct answer) to see if they belong to the same (Write the correct answer in the blank). (p. 74)  
- their tails  
- their hair styles  
- facial expressions  
- phone calls

20. When a male mandrill yawns, he is most likely: (Circle the correct answer.) (p. 75)  
- tired  
- bored  
- warning he is frustrated  
- trying to get a female’s attention

21. Why do chimpanzees groom each other? (Circle all of the reasons.) (p. 75)  
- to remove dead skin and dirt  
- to make friends  
- to get ready for bed  
- to make a family

Biology, Taxonomy, and Human Anatomy | 5-Day | Week 2 Activity Sheet
Mysteries and Marvels of Nature

1. Mammals have __________________ on their bodies and feed their babies ___________________. (p. 14)

2. How does a Tamandua make sure it will have a meal another day? (p. 14)

________________________________________________________________________________________________
________________________________________________________________________________________________

3. Match the animals below to the special tools each is equipped with to help it find food. (pp. 14–15)
   - vampire bat        curved claw to dig out bugs
   - giraffe            excellent hearing, vision and sense of smell
   - aye-aye            long, sharp front teeth
   - tiger              long tongue

4. Kangaroos' legs are like … (Check the box that is true.) (pp. 26–27)

- a spring  - an iron
  - the energy from one jump helps to power the next.
  - pushes everything into the ground

- gasoline  - electricity
  - can only run a little while before it runs out.
  - with increased voltage can go faster

5. A sugar glider __________________ from tree to tree. (Circle the correct answer.) (p. 27)
   A) flies  B) hops  C) climbs  D) parachutes

6. A cheetah's flexible __________________ helps it to run at high speeds. (Circle the correct answer) (p. 27)
   A) legs  B) spine  C) tail  D) head
7. How do many mammals impress their mates? (Circle the correct answer.) (p. 38)
   A) by fighting with each other  B) by their plumage  C) by their smell

8. Match each animal below with the "weapon" it uses to win a mate or territory: (pp. 38–39)

   walrus
   moose
   platypus
   spur
   tusks
   antlers

9. **Challenge:** Circle the correct answer to complete the sentences. (p. 39)
   **Antlers** or **Horns** are shed each year and regrown.
   (Hint: a bull moose has these!)

   **Antlers** or **Horns** are permanent.
10. How does a mammal’s fur usually help to defend the animal? (p. 50)
   A) it provides camouflage  B) it’s too thick to bite  C) it keeps the animals warm

11. Why does a zebra’s black and white stripes help it to blend in with the green and yellow grasslands where it lives? (p. 50)

___________________________________________________________________________
___________________________________________________________________________

12. Check the boxes in front of two ways a polar bear’s coat helps it to survive. (p. 51)
   - Clear hairs reflect light which makes them look white so they easily blend in with their surroundings.
   - It grows algae to help it hide in water.
   - Hollow hairs trap and magnify sunlight which helps keep the bear warm.
   - It is extra large to give the polar bear mobility.

13. Does a skunk warn attackers before it sprays its smelly liquid, or will it spray without warning? (p. 51)

___________________________________________________________________________
___________________________________________________________________________

14. How do bats help some flowering plants to reproduce? (p. 62)

___________________________________________________________________________
___________________________________________________________________________

15. When do pangolin (anteaters) NOT eat ants? (p. 62)

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16. What lives in a cow’s digestive system that helps it digest food? (p. 63)
   A) bacteria  B) viruses  C) algae
17. Mammals communicate by: (Circle all that apply.) (pp. 74–75)

- their coloring
- their scent
- winking
- grooming each other
- their cries
- their hair styles
- facial expressions
- phone calls

18. True or False? Animals in the wild work together. (pp. 74–75)

True
False

19. When prairie dogs “kiss” each other, they actually touch ________________ to see if they belong to the same ________________. (Write the correct answer in the blank.) (p. 74)

A) tongues  B) tribe  C) coterie  D) teeth

20. When a male mandrill yawns, he is most likely: (Circle the correct answer.) (p. 75)

A) tired  B) bored
C) warning he is frustrated  D) trying to get a female’s attention

21. Why do chimpanzees groom each other? (Circle all of the reasons.) (p. 75)

- to remove dead skin and dirt
- to get ready for a party
- to make friends
- to get ready for bed
- to sort out fights
- to greet one another
- to find a meal
- to comfort each other
**Science D**

Days 11–15: Date: __________ to __________

### Week 3

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<td>chaps. 6–7</td>
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**Additional Subjects:**

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**Do Together**

**Sweet Dreams**

Talk about sleep with your children today. Do they have a favorite place to nap? How is their bed like a den? Do they ever hang blankets around their bed to create a tent? How much sleep do they think they need to function properly?

If you feel like it and can afford the time, take a short nap with your children today. Find a comfy spot, pile under some blankets, grab a short story or two to read, and just enjoy the time together. Make getting a good night’s sleep (and maybe even an occasional nap!) a priority. Your children will thank you for it later!

---

**See No Evil**

Too often, we take for granted all five of our senses and how they work together to produce the experience that we daily call “life.” Only when one of those senses is compromised do we realize how important it is.

Today, talk with your children about their five senses. What would it be like if they could not see? Hear? Feel? Smell? Taste? What would it be like to live in a dark hole underground like a mole?

Have them try out what it would be like to live for a while without sight. Blindfold them with a headband or kerchief, and then ask them to identify various things, using only their ears, hands, nose, or tongue. Feel free to use foods (cold spaghetti, grapes), everyday objects (remote control, fork), as well as some strange objects they’re not used to interacting with everyday (go to the garage for items such as a broom or an oil pan).
Mysteries and Marvels of Nature

Complete the sentence.

1. Mammal mothers take care of their ___________ and feed their babies ___________. (p. 86)

2. Why are monotremes unique mammals? (p. 87)

3. How does a marsupial carry its young? (p. 87)

4. Which mammal sleeps in a tent? (Circle the correct answer.) (p. 98)
   A) bat
   B) fox
   C) koala
   D) beaver

5. What is the only way to get into a beaver lodge? (p. 99)

6. True or False? Koalas only climb trees to eat because they sleep on the ground. (p. 99)

7. Mammal bodies stay at the same ___________, but they can still feel the cold or heat. (p. 110)

   This means that they are ___________.

8. Draw lines between the boxes to make two true sentences. (p. 110)

   A jackrabbit...

   -...cools off by...
   -...lowers its ears...
   -...which helps the body trap heat...
   -...warms up by...
   -...raising its ears...
   -...and letting the wind cool blood vessels.

9. Tarsiers have ___________ that help them hunt at night. (Circle the answer.) (p. 123)
   A) large eyes
   B) good friends
   C) flashlights
   D) bright colors

10. List 5 characteristics of mammals. (Review) (pp. 14–122)
    1) All mammals have ___________ or ___________.
    2) Mammals take care of their ___________.
    3) Mammals feed their babies ___________.
    4) Mammals’ bodies stay at the same temperature unlike reptiles who must lay in the sun to get warm. This means mammals are ___________.
    5) All mammals breathe ___________.
11. Match the correct animal to the way it escapes its enemies. (Review) (pp. 50–123)

- Opossum
  - Sprays bad-smelling stuff
- Skunk
  - Has secret entrance to home
- Armadillo
  - Plays dead
- Beaver
  - Striped coat provides camouflage
- Zebra
  - Rolls into a ball

12. Solve the riddles with mammals studied in your book. (pp. 15–122)

I grow up in my mother's pouch. I am called a joey. What am I?

____________________________

I am the fastest land animal. What am I?

____________________________

I have bold black and white stripes that blur in the heat haze of the African plain. What am I?

____________________________

I have webbed feet and a bill. My babies like the milk that oozes from my skin. I have webbed feet and a bill. What am I?

____________________________

I am a mammal that lays eggs. My babies are white, my fur is clear and my skin is black, which helps me to stay warm. What am I?

____________________________

I sleep with one eye open and help fishermen in Myanmar catch fish. What am I?

____________________________

I use two flaps of skin between my front and back legs to parachute from tree to tree. What am I?

____________________________

13. Circle two body parts that birds use to catch food. (p. 12)

- Beaks and feet

14. List three techniques birds use to catch prey. (pp. 12–13)

1) _____________________________________________________________________
2) _____________________________________________________________________
3) _____________________________________________________________________

15. Which birds work in teams to fish? (p. 12) ___________________________________.

(a wallaby or kangaroo) (a cheetah) (a zebra)
(a platypus) (a polar bear) (a moose)
(a dolphin) (a giraffe) (a beaver)
(a sugar glider)
1. Mammal mothers take care of their __________________ and feed their babies ___________________. (p. 86)

2. Why are monotremes unique mammals? (p. 87)
   ____________________________________________________________________________________________

3. How does a marsupial carry its young? (p. 87)
   ____________________________________________________________________________________________

4. Which mammal sleeps in a tent? (Circle the correct answer.) (p. 98)
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5. What is the only way to get into a beaver lodge? (p. 99)
   ____________________________________________________________________________________________

6. True or False? Koalas only climb trees to eat because they sleep on the ground. (p. 99)
   True  False
   Why? ____________________________________________________________________________________________

7. Mammals’ bodies stay at the same _____________________ but they can still feel the cold or heat. (p. 110)

16. Use the word bank to complete the sentences about owls. (p. 13)
   Owls have a very strong sense of _________________. Even though their _________________ are on the sides of their heads, they face to the _________________, and dish shapes on their faces help channel sounds.

17. Birds use their beaks to collect food. Match the following beaks to the correct function. (pp. 12–13)
   - pelican: tear food apart
   - green heron: scoop up fish
   - owl: spear fish on pointed end

18. True or False? All birds fly. (p. 24)
   True  False

19. What do large birds do to help them take off? (p. 24)

20. What two types of territories do birds fight over? (p. 36)
   1) _____________________  2) _____________________

Challenge! Why do you think birds defend these territories?
   ____________________________________________________________________________________________
   ____________________________________________________________________________________________

21. Circle the ways birds keep others away from their territory. (pp. 36–37)
   - wrestling
   - eating all the food
   - tapping
   - bringing them flowers
   - singing
   - bribing them with fish

(To breed successfully, birds need a safe place to build their nests, freedom from disturbances, and a good supply of food.)

Breeding territories  Feeding territories
Mysteries and Marvels of Nature

Complete the sentence.

1. Mammal mothers take care of their ________________
   and feed their babies ________________. (p. 86)

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6. True or False? Koalas only climb trees to eat because they sleep on the ground. (p. 99)
   
   True   False

   Why? _______________________________________________________________  

Complete the sentence:

7. Mammals' bodies stay at the same ____________________ but they can still feel the cold or heat.
   This means that they are warm-blooded. (p. 110)
8. Draw lines between the boxes to make two true sentences. (p. 110)

A jackrabbit …

...cools off by... ↔ ...lowering its ears... ↔ ...which helps the body trap heat.

...warms up by... ↔ ...raising its ears... ↔ ...and letting the wind cool blood vessels.

9. Tarsiers have __________ that help them hunt at night. (Circle the answer.) (p. 123)

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- good friends
- flashlights
- bright colors

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1) All mammals have ____________________ or _____________________.

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3) Mammals feed their babies __________________________.

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- **Skunk** has secret entrance to home
- **Armadillo** plays dead
- **Beaver** striped coat provides camouflage
- **Zebra** rolls into a ball
12. Solve the riddles with mammals studied in your book. (pp. 15–122)

I grow up in my mother’s pouch.
I am called a joey.
What am I?

I am the fastest land animal.
What am I?

I have bold black and white stripes that blur in the heat haze of the African plain.
What am I?

I am a mammal that lays eggs.
My babies like the milk that oozes from my skin.
I have webbed feet and a bill.
What am I?

Though I look white, my fur is clear and my skin is black, which helps me to stay warm.
What am I?

My antlers are rounded, and grow from eating various plants, and sometimes, other antlers.
What am I?

I sleep with one eye open and help fishermen in Myanmar catch fish.
What am I?

My tongue is longer than an anteater’s, and I’m designed to reach parts of a tree that other animals can’t.
What am I?

I build a lodge in the middle of a lake.
What am I?

I use two flaps of skin between my front and back legs to parachute from tree to tree.
What am I?

13. Circle two body parts that birds use to catch food. (p. 12)

14. List three techniques birds use to catch prey. (pp. 12–13)

1) ____________________________________________________________

2) ____________________________________________________________

3) ____________________________________________________________

15. Which birds work in teams to fish? (p. 12) ____________________________
16. Use the word bank to complete the sentences about owls.  (p. 13)

Owls have a very strong sense of _______________. Even though their _______________ are on the sides of their heads, they face to the ________________, and dish shapes on their faces help channel sounds.

17. Birds use their beaks to collect food. Match the following beaks to the correct function.  (pp. 12–13)

- **pelican**: tear food apart
- **green heron**: scoop up fish
- **owl**: spear fish on pointed end

18. **True** or **False**? All birds fly.  (p. 24)

**True**

**False**
19. What do large birds do to help them take off? (p. 24)

________________________________________________

20. What two types of territories do birds fight over? (p. 36)

1) ________________________________________________

2) ________________________________________________

Challenge! Why do you think birds defend these territories?

________________________________________________________________________________________________

________________________________________________________________________________________________

21. Circle the ways birds keep others away from their territory. (pp. 36–37)

- tapping
- eating all the food
- wrestling
- bribing them with fish
- singing
- bringing them flowers
Section Three

Appendices
# Appendix 1: Science D—Weekly Subject List

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<td>ocean creature defense and survival/ocean creature symbiosis/shoals/dolphins/whales/ocean creature breeding</td>
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Intro to the World: Cultures
Grades K-2 | Ages: 5-7

Young adventurers: Explore God’s big world

Set the stage for future learning with a positive introduction to cultural awareness. Sonlight A, children’s cultural units for kindergarten, introduces children to the people, places, and cultures of the world. In the 10-week program, children will enjoy stories, rhymes, and art lessons that teach children about the people of the world and the places they live.

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 a different person’s point of view and feel empathy for others who are different from them. They also develop a healthy curiosity about the world around them.

The topics naturally lead to conversations about kindness, differences, and similarities. There are opportunities to discuss what diverse cultures display, courage, and honesty, with the right thinking from hands-on activities. In drama, they imagine playing their roles. They gain readiness for the joy of discovery and begin learning that learning really is a good thing.

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