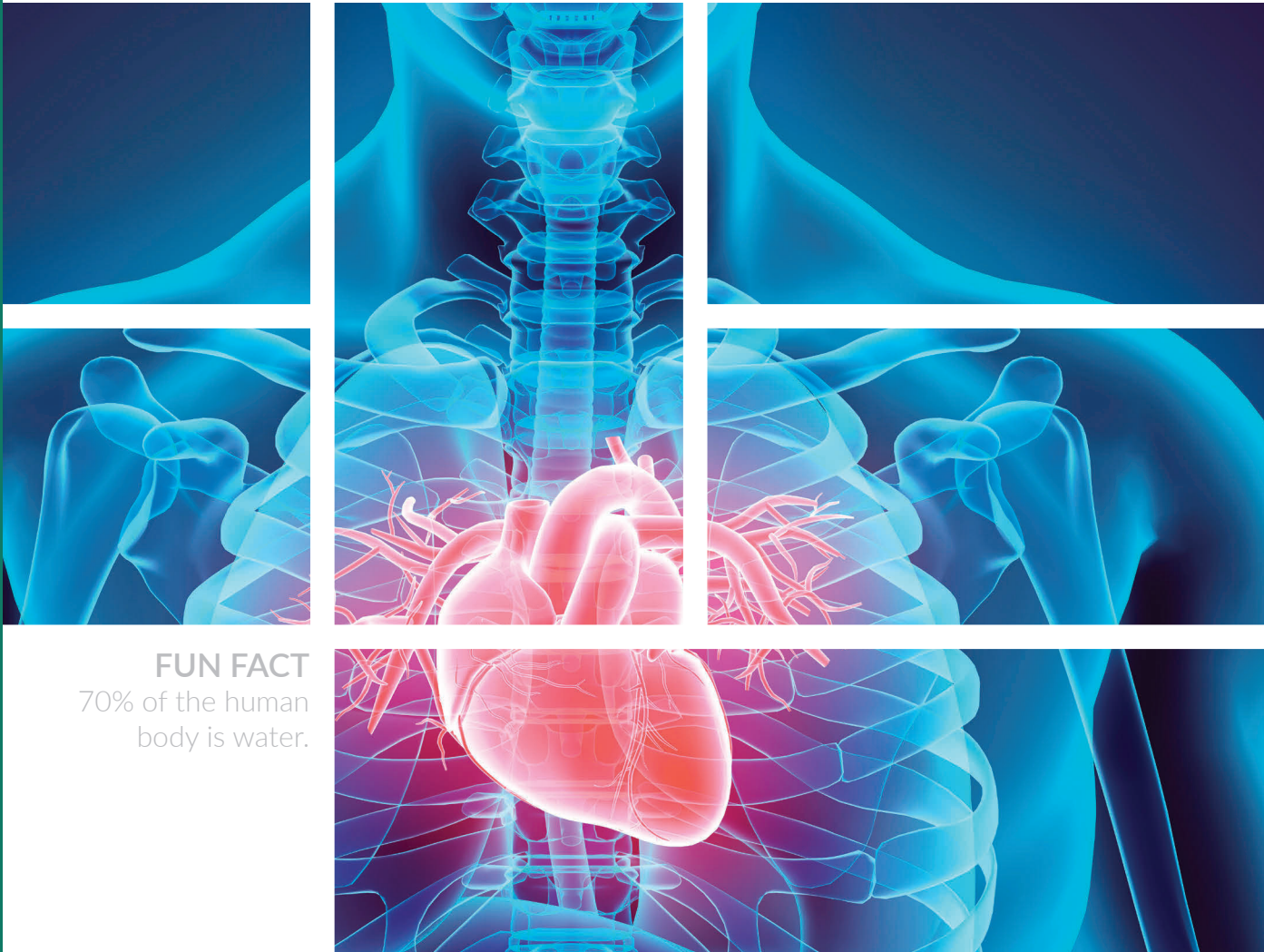


F

HEALTH, MEDICINE, & HUMAN ANATOMY

SCIENCE INSTRUCTOR'S GUIDE



FUN FACT

70% of the human body is water.



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 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

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Science (5-Day)

Health, Medicine, and Human Anatomy

By the Sonlight Team

“I praise you because I am fearfully and wonderfully made; your works are wonderful, I know that full well.”

Psalm 39:14 (NIV)

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

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

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NOTE TO PURCHASER

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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. 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.

Science A					
Week 1					
Date:	Day 1	Day 2	Day 3	Day 4	Day 5
<i>Children's Encyclopedia</i>	pp. 8-9		pp. 10-11	pp. 12-13	pp. 14-15
Activity Sheet Questions	#1-2		#3-4	#5-7	#8-10
<i>Discover & Do Level K DVD</i>		"Before You Begin" Tracks #1-3			
<i>Science Activities, Vol. 2</i>		"Air All Around" pp. 2-3			
Do Together				The Seasons at Your House	
Supplies	You provide: sheets of paper, 8" x 10" cardboard for each player (optional: crayons, thread or string or yarn) bottle, bowl, water.				
Shopping/Planning List	For next week: feather from any bird, plate, 10" x 10" paper, pencil, scissors, crayons, needle, thread or string or yarn, two dish cloths, plastic bag, plate, salt, bowl, water, plastic wrap, sugar, food color, spoons, saucers, glass, plate, very warm water, long-necked bottle, deep bowl or bucket, large coin, ice cubes, plastic bag, rolling pin or hammer or rock, plastic bottle with cap.				
Additional Subjects:					

Children's Encyclopedia

Day 1 pp. 8-9

Let your children know how amazing it is that so many

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

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 demonstrations without making for you and your children to try *Science Activities, Vol. 2*. Packed with simple

ter is the layers shell and talk you'll be, but neither top

ential Notes
Week 1 | 1

TRY BEFORE YOU BUY!

Get a three-week sample of any Sonlight Instructor's Guide—FREE!
sonlight.com/samples

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 cut-outs, 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.

Science A: Week 1 Activity Sheet

4. **Challenge:** Make the statement true. (Please find Cut-Out #1 in the Appendix.) (p. 10)


The Sun rises in the and sets in the .

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 #2) (p. 13)

North America




South America


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

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5

Do Together

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 he 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 every one can see it.

Supplies

All You Provide


Note to Mom or Dad: When supplies are listed as "We provide," they are materials found in your course-specific (ASK) Supplies Kit. When supplies are listed as "You provide," they are materials you can generally find around your home. ■

6

Children's Profile

How old? What year did you start school with which?

1. How many continents does the Earth have? Count them. (p. 6)



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)

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)

On the Earth here, 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. (Please find Cut-Out #1 in the Appendix.) (p. 10)


The Sun rises in the East and sets in the 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 #2) (p. 13)

North America



South America

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

Biology, Botany and Physics | 5-Day | Section Two | Week 1 | 3



“Sonlight keeps our family learning together,” shares Mackenzie B of Morrystown, AZ. “The beautifully illustrated books captures the attention of a wide age range of children and makes homeschooling more enjoyable for the parent as well. With Sonlight’s grab-and-go Instructor’s Guides, it’s so easy for Dad to do a quick lesson before bed. Sonlight is the perfect family curriculum.” Here, Dad is reading a science book to Corbin (6, Science B), Eden (2) and Ebban (6 months).

Welcome!

In Science F, you will learn about the human body and human medicine. We also include studies in microscopy, intelligent design, and health and nutrition.

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. Thus, 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 in 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 do so. 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 and recording data your children learn to follow your lead. An attitude of success—“Sure. We can do this!”—rubs off as well. These characteristics cannot be taught simply by reading books; they have to be modeled.

One quick note before you begin: The *Food and Nutrition* experiments also don’t coordinate with the other science reading. We schedule them starting in Week 13. Rather than read through the book consecutively and expect you to do all of the experiments in order, we spread them out to make them doable.

About the Books Your Children Will Study

The Usborne Complete Book of the Human Body, *The History of Medicine*, and *Food and Nutrition for Every Kid* provide a great overview of the human body: physiology and anatomy, diseases, medicine, nutrition, and other health issues.

When it comes to talking about human sexuality and reproduction, besides *The Usborne Complete Book of the Human Body*, we provide *Almost 12*, a book written by Kenneth Taylor, author of *The Living Bible* and founder of Tyndale House Publishers. Both books are tastefully done, and Taylor’s treatment brings in the biblical perspective.

The topics of personal care, health, and hygiene are divided into two books: *The Boy’s Body Book* for boys and *The Care and Keeping of You* for girls. Your children will learn how to care for their bodies and about the changes that will take place, specific to their gender.

You may wonder about our designating *Survival Skills* as science. Many of the topics discussed in *Survival Skills* are at least tangentially related to issues of human physiology and health (“survival”!). If you’re uncomfortable calling this science, put it in the Miscellaneous department. Your children are studying so much science at other times throughout the year, you hardly need to apologize for taking a few weeks to study survival skills. We think your children will love what they learn in this book as well.

Please be sensitive to your children’s reading and vocabulary limitations. In these notes, we have quoted from books that are sometimes difficult to understand. You will do your children a great service if you explain difficult ideas as you read these notes together.

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 oceango-

ing mammal or dinosaurs allegedly evolving into birds. These supposed evolutionary changes are big, so 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 the 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 the notes for each week, you will find Activity Sheets to reinforce what you are teaching and engage your students. 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.

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, even if 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.

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 internet 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 development, we would love it if we could get you to help us with this process.

Whenever you find an error anywhere in one of our Instructor's Guides, please check our updates page for the latest information at www.sonlight.com/curriculum-updates. Report new information by sending a short e-mail to: IGcorrections@sonlight.com. It would be helpful if the subject line of your e-mail indicated where the problem is. For instance: "Science F/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](mailto: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! ■

Science F

Days 1–5: 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	Day 5
The Usborne Complete Book of the Human Body	pp. 6–9	pp. 10–11	pp. 12–13		pp. 65–67
Activity Sheet Questions	#1–3	#4–6	#7–9		#13–16
Blood and Guts				pp. 71–74	
Activity Sheet Questions				#10–12	
Do Together	Listen to Your students			Testing Temperature	
Optional: <i>Lyrical Life Science, Vol. 3—The Human Body</i>	chaps. 1, 7				
Additional Subjects:					

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The Usborne Complete Book of the Human Body

Day 1

pp. 6–9

You may wish to view Human Anatomy Online. Use your favorite search engine to look up the phrase "inner body systems." You should be able to find one of a number of different sites that have good information about the different systems in the human body. [p. 1]

"Amazingly complicated" are the words the book uses to describe the human body. They're right! Psalm 139:13–14 reads, "For you created my inmost being; you knit me together in my mother's womb. I praise you because I am fearfully and wonderfully made; your works are wonderful, I know that full well" (NIV). This is a fitting passage to review in preparation for the study of the human body. Did all these "hundreds of different" parts and "millions of microscopic units called cells" come together through chance, an undirected natural process, or through God's design? [p. 7]

Day 3

pp. 12–13

Cells are a lot more complicated than people used to think. So how did the first cells come about? Different people have come to different conclusions. Some think that the first cells came about as a random result of various chemicals in the earth's atmosphere coming together in just the right way, while others see the complexity of cells and come to the conclusion that they must have been specially designed. In looking at the illustration of a cell on page 13, what do you and your students think is the explanation for the origins of the first cells?

Activity Sheet Questions

Day 1

#1–3

Activity Sheets are included after the notes and are assigned on each schedule page. Each Activity Sheet has a corresponding Answer Key page following these schedule pages.

Parental 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 students. 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 students. While we believe the material covered in the challenge questions is worthwhile for your students to know, it may not be specifically explained in their reading assignment. As always, if you think any question is too difficult for your students, please feel free to skip.

Feel free to let your students do those activities that they enjoy and simply talk through others. We have provided space for you to fill in answers as your students respond verbally, or simply check off the items that you discuss.

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

Suggestion: Your Activity Sheets might work more easily in a small binder for your students to keep and use as assigned. If you have more than one child using this program, extra Activity Sheets can be purchased for each student (Item # FSG1).

Blood and Guts

Day
4

pp. 71–74

Cells, even so-called “simple cells”, are a lot more complicated than most people think they are. They are like tiny factories with many parts doing exactly what they need to do to keep things going. Some microbiologists are convinced that design is at work at the cellular level rather than being the result of an undirected process. They point, for instance, to what is termed *irreducible complexity* or *specified complexity* as evidence of design in cells. You and your students will learn more about this concept in the DVD *Unlocking the Mystery of Life*, which is scheduled later in the year. [p. 71]

Do Together

Day
1

Listen to Your students

Each week throughout Science F, we will provide ideas for fun activities to do with your students. In general, we will try to make the activities actually “active”: performing additional research on a particular topic, watching a video, playing a game, getting outside, or some other type of “hands-on” activity that seeks to apply what your students have been learning in a meaningful way.

Take our ideas for what they are—mere suggestions—and don’t feel enslaved to them. If your students don’t want to do a particular activity or have a different, better idea, by all means ditch ours and go with theirs!

Put this attitude into practice today by actively listening to your students. As they embark on their study of the amazing human body, what interests them? What do they want to learn more about? What do they *not* have an interest in? Do they have any ideas for fun activities they could do that have to do with learning more about the human body?

Make a list of their thoughts and ideas. Then let them pick one to do today. In this way, you will let them know that their opinion is important. Students who feel they have an important, active role in determining what they learn about will be more engaged in their studies. Have fun and treasure these times together.

Day
4

Testing Temperature

As noted in *Blood and Guts*, the “normal” human temperature is 98.6 degrees Fahrenheit. Talk with your students about their “normal” temperature. Do they normally measure 98.6 degrees Fahrenheit? Or a bit above or below that level?

Test to see what effect a cold shower or vigorous exercise might have on their temperature. To start, take their temperature at rest. Then have them take a cold shower or bath. Take their temperature again. Did it decrease? When they’re dressed, have them engage in some vigorous exercise, such as running a mile or doing 100 sit-ups, push-ups, or jumping jacks. Take their temperature one last time. Did it increase?

Be sure to discuss with your students how their body temperature is a good indicator of what is going on inside their cells. Reinforce how important it is that they tell you if they ever feel “too hot” or like they’re running a fever.

Optional: Lyrical Life Science, Vol. 3

Day
1

Chapter 1

If you have chosen to add this optional CD and book to your curriculum, here is a suggested way to fit it into your daily schedule.

On Day 1, listen to the song, reading the lyrics as you listen. During the next three days, read the text and listen to the song once each day. On the last day of the week, assign as many of the questions in the Lyrical Life Science workbook as you feel would be comfortable and most beneficial for your students. ■

Science Week 1 Activity Sheet



The Usborne Complete Book of the Human Body

1. Use the words in the box to complete the following. (p. 7)

genes	cells	body parts	
-------	-------	------------	--

Inside our _____ are millions of tiny _____ that have _____ inside of them which tell the cells the things they need to do to make our bodies work and keep us alive.

2. Write each term in one of the boxes below to organize each body part into the appropriate category. (p. 8)

brain	lungs	bone	stomach	juices	fat	sweat	muscle	blood	tears
Body Fluids					Body Tissues				
(stomach juices)					(brain)				
(sweat)					(lungs)				
(blood)					(fat)				
(tears)					(muscle)				

3. Shade the glass to show what percentage of your body is made up of water. (p. 8)



4. Draw a line to match the terms to the correct definitions. (pp. 8-10)

- | | |
|---------|--|
| systems | A group of cells of the same type; includes fat, bone and muscle |
| organ | A group of organs or body parts whose jobs are closely related. |
| tissues | Different types of tissues grouped together to perform a particular task for the rest of the body. |



Science Week 1 Activity Sheet

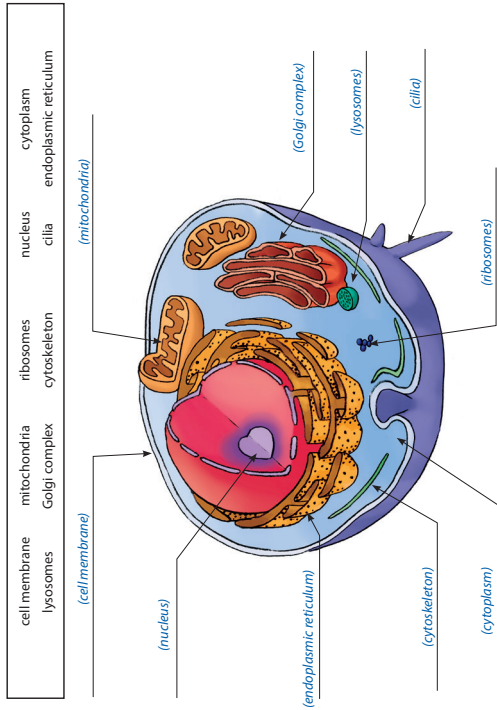
5. Match each body system to the main task(s) each performs. (pp. 10-11)
- | | |
|----------------------|--|
| skeletal | extracts oxygen out of the air and passes it to the rest of your body; gets rid of waste gases |
| muscular | the male and female body systems that each play a part in making babies |
| skin, hair and nails | gives your body its shape; joints link its pieces together |
| digestive | sends messages and instructions from your brain to the rest of your body |
| nervous | holds you up and makes you move |
| respiratory | makes hormones that control how your body grows and changes |
| circulatory | protects you from dirt and danger; helps control your temperature |
| endocrine | pumps blood that carries food, oxygen and other chemicals to all of your cells |
| urinary | changes food into energy |
| reproductive | filters waste water and chemicals out of your blood to pass out of your body |



6. Think of one body part that belongs to more than one body system and explain how it serves both systems. (p. 10)
- Possible: throat is part of the digestive system while you eat, and part of the respiratory system while you breathe; at the most basic level, your leg is part of both the skeletal system—gives your leg its structure, and the muscular system—helps you walk
7. How do cells make the different proteins they need to do various jobs around your body? (p. 12)
- (Cells combine amino acids in different ways to create the proteins they need)

Science Week 1 Activity Sheet

8. Label the following on the diagram. Use the book pictures as a guide. (p. 13)



9. Write the letter on the line to match each cell part to its role or function. (p. 13)

- | | |
|---|--|
| <p>(c) membrane</p> <p>(d) mitochondria</p> <p>(e) ribosome</p> <p>(a) nucleus</p> <p>(f) cytoplasm</p> <p>(b) endoplasmic reticulum</p> <p>(h) Golgi complex</p> <p>(g) lysosome</p> | <p>a. controls all cell activities; contains instructions for making new cells</p> <p>b. transports proteins made by the ribosomes to other parts of the cell</p> <p>c. holds the cell together and controls the way substances such as food and water pass into and out of the cell</p> <p>d. food and oxygen react together here to produce energy for life</p> <p>e. proteins are created here</p> <p>f. a jelly-like substance that contains strands of protein and provides the backbone of the cell</p> <p>g. produce chemicals which destroy harmful foreign substances</p> <p>h. a storage area that keeps proteins until needed</p> |
|---|--|

3 Health, Medicine, and Human Anatomy | 5-Day | Week 1 Activity Sheet



Science Week 1 Activity Sheet

Blood and Guts

10. How are cells and the various members of a community similar? (p. 71)
(cells specialize in one task or another and work together to perform all of the jobs necessary to stay alive)

11. Why are our bodies warm? (p. 72) *(because our cells are constantly taking in chemical fuel and burning it to make energy, which produces heat)*

12. Why do you feel sweaty when your fever breaks? (p. 74)
(because your body is done healing and fighting off the infections, so sweating is its normal method for cooling itself off)

The Osborne Complete Book of the Human Body

13. Which part of your digestive system extracts useful food chemicals and passes them to your blood stream? (p. 66)
pancreas **stomach** **liver** **small intestine**

14. Why is it important for your large intestine to soak up spare water from your waste before it leaves your body? (pp. 65–66)
(because water is very important to your body and you pass it out of your body in many other ways, so by reabsorbing it, your large intestine is helping to keep you from drying out so quickly.)



15. Can you swallow lying down? Why? (p. 67) *(Yes—because your esophagus has bands of muscle that push food along where it needs to go so it will end up in the right place, even if you're not in a position for gravity to help)*



4 Week 1 Activity Sheet | 5-Day | Health, Medicine, and Human Anatomy

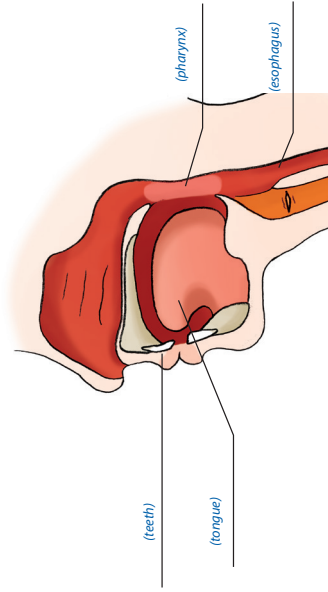
Science Week 1 Activity Sheet



16. Use the following diagram to complete these next questions (p. 67)

a) Identify as many of the parts below. Not all of the words within the Word Bank will be used.

saliva	teeth	tongue	salivary glands
esophagus	bolus	pharynx	peristalsis



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b) Using as many words as possible from the Word Bank, describe how food is broken down, and eventually digested into our stomachs:

*(sample answer: Our **teeth** break down food, and **salivary glands** produce **saliva** to help turn it mushy.*

*Our **tongue** then turns the food into a **bolus**, and it travels down the **pharynx** into the **esophagus**. The **esophagus** then moves the food down towards our stomach through **peristalsis**.)*



The Usborne Complete Book of the Human Body

1. Use the words in the box to complete the following. (p. 7)

genes cells body parts

Inside our _____ are millions of tiny _____ that have _____ inside of them which tell the cells the things they need to do to make our bodies work and keep us alive.

2. Write each term in one of the boxes below to organize each body part into the appropriate category. (p. 8)

brain lungs bone stomach juices fat sweat muscle blood tears

Body Fluids	Organs	Body Tissues

3. Shade the glass to show what percentage of your body is made up of water. (p. 8)



4. Draw a line to match the terms to the correct definitions. (pp. 8–10)

- | | | |
|---------|---|--|
| systems | • | <ul style="list-style-type: none"> • A group of cells of the same type; includes fat, bone and muscle |
| organ | • | <ul style="list-style-type: none"> • A group of organs or body parts whose jobs are closely related. |
| tissues | • | <ul style="list-style-type: none"> • Different types of tissues grouped together to perform a particular task for the rest of the body. |

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Science Week 1 Activity Sheet

5. Match each body system to the main task(s) each performs. (pp. 10–11)

- | | | | |
|----------------------|---|---|--|
| skeletal | • | • | extracts oxygen out of the air and passes it to the rest of your body; gets rid of waste gases |
| muscular | • | • | the male and female body systems that each play a part in making babies |
| skin, hair and nails | • | • | gives your body its shape; joints link its pieces together |
| digestive | • | • | sends messages and instructions from your brain to the rest of your body |
| nervous | • | • | holds you up and makes you move |
| respiratory | • | • | makes hormones that control how your body grows and changes |
| circulatory | • | • | protects you from dirt and danger; helps control your temperature |
| endocrine | • | • | pumps blood that carries food, oxygen and other chemicals to all of your cells |
| urinary | • | • | changes food into energy |
| reproductive | • | • | filters waste water and chemicals out of your blood to pass out of your body |

6. Think of one body part that belongs to more than one body system and explain how it serves both systems. (p. 10)

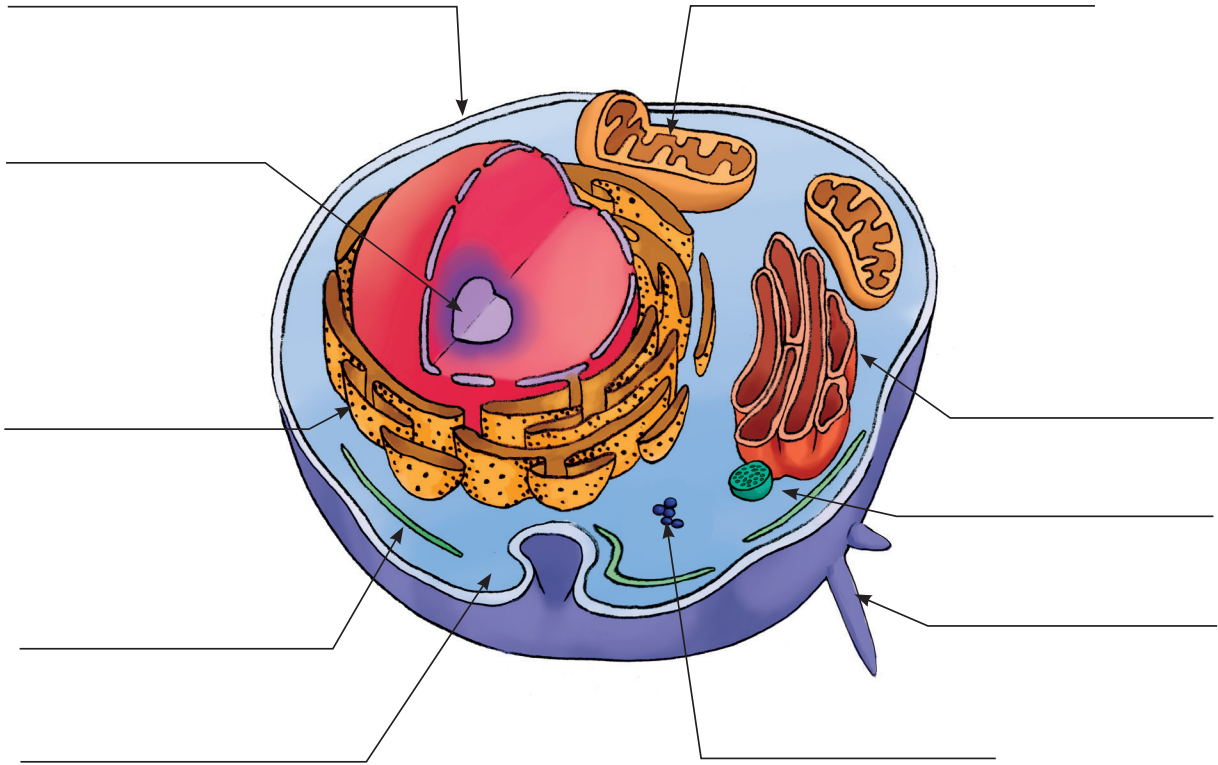


7. How do cells make the different proteins they need to do various jobs around your body? (p. 12)



8. Label the following on the diagram. Use the book pictures as a guide. (p. 13)

cell membrane	mitochondria	ribosomes	nucleus	cytoplasm
lysosomes	Golgi complex	cytoskeleton	cilia	endoplasmic reticulum



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9. Write the letter on the line to match each cell part to its role or function. (p. 13)

- | | |
|-----------------------------|---|
| _____ membrane | a. controls and directs all cell activities; contains instructions for making new cells |
| _____ mitochondria | b. transports proteins made by the ribosomes to other parts of the cell |
| _____ ribosome | c. holds the cell together and controls the way substances such as food and water pass into and out of the cell |
| _____ nucleus | d. food and oxygen react together here to produce energy for life |
| _____ cytoplasm | e. proteins are created here |
| _____ endoplasmic reticulum | f. a jelly-like substance that contains strands of protein and provides the backbone of the cell |
| _____ Golgi complex | g. produce chemicals which destroy harmful foreign substances |
| _____ lysosome | h. a storage area that keeps proteins until needed |



Science Week 1 Activity Sheet

Blood and Guts

10. How are cells and the various members of a community similar? (p. 71)

11. Why are our bodies warm? (p. 72) _____

12. Why do you feel sweaty when your fever breaks? (p. 74)

The Usborne Complete Book of the Human Body

13. Which part of your digestive system extracts useful food chemicals and passes them to your blood stream? (p. 66)

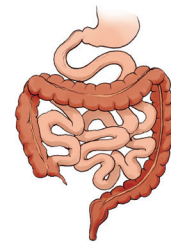
pancreas

stomach

liver

small intestine

14. Why is it important for your large intestine to soak up spare water from your waste before it leaves your body? (pp. 65–66)



15. Can you swallow lying down? Why? (p. 67) _____



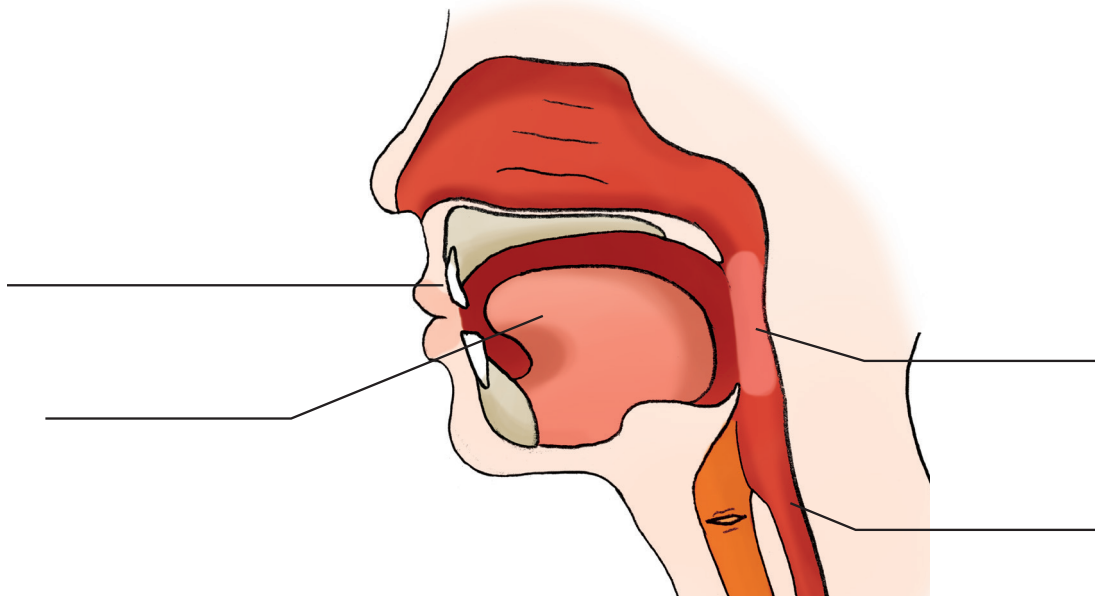
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16. Use the following diagram to complete these next questions (p. 67)

a) Identify as many of the parts below. Not all of the words within the Word Bank will be used.

saliva	teeth	tongue	salivary glands
esophagus	bolus	pharynx	peristalsis



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b) Using as many words as possible from the Word Bank, describe how food is broken down, and eventually digested into our stomachs:

Science F

Days 6–10: 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 6	Day 7	Day 8	Day 9	Day 10
Food and Nutrition for Every Kid	chap. 11				
Activity Sheet Questions	#1–3				
The Usborne Complete Book of the Human Body		pp. 68–69			pp. 70–71
Activity Sheet Questions		#4–6			#15–18
Blood and Guts			pp. 75–78	pp. 79–82	
Activity Sheet Questions			#7–8	#9–14	
Do Together	Peristalsis	Food Journal	Amylase in Action		
Optional: Lyrical Life Science, Vol. 3—The Human Body	chaps. 7 & 8				
Additional Subjects:					

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Food and Nutrition for Every Kid

Day 6 Chapter 11

This book provides 25 hands-on activities to help your students learn more about food. Feel free to do your experiment any time during the week, depending on what works best for your schedule.

The workload is heavier some weeks than others. So, if you are falling behind, feel free to skip an activity. The goal of these activities is to help your students really learn about nutrition through active learning.

Most of the activities require a little preparation, so make sure you review the procedures before the date you plan to do it. We believe this book is a valuable resource, but we don't want these extra activities to wear you out.

Be assured that this is a book you can choose to use when you want to, and put aside when you get too busy.

Also note that pages 199 through 220 consist of a helpful glossary in case you and your students need to look up some terms.

Do Together

Day 6 Peristalsis

Peristalsis describes a series of muscular contractions that move food through your digestive system. To help your students understand peristalsis better, do a simple experiment with them today.

Grab a short section of tubing or garden hose along with a marble or other round object only slightly smaller than the tubing/hose. Ask your students to push the marble into the hose and then move it to the other end. Note: Make sure the marble will not simply roll easily through the tube.

How did your students move the marble through the hose? If they imitated peristalsis, then they probably pushed the marble through slowly, one squeeze of the tube at a time. Explain to them that this is how their body's digestive system, including the esophagus, intestines, etc., moves food through the various stages of the digestive process ... one small muscle contraction at a time.

Day **7** Food Journal

Have your students ever given much thought to exactly how much of what types of food and drink they use to power their amazing human bodies? Today, encourage them to keep track of everything they ingest. Ask them to keep a detailed food journal by recording everything that they eat or drink today, including details of the exact types and amounts of the foods and drinks they choose.

In addition to the nitty-gritty details of the foods and drinks they consume, ask them also to record how they feel throughout the day. Are they tired? Energetic? Sleepy? Alert? Does how they feel change throughout the day?

When the day is done, ask them to look back over their journal entries for the day. Does anything surprise them? Can they believe they ate that much of X? Did they realize they only drank Y glasses of water? Do they see any correlations between how they felt at certain points in the day and what they had been eating or drinking?

Use this time to reinforce what your students have learned this week about food and their digestive systems. Do you see anything in their daily eating/drinking routine that needs some attention? Do they need to eat less junk food? Drink more water? Use this exercise as a way to discuss changes you'd like to see. You can even continue their journaling from time to time to look for improvements.

Day **8** Amylase in Action

Grab some soda crackers and put your students to work testing the action of Amylase, the starch-into-sugar enzyme present in our mouths. As described in *Blood and Guts*, have your students chew a soda cracker completely, but ask them to hold it in their mouths for five minutes rather than swallowing immediately.

When the five minutes have elapsed, ask your students what they feel in their mouths. What do they taste? Do the soda cracker remains have the same starchy taste as when they began chewing? Why not? What can they tell about the effect the Amylase has had on the starchy soda cracker? ■

Science Week 2 Activity Sheet



Food and Nutrition for Every Kid

- Define the following. (pp. 79–80, 86)
 - Mechanical digestion: (physical breaking apart of food into smaller pieces)
 - Chemical digestion: (breaking apart long chains of food molecules into usable parts)
 - Alimentary canal: (the tube food moves through in the digestive system)
 - Bolus: (the ball of food that moves through the system)
 - Emulsifier: (substance that prevents emulsion from separating)

- What does your small intestine use to break down fat? (p. 82) (Your small intestine uses bile created in the liver to break down fat.)
- What part does your pancreas play in digestion? (p. 82) (The pancreas creates juices that help to digest remaining large molecules of carbohydrates, fats, and proteins left behind by other digestive juices)

The Usborne Complete Book of the Human Body

- Why does your stomach have rugae, or wrinkles, on the inside of it? (p. 68) (to allow it to stretch and increase its surface area as it fills with food)

- What causes your stomach to make rumbling and gurgling noises? Check all that apply. (p. 69)

- food falling into your stomach
- your small intestine bumping into your stomach
- food and air sloshing around inside or being squirted through the pyloric sphincter
- gases trapped in your stomach



Science Week 2 Activity Sheet

- True or False? The bolus of food you swallow eventually passes as little balls into your small intestine. (p. 69)
 - True
 - False**
 Explain: (After your stomach has squashed and squeezed your food for a few hours, the food balls have changed into a thick, creamy mixture of chyme.)

Blood and Guts

- Draw a line to match the terms to the correct definitions. (p. 76)
 - peristalsis action of the intestine walls hugging and pushing food along like the way you squeeze a tube of toothpaste
 - enzyme tiny finger-like things that stick out from the wall of the intestine to absorb valuable chemicals from the food that passes by
 - villi a chemical in saliva that breaks down starches in food

- Part A: Label only the items listed in the box on the picture of the digestive system below. They should be familiar to you. Answer lines with stars ★ should be left blank for now. (p. 77)

esophagus	liver	small intestine	pancreas	stomach
gall bladder	rectum (anus)	large intestine/colon	tongue	

Labels on diagram: (tongue), (salivary gland), (stomach), (pancreas), (small intestine—duodenum), (ileum), (rectum (anus)), (appendix), (large intestine/colon), (gall bladder), (liver), (esophagus).

Science Week 2 Activity Sheet



Part B—Challenge! Research the functions of the remaining items below. Then label them on the diagram on the previous page.

- ★ colon: (part of the large intestine that removes water and mineral salts from partially-digested food)
- ★ salivary gland: (produces saliva, which moistens and softens food in the mouth, and helps break down starchy foods; this is the first step in digestion)
- ★ appendix: (located in the first part of the large intestine; has no known function)
- ★ ileum: (lower part of the small intestine; absorbs nutrients from food that has been digested by the stomach and duodenum)

Use the words in the box to complete the following. (pp. 79–81)

fats	proteins	feces	carbohydrates	sphincter
------	----------	-------	---------------	-----------

9. (Carbohydrates) are "fuel foods" because they provide energy for your body and are found in foods such as bread, pasta, and cereal.



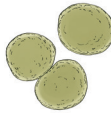
10. (fats) are used for energy production and found in foods such as butter or cream.



11. (Proteins) are used in body repair and growth and found in foods such as steak and eggs.

12. (Feces) is the proper name for the body's solid waste.

13. The kind of muscle that surrounds your lips and helps you "pucker up!" (sphincter)



14. Is bacteria good or bad? Explain. (p. 81)
(It's both—some bacteria can make you sick, but the bacteria that lives inside of you helps finish off the remains of food in your intestines, secrete helpful vitamins and digest small amounts of cellulose to create calories for daily nutrition)



Science Week 2 Activity Sheet

The Usborne Complete Book of the Human Body

15. How is your liver like a big processing plant for food chemicals? List at least three of the jobs your liver performs. (p. 70)

- 1) (sorts food chemicals collected by the small intestine and sends them to different parts of the body)
- 2) (filters out garbage)
- 3) (makes bile to help your intestines digest fat)
- 4) (converts food chemicals into body substances)

16. Why do you need intestines? What do they do for your body? (p. 70)
(You need intestines to break food down into tiny molecules of chemicals so they can be passed into your bloodstream and used by your cells)

17. Why does your body make fat? (p. 71) (to store extra food energy, because your cells only use as much food energy as they need)



18. What functions does fat serve in your body? (p. 71)
(fat keeps you warm and provides a cushion around your bones)



Food and Nutrition for Every Kid

1. Define the following. (pp. 79–80, 86)

Mechanical digestion: _____

Chemical digestion: _____

Alimentary canal: _____

Bolus: _____

Emulsifier: _____

2. What does your small intestine use to break down fat? (p. 82) _____

3. What part does your pancreas play in digestion? (p. 82) _____

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The Usborne Complete Book of the Human Body

4. Why does your stomach have *rugae*, or wrinkles, on the inside of it? (p. 68) _____

5. What causes your stomach to make rumbling and gurgling noises? Check all that apply. (p. 69)

food falling into your stomach

your small intestine bumping into your stomach

food and air sloshing around inside or being squirted through the pyloric sphincter

gases trapped in your stomach





Science Week 2 Activity Sheet

6. **True or False?** The bolus of food you swallow eventually passes as little balls into your small intestine. (p. 69)

True

False

Explain: _____

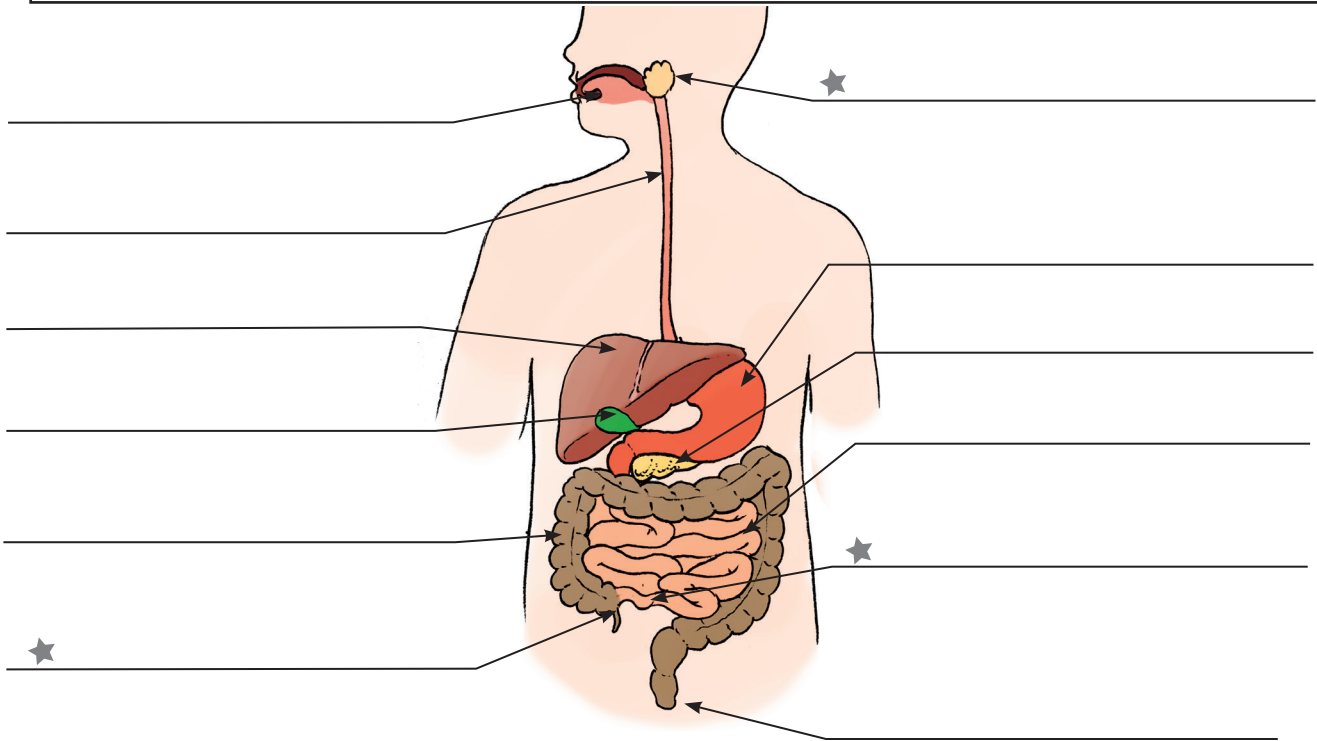
Blood and Guts

7. Draw a line to match the terms to the correct definitions. (p. 76)

- | | | | |
|-------------|---|---|---|
| peristalsis | • | • | action of the intestine walls hugging and pushing food along like the way you squeeze a tube of toothpaste |
| enzyme | • | • | tiny finger-like things that stick out from the wall of the intestine to absorb valuable chemicals from the food that passes by |
| villi | • | • | a chemical in saliva that breaks down starches in food |

8. **Part A:** Label only the items listed in the box on the picture of the digestive system below. They should be familiar to you. Answer lines with stars ★ should be left blank for now. (p. 77)

esophagus	liver	small intestine	pancreas	stomach
gall bladder	rectum (anus)	large intestine/colon	tongue	



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Part B—Challenge! Research the functions of the remaining items below. Then label them on the diagram on the previous page.

★ colon: _____

★ salivary gland: _____

★ appendix: _____

★ ileum: _____

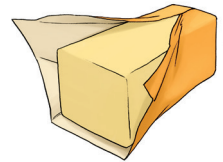
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Use the words in the box to complete the following. (pp. 79–81)

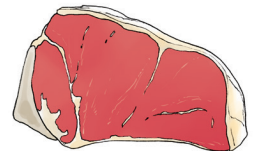
fats proteins feces carbohydrates sphincter

9. _____ are "fuel foods" because they provide energy for your body and are found in foods such as bread, pasta, and cereal.

10. _____ are used for energy production and found in foods such as butter or cream.



11. _____ are used in body repair and growth and found in foods such as steak and eggs.



12. _____ is the proper name for the body's solid waste.

13. The kind of muscle that surrounds your lips and helps you "pucker up"! _____

14. Is bacteria good or bad? Explain. (p. 81)





Science Week 2 Activity Sheet

The Usborne Complete Book of the Human Body

15. How is your liver like a big processing plant for food chemicals? List at least three of the jobs your liver performs. (p. 70)

- 1) _____
- 2) _____
- 3) _____
- 4) _____

16. Why do you need intestines? What do they do for your body? (p. 70) _____

17. Why does your body make fat? (p. 71) _____

18. What functions does fat serve in your body? (p. 71) _____



Science F

Days 11–15: 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 11	Day 12	Day 13	Day 14	Day 15
The Usborne Complete Book of the Human Body	pp. 72–73		pp. 53–55	pp. 56–57	
Activity Sheet Questions	#1–5		#8–11	#12–17	
Blood and Guts		pp. 83–86			pp. 59–62
Activity Sheet Questions		#6–7			#18–20
Do Together	Fighting Fat		A Joyful Noise		Percussing
Optional: <i>Lyrical Life Science, Vol. 3—The Human Body</i>	chaps. 8 & 11				
Additional Subjects:					

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The Usborne Complete Book of the Human Body

Day 14 pp. 56–57

To supplement today’s discussion about the respiratory system, please also review the diagram on the bottom of page 27 to better understand the part the diaphragm plays in the physical action of breathing in and out.

Blood and Guts

Day 12 pp. 83–86

Note that kidneys are referred to as “some of the most complicated pieces of equipment you have.” Complexity does not in itself indicate design, but it certainly suggests it. [p. 83]

Day 15 pp. 59–62

The book says lungs “provide the breath of life.” While they certainly function in relation to breathing, the true giver of the breath of life is God. See Genesis 1:30, 2:7, and Revelation 11:11. [p. 59]

Do Together

Day 11 Fighting Fat

Reinforce what your students have learned thus far about how your body processes food and stores excess food as fat. Use this time to discuss how important it is to monitor our food intake closely so that we do not end up with an unhealthy amount of excess food that will be stored as fat. Discuss with your students what other steps can be taken to reduce the amount of unhealthy fat in our bodies.

In addition to monitoring our food intake, we can regulate the amount of energy our bodies use by engaging in regular exercise. Ask your students to pick an exercise they enjoy and do that exercise with them today. If you can, incorporate a time for daily exercise into your students’s normal routine.

Parental Notes

Celebrate with your students today! Celebrate what? Celebrate the wonderful gift that God has given us to make a joyful noise whenever we want.

Reinforce what your students have learned about how the process of breathing, in conjunction with our vocal cords, allows us to make the wide variety of sounds we make each day. From normal speech to glorious operatic singing, all of it is made possible by the same body systems.

And what better way to celebrate than raising our voices in song? Allow your students to pick one of their favorite songs and urge them to sing it out at the top of their lungs. If you know the words, join in with them. Have fun together and remember: even everyday activities like singing can be learning experiences!


Today, challenge your students to engage in some serious percussing. Not cussing. *Percussing*. Punish cussing as you normally would!

As *Blood and Guts* explains, percussing is the process of thumping the body in various places, listening for the tell-tale sounds that will reveal what lies beneath the particular area thumped. Muscular areas, such as the thighs, will result in a dull sound when thumped. Airy parts, like the stomach, sound hollow, while areas like the ribs, which are composed of both airy and muscular/bony parts, will resonate. Encourage your students to thump away today, learning the difference in sounds of various areas of the body.

Reinforce what they have learned so far about the various organs and systems they're thumping. Just make sure they're thumping themselves and not a little brother or sister! ■


Science Week 3 Activity Sheet

The Usborne Complete Book of the Human Body



1. Draw a line to match each term to the correct definition. (pp. 71–72)

protein	—	a tough, leftover waste in your large intestine that helps to sweep the digestive system clean.
carbohydrates	—	simple sugars and starches used for energy
fats	—	made from amino acids; used to repair the body and build cells
fiber	—	stored food energy that can help keep you warm
water	—	contained in food and stored in the liver; insufficient amounts can lead to illness; small amounts are used in chemical reactions within the body
vitamins and minerals	—	lost through perspiration, urination and as you breathe out



2. Why is it important to wash your hands after going to the bathroom? (p. 72)
(because up to a third of each lump of solid waste you pass is made up of bacteria; E. coli bacteria is harmless in your large intestines but can make you sick if it ends up in your food.)

3. Which body fluid do your kidneys clean? (p. 73)

saliva	—	water
mucus	—	blood

Health, Medicine, and Human Anatomy | 5-Day | Week 3 Activity Sheet **11**



Science Week 3 Activity Sheet

4. Fill in the blank with the correct word from the box. Then order the sentences to describe how food travels through your body. Note: we have labeled the third step for you. (pp. 66–72)

liver	teeth	villus/villi	esophagus
stomach	pancreas	saliva	mouth
small intestine	rectum	large intestine	

a) (4) The _____ (*small intestine*) _____ is about 4 meters long; here, enzymes break down food into very small pieces.

b) (7) _____ Water is removed from the food that can't be digested in the first part of the _____ (*large intestine*) _____ (or colon) before passing out of the body.

c) (5) _____ (*villus/villi*) _____ are found in the walls of the intestine; they stick out like fingers; food crosses through these and goes into the bloodstream.

d) (2) The _____ (*stomach*) _____ is a stretchy bag that mashes food into a sloppy soup by soaking it in acid.

e) (1) _____ In the _____ (*mouth*) _____, _____ (*teeth*) _____ slice and grind food while _____ (*saliva*) _____ helps to moisten and soften it into mush before it passes into a tube called the _____ (*esophagus*) _____, which moves the food to the stomach.



f) (3) The _____ (*pancreas*) _____ produces a digestive juice containing many different enzymes that can break down many types of food, including fat, in the first part of the small intestine.

g) (8) The _____ (*rectum*) _____ is a tube from which solid waste leaves your body.

h) (6) _____ Blood carries nutrients to your _____ (*liver*) _____ to be stored, changed into useful body substances, or released to be used in the body. Bile is produced here.

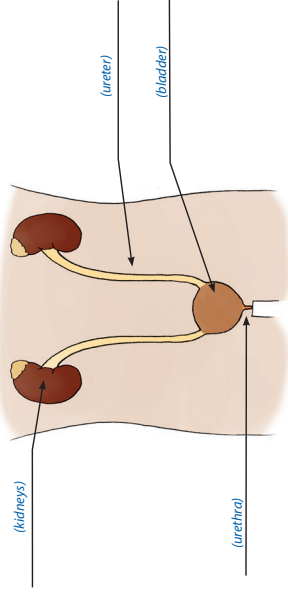


Science Week 3 Activity Sheet

5. Use the following diagram to complete the next few questions. (pp. 72–73)

a) Label the diagram using all 4 words within the Word Bank.

bladder	ureter	urethra	kidneys
---------	--------	---------	---------



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b) Using the Word Bank, describe how your body helps process waste.

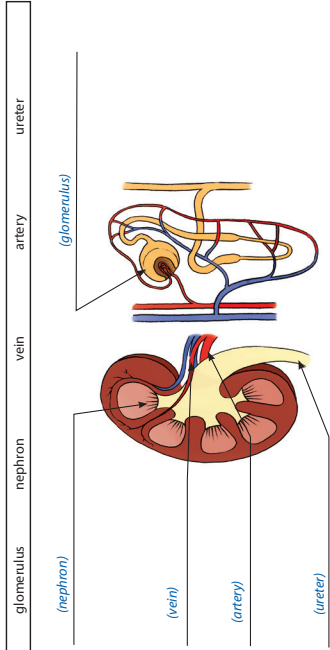
_____ (*sample answer: the kidneys process dirty blood, separate the waste, and recycle the blood back into our bloodstream. The waste then travels down the ureter to the bladder. When we expel waste, it exits through the urethra.*)



Science Week 3 Activity Sheet

Blood and Guts

6. Use the words in the box to label the various parts of the kidney. (p. 83)



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7. Fill in each blank with the letter of the correct definition. (pp. 83–85)

- (d) bladder
 - (c) glomerulus
 - (f) kidney
 - (a) nephron
 - (b) sphincter
 - (e) ureter
- a. microscopic filtering unit of the kidney; it sorts the useful and good materials from the useless and bad materials in our blood
 - b. band of muscle that holds the bladder shut
 - c. tight knot of capillaries in the nephron
 - d. muscular bag that holds urine
 - e. tubes that connect the kidneys to the bladder
 - f. filters unwanted substances out of the blood

The Osborne Complete Book of the Human Body

8. Which two body systems work together to bring oxygen to all parts of your body? Briefly describe the role each plays. (p. 54)

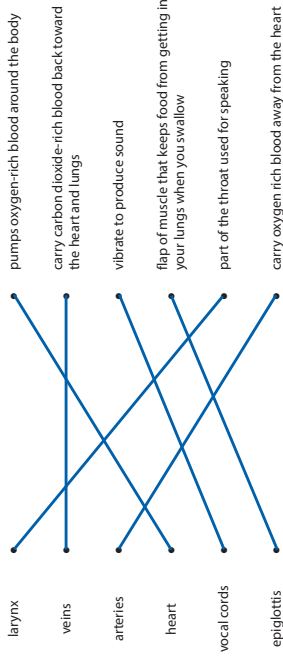
- 1) respiratory system—takes in air and extracts oxygen from it
- 2) circulatory system—blood takes oxygen molecules from lungs to the rest of the body

14 Week 3 Activity Sheet | 5-Day | Health, Medicine, and Human Anatomy



Science Week 3 Activity Sheet

9. Draw a line to match each body part to the function each performs. (pp. 54–55)



10. Describe how your cells use oxygen. Do certain organelles use it as is, or do cells use it for another purpose? (p. 55)
(Cells need oxygen to combine with other chemicals you get from food to make chemical reactions that produce energy.)
Cells use the energy to complete their everyday tasks.

11. Label the following two diagrams. Then, using the Word Bank, describe how both the respiratory and circulatory systems work together in providing oxygen to your body, using as many words as you can. (p. 54)

mouth	larynx	lungs	arteries	trachea
heart	veins	nose	pharynx	

15 Health, Medicine, and Human Anatomy | 5-Day | Week 3 Activity Sheet



Science Week 3 Activity Sheet

(sample answer: we breathe the air in through our **mouth** and **nose**, and it travels down the **pharynx** and **trachea**, into our **lungs**. Our **heart** takes the oxygen and spreads it through our body, through **arteries** and **veins**.)

12. Talk it out then write it down. Explain your answer out loud to Mom or Dad, then write it below. (pp. 56–57)

How does fresh oxygen get into your bloodstream? Use the words in the box in your answer.

(Each lung contains thousands of tunnels called the bronchial tree. At the ends of the tree's branches are bronchioles with tiny bags of alveoli at the tips. Alveoli are wrapped with blood vessels that are so tiny only one blood cell can pass through at a time. As the blood cells travel through, they release waste gases and pick up fresh oxygen before traveling back through the body.)

- bronchial tree
- bronchioles
- alveoli
- blood vessels
- blood cells

13. Describe the full impact of how cigarettes hurt your lungs. (p. 57)

(Chemicals in cigarettes damage cilia in the trachea so they can't keep dirt out; bronchioles fill up with tar so they can't work very well; can cause lung cancer)



Fill in the blank with the correct word from the box. (pp. 27, 54–56)

- | | | | |
|---------|------------|-------|---------|
| pharynx | epiglottis | cilia | trachea |
|---------|------------|-------|---------|

14. The _____ (trachea) _____ is a tube that takes air into your lungs.
15. _____ (cilia) _____ are tiny hairs that line your air passages and move mucus away from your lungs.
16. The _____ (pharynx) _____ is the main part (or back) of your throat.
17. The _____ (epiglottis) _____ is a flap of tissue that keeps food from getting into your lungs.



Science Week 3 Activity Sheet

Blood and Guts

18. Why are our bronchial tubes tree-shaped? (p. 59) _____ (So we can move as much oxygen into our blood as quickly as possible—because our cells use a lot of oxygen in the chemical reactions they produce to make energy.)

19. Which of the following determines how quickly you breathe? (p. 61)

- how much oxygen is in your blood how quickly your heart beats
- the amount of carbon dioxide waste in the blood stream

20. In complete sentences, describe what happens to your muscles and organs (physically) when you breathe. Use the pictures in the book on page 61 as a guide. (p. 61)

When you breathe in... (your diaphragm contracts and drops down, ribs expand outward, and air rushes in)

When you breathe out... (your diaphragm relaxes up into position, ribs settle down and air is squeezed out of the lungs)

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The Usborne Complete Book of the Human Body

1. Draw a line to match each term to the correct definition. (pp. 71–72)

- | | | | |
|-----------------------|---|---|---|
| protein | • | • | a tough, leftover waste in your large intestine that helps to sweep the digestive system clean. |
| carbohydrates | • | • | simple sugars and starches used for energy |
| fats | • | • | made from amino acids; used to repair the body and build cells |
| fiber | • | • | stored food energy that can help keep you warm |
| water | • | • | contained in food and stored in the liver; insufficient amounts can lead to illness; small amounts are used in chemical reactions within the body |
| vitamins and minerals | • | • | lost through perspiration, urination and as you breathe out |

2. Why is it important to wash your hands after going to the bathroom? (p. 72)



3. Which body fluid do your kidneys clean? (p. 73)

saliva

mucus

water

blood

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Science Week 3 Activity Sheet

4. Fill in the blank with the correct word from the box. Then order the sentences to describe how food travels through your body. Note: we have labeled the third step for you. (pp. 66–72)

liver	teeth	villus/villi	esophagus
stomach	pancreas	saliva	mouth
small intestine	rectum	large intestine	

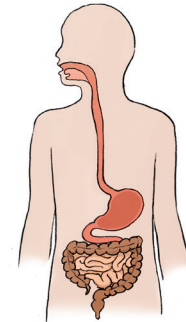
a) _____ The _____ is about 4 meters long; here, enzymes break down food into very small pieces.

b) _____ Water is removed from the food that can't be digested in the first part of the _____ (or colon) before passing out of the body.

c) _____ are found in the walls of the intestine; they stick out like fingers; food crosses through these and goes into the bloodstream.

d) _____ The _____ is a stretchy bag that mashes food into a sloppy soup by soaking it in acid.

e) _____ In the _____, _____ slice and grind food while _____ helps to moisten and soften it into mush before it passes into a tube called the _____, which moves the food to the stomach.



f) **3** The _____ produces a digestive juice containing many different enzymes that can break down many types of food, including fat, in the first part of the small intestine.

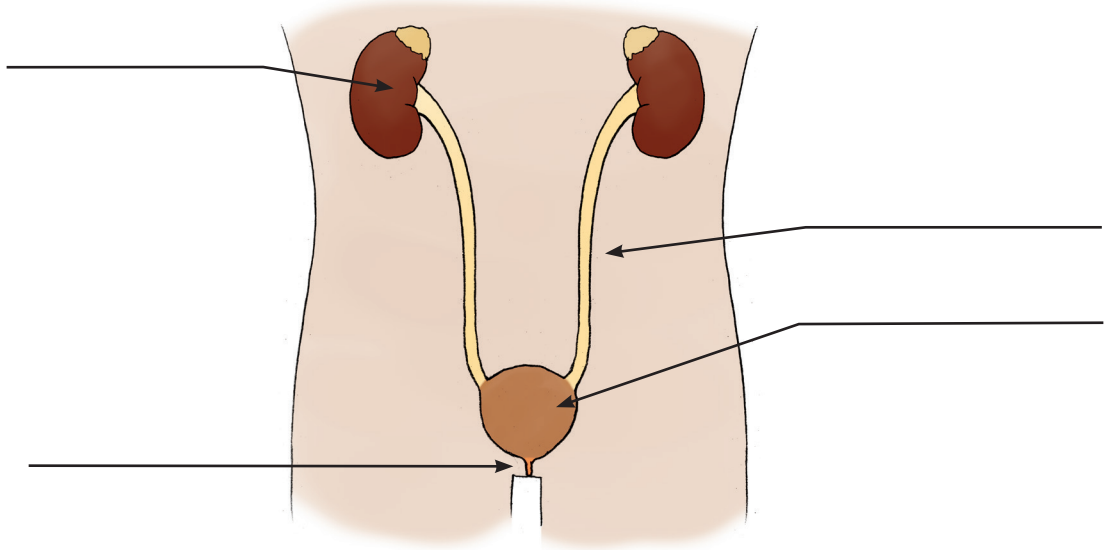
g) _____ The _____ is a tube from which solid waste leaves your body.

h) _____ Blood carries nutrients to your _____ to be stored, changed into useful body substances, or released to be used in the body. Bile is produced here.



- 5. Use the following diagram to complete the next few questions. (pp. 72–73)
 - a) Label the diagram using all 4 words within the Word Bank.

bladder ureter urethra kidneys



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- b) Using the Word Bank, describe how your body helps process waste.

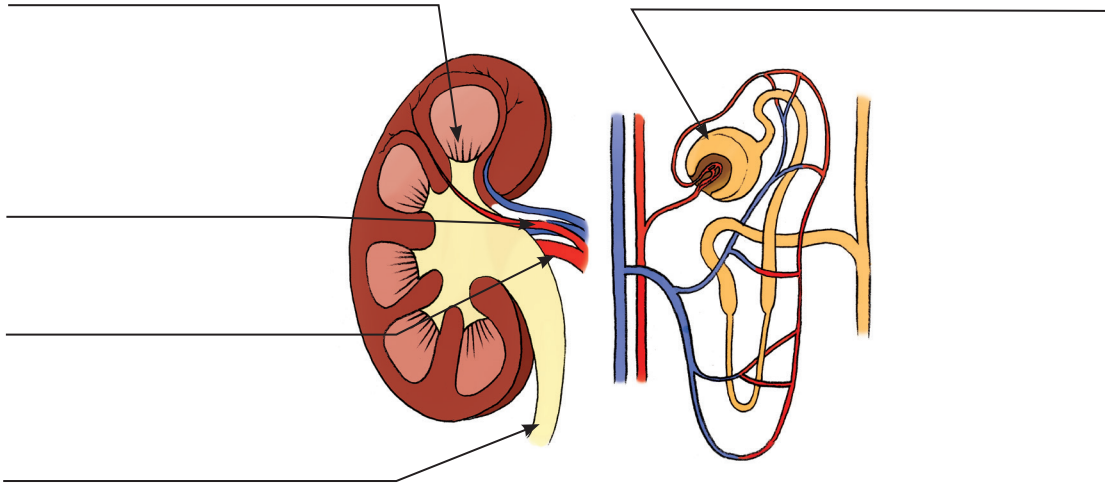


Science Week 3 Activity Sheet

Blood and Guts

6. Use the words in the box to label the various parts of the kidney. (p. 83)

glomerulus	nephron	vein	artery	ureter
------------	---------	------	--------	--------



7. Fill in each blank with the letter of the correct definition. (pp. 83–85)

- | | |
|------------------|---|
| _____ bladder | a. microscopic filtering unit of the kidney; it sorts the useful and good materials from the useless and bad materials in our blood |
| _____ glomerulus | b. band of muscle that holds the bladder shut |
| _____ kidney | c. tight knot of capillaries in the nephron |
| _____ nephron | d. muscular bag that holds urine |
| _____ sphincter | e. tubes that connect the kidneys to the bladder |
| _____ ureter | f. filters unwanted substances out of the blood |

The Usborne Complete Book of the Human Body

8. Which two body systems work together to bring oxygen to all parts of your body? Briefly describe the role each plays. (p. 54)

1) _____

2) _____



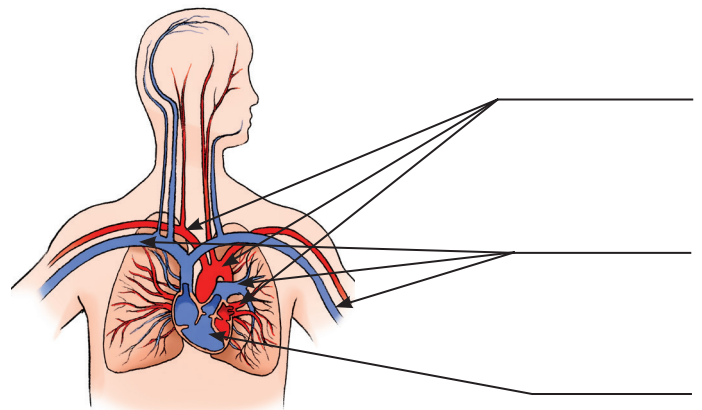
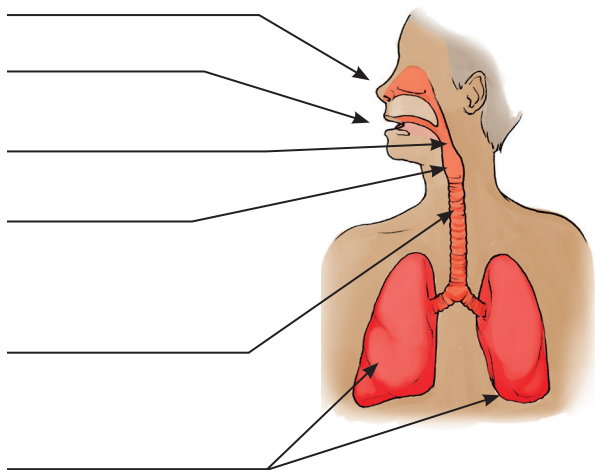
9. Draw a line to match each body part to the function each performs. (pp. 54–55)

- | | | |
|-------------|---|--|
| larynx | • | • pumps oxygen-rich blood around the body |
| veins | • | • carry carbon dioxide-rich blood back toward the heart and lungs |
| arteries | • | • vibrate to produce sound |
| heart | • | • flap of muscle that keeps food from getting in your lungs when you swallow |
| vocal cords | • | • part of the throat used for speaking |
| epiglottis | • | • carry oxygen rich blood away from the heart |

10. Describe how your cells use oxygen. Do certain organelles use it as is, or do cells use it for another purpose? (p. 55)

11. Label the following two diagrams. Then, using the Word Bank, describe how both the respiratory and circulatory systems work together in providing oxygen to your body, using as many words as you can. (p. 54)

mouth	larynx	lungs	arteries	trachea
heart	veins	nose	pharynx	





Science Week 3 Activity Sheet

12. Talk it out then write it down. Explain your answer out loud to Mom or Dad, then write it below. (pp. 56–57)

How does fresh oxygen get into your bloodstream? Use the words in the box in your answer.

bronchial tree
bronchioles
alveoli
blood vessels
blood cells

13. Describe the full impact of how cigarettes hurt your lungs. (p. 57)



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Fill in the blank with the correct word from the box. (pp. 27, 54–56)

pharynx	epiglottis	cilia	trachea
---------	------------	-------	---------

14. The _____ is a tube that takes air into your lungs.

15. _____ are tiny hairs that line your air passages and move mucus away from your lungs.

16. The _____ is the main part (or back) of your throat.

17. The _____ is a flap of tissue that keeps food from getting into your lungs.



Blood and Guts

18. Why are our bronchial tubes tree-shaped? (p. 59) _____

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- how much oxygen is in your blood how quickly your heart beats
- the amount of carbon dioxide waste in the blood stream

20. In complete sentences, describe what happens to your muscles and organs (physically) when you breathe. Use the pictures in the book on page 61 as a guide. (p. 61)

When you breathe in... _____

When you breathe out... _____

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Science F—Weekly Subject List

Week	Subject
1	body/body systems/cells/digestion
2	digestive system/intestines
3	waste/kidneys/circulatory system/respiratory system
4	heart/circulation/blood
5	muscular system/skeletal system
6	joints /muscular system/involuntary muscles/reflexes
7	hair and nails/skin
8	skin/ brain/senses/how the brain works/nervous system/neurons
9	learning development/parts of the brain/neurons
10	eyesight/memory/homeostasis
11	mental illness/drug and chemical addiction/animal brains/brains and computers/eyesight
12	eyes/vision/hearing/ears/sensory
13	ears/inner ear and balance/nutrition and diet
14	taste and smell/teeth/nose and throat/sensory/carbohydrates
15	thinking/memory/health and sickness/diseases/fat
16	immune system/medicine and treatments/surgery and operations/reproduction/birth/protein
17	reproduction/genes and DNA/vitamins
18	genes/internet and the gene revolution/understanding genes/vitamins and minerals
19	chromosomes/genetic code/ babies/fruits and vegetables
20	genetic traits/history of genetics/discovering DNA/food pyramid
21	gene science today/human genome/GM foods/food labels
22	cloning/DNA testing/maintaining weight
23	'perfect people'/making money/the future of science/taste buds
24	growing up/boy's book or girl's book
25	boy's book or girl's book/hormones
26	aging/shelter/salt
27	cold weather survival/food dyes
28	hot weather and water survival/acidic foods
29	wild animals/fire/leavening agents
30	first aid/self defense/enzymes
31	directions/Egyptian doctors/gluten
32	Greek medicine/dissections, surgery, and blood/fruit ripeners
33	scope/smallpox/anesthetic/ether/milk
34	childbirth/pasteurization/infection/anthrax/dairy products
35	cholera/scurvy/beriberi/x-rays/food spoilage
36	radiation/sulfa/penicillin/blood banks/preservatives

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