

TEACHER GUIDE

3rd–8th Grade

Includes Student
Worksheets

Science



Weekly Lesson Schedule



Student Worksheets



Quizzes



Answer Key

GOD'S
DESIGN®

Life

The
World of Plants

The
Human Body

The
World of Animals



MASTERBOOKS
— CURRICULUM —

Debbie & Richard Lawrence

TEACHER GUIDE

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Includes Student
Worksheets

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Weekly Lesson Schedule



Student Worksheets



Quizzes & Tests



Answer Key

God's Design: Life



MASTERBOOKS®
— CURRICULUM —

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Author Bio: The God's Design Science series is based on a biblical worldview and reveals how science supports the biblical account of creation. **Richard and Debbie Lawrence**, authors of the series, have a long history of enjoying science. They have both worked as electrical engineers and now Debbie teaches chemistry and physics at a homeschool co-op. While homeschooling their children for 16 years, there was almost always a science experiment going on in the kitchen. Today that tradition is being continued with the next generation as the grandkids enjoy Grandma Science Day once a week.

“

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Note: Quizzes and Tests

This course contains both quizzes and tests to help assess the student’s mastery and understanding of key concepts. These assessments also have a second section that includes questions for older students who do the associated lesson challenges. The quizzes and tests have a suggested point system, but as always, you can alter, adjust, or modify these assessments to fit the needs and abilities of your student. The assessments can be given orally as well.

Welcome to *God's Design for Life Teacher Guide*! This exciting course has been enhanced with the following features:

- Combined daily schedule for a one-year course (includes material for The World of Plants, The Human Body, and The World of Animals)
- Each individual lesson sheet on its own page
- Contains a master supply list for each section (plants, human body, and animals) as well a supply list for each lesson — all with convenient checkboxes
- Additional instructions and formatting on the lesson sheets make it easier for the student to follow and the parent to grade
- The icons used in the student book have been added on the lesson sheets as well
- A point system has been assigned to quizzes and tests
- Includes separate answer keys for worksheets, quizzes, and tests for each section (plants, human body, animals)
- Answer keys contain both questions and answers for convenience
- Includes copies of the glossary from the student book



Welcome to GOD'S DESIGN®

LIFE



God's *Design for Life* is a book that has been designed for use in teaching life science to elementary and middle school students. It is divided into three sections: *The World of Plants*, *The World of Animals*, and *The Human Body*. The course has 105 lessons including a final project that ties all of the lessons together.

In addition to the lessons, special features per section include biographical information on interesting people as well as fun facts to make the subject more fun.

Although this is a complete curriculum, the information included here is just a beginning, so please feel free to add to each lesson as you see fit. A resource guide is included in the appendices to help you find additional information and resources. A list of supplies needed is included at the beginning of each lesson,

while a master list of all supplies needed for the entire course can be found in the appendices.

Answer keys for all review questions, worksheets, quizzes, and the final exam are included. If you wish to get through *God's Design: Life* in one year, plan on covering approximately three to four lessons per week. The time required for each lesson varies depending on how much additional information you include, but plan on about 40 to 45 minutes. A helpful daily schedule starts on page 15. Quizzes may be given at the conclusion of each unit and a final exam may be given at the completion of each section.

If you wish to cover the material in more depth, you may add additional information and take a longer period of time to cover all the material, or you could choose to do only one or two of the sections as a unit study.

Why Teach Life Science?

Maybe you hate science or you just hate teaching it. Maybe you love science but don't quite know how to teach it to your children. Maybe science just doesn't seem as important as some of those other subjects you need to teach. Maybe you need a little motivation. If any of these descriptions fits you, then please consider the following:

It is not uncommon to question the need to teach your kids hands-on science in elementary school. We could argue that the knowledge gained in science will be needed later in life in order for your children to be more productive and well-rounded adults. We could argue that teaching your children science also teaches them logical and inductive thinking and reasoning skills,

which are tools they will need to be more successful. We could argue that science is a necessity in this technological world in which we live. While all of these arguments are true, not one of them is the real reason that we should teach our children science. The most important reason to teach science in elementary school is to give your children an understanding that God is our Creator, and the Bible can be trusted. Teaching science from a creation perspective is one of the best ways to reinforce your children's faith in God and to help them counter the evolutionary propaganda they face every day.

God is the Master Creator of everything. His handiwork is all around us. Our Great Creator put in place all of the laws of physics, biology, and chemistry. These laws were put here for us to see His wisdom and power. In science, we see the hand of God at work more than in any other subject. Romans 1:20 says, "For since the creation of the world His invisible attributes are clearly seen, being understood by the things that are made, even His eternal power and Godhead, so that they [men] are without excuse." We need to help our children see God as Creator of the

world around them so they will be able to recognize God and follow Him.

The study of life science helps us understand the balance of nature so that we can be good stewards of our bodies, the plants, and the animals around us. It helps us appreciate the intricacies of life and the wonders of God's creation. Understanding the world of living things from a biblical point of view will prepare our children to deal with an ecology-obsessed world. It is critical to teach our children the truth of the Bible, how to evaluate the evidence, how to distinguish fact from theory and to realize that the evidence, rightly interpreted, supports biblical creation, not evolution.

It's fun to teach life science! It's interesting, too. Children have a natural curiosity about living things, so you won't have to coax them to explore the world of living creatures. You just have to direct their curiosity and reveal to them how interesting life science can be.

Finally, teaching life science is easy. It's all around us. Everywhere we go, we are surrounded by living things. You won't have to try to find strange materials for experiments or do dangerous things to learn about life.

How Do I Teach Science?

In order to teach any subject you need to understand how people learn. People learn in different ways. Most people, and children in particular, have a dominant or preferred learning style in which they absorb and retain information more easily.

If a student's dominant style is:

Auditory
He needs not only to hear the information but he needs to hear himself say it. This child needs oral presentation as well as oral drill and repetition.
Visual
She needs things she can see. This child responds well to flashcards, pictures, charts, models, etc.
Kinesthetic
He needs active participation. This child remembers best through games, hands-on activities, experiments, and field trips.

Also, some people are more relational while others are more analytical. The relational student needs to know why this subject is important, and how it will affect him personally. The analytical student, however, wants just the facts.

If you are trying to teach more than one student, you will probably have to deal with more than one learning style. Therefore, you need to present your lessons in several different ways so that each student can grasp and retain the information.

Grades 3–8

The first part of each lesson should be completed by all upper elementary and junior high students. This is the main part of the lesson containing a reading section, a hands-on activity that reinforces the ideas in the reading section (blue box) of the student book, and a review section that provides review questions and application questions.

Grades 6–8

In addition, for middle school/junior high age students, a “Challenge” section that contains more challenging material, as well as additional activities and projects for older students (green box), is found in the student textbook.

We have included periodic biographies to help your students appreciate the great men and women who have gone before us in the field of science.

We suggest a threefold approach to each lesson:

Introduce the topic

We give a brief description of the facts. Frequently you will want to add more information than the essentials given in this book. In addition to reading this section aloud (or having older children read it on their own), you may wish to do one or more of the following:

- Read a related book with your students.
- Write things down to help your visual learners.
- Give some history of the subject. We provide some historical sketches to help you, but you may want to add more.
- Ask questions to get your students thinking about the subject.

Make observations and do experiments

- Hands-on projects are suggested for each lesson. This part of each lesson may require help from the teacher.
- Have your students perform the activity by themselves whenever possible.

Review

- The “What did we learn?” section has review questions.
- The “Taking it further” section encourages students to
 - Draw conclusions
 - Make applications of what was learned
 - Add extended information to what was covered in the lesson
- The “FUN FACT” section adds fun or interesting information.

By teaching all three parts of the lesson, you will be presenting the material in a way that children with any learning style can both relate to and remember.

Also, this approach relates directly to the scientific method and will help your students think more scientifically. The *scientific method* is just a way to examine a subject logically and learn from it. Briefly, the steps of the scientific method are:

1. Learn about a topic.
2. Ask a question.
3. Make a hypothesis (a good guess).
4. Design an experiment to test your hypothesis.
5. Observe the experiment and collect data.
6. Draw conclusions. (Does the data support your hypothesis?)

Note: It’s okay to have a “wrong hypothesis.” That’s how we learn. Be sure to help your students understand why they sometimes get a different result than expected.

Our lessons will help your students begin to approach problems in a logical, scientific way.

Icon Key



Do the activity in the light blue box of your student book (worksheets will be provided by your teacher).



Test your knowledge by answering the **What did we learn?** questions.



Assess your understanding by answering the **Taking it further** questions.



Do the challenge section in the light green box in your student book. This part of the lesson will challenge you to do more advanced activities and learn additional interesting information.

How Do I Teach Creation vs. Evolution?

We are constantly bombarded by evolutionary ideas about living things in books, movies, museums, and even commercials. These raise many questions: Did dinosaurs really live millions of years ago? Did man evolve from apes? Which came first, Adam and Eve or the cavemen? Where did living things come from in

the first place? The Bible answers these questions and this book accepts the historical accuracy of the Bible as written. We believe this is the only way we can teach our children to trust that everything God says is true.

There are five common views of the origins of life and the age of the earth:

Historical biblical account	Progressive creation	Gap theory	Theistic evolution	Naturalistic evolution
Each day of creation in Genesis is a normal day of about 24 hours in length, in which God created everything that exists. The earth is only thousands of years old, as determined by the genealogies in the Bible.	The idea that God created various creatures to replace other creatures that died out over millions of years. Each of the days in Genesis represents a long period of time (day-age view) and the earth is billions of years old.	The idea that there was a long, long time between what happened in Genesis 1:1 and what happened in Genesis 1:2. During this time, the “fossil record” was supposed to have formed, and millions of years of earth history supposedly passed.	The idea that God used the process of evolution over millions of years (involving struggle and death) to bring about what we see today.	The view that there is no God and evolution of all life forms happened by purely naturalistic processes over billions of years.

Any theory that tries to combine the evolutionary time frame with creation presupposes that death entered the world before Adam sinned, which contradicts what God has said in His Word. The view that the earth (and its “fossil record”) is hundreds of millions of years old damages the gospel message. God’s completed creation was “very good” at the end of the sixth day (Genesis 1:31). Death entered this perfect paradise *after* Adam disobeyed God’s command. It was the punishment for Adam’s sin (Genesis 2:16–17; 3:19; Romans 5:12–19). Thorns appeared when God cursed the ground because of Adam’s sin (Genesis 3:18).

The first animal death occurred when God killed at least one animal, shedding its blood, to make clothes for Adam and Eve (Genesis 3:21). If the earth’s “fossil record” (filled with death, disease, and thorns) formed over millions of years before Adam appeared (and before he sinned), then death no longer would be the penalty

for sin. Death, the “last enemy” (1 Corinthians 15:26), diseases (such as cancer), and thorns would instead be part of the original creation that God labeled “very good.” No, it is clear that the “fossil record” formed some time *after* Adam sinned—not many millions of years before. Most fossils were formed as a result of the worldwide Genesis Flood.

When viewed from a biblical perspective, the scientific evidence clearly supports a recent creation by God, and not naturalistic evolution and millions of years. The volume of evidence supporting the biblical creation account is substantial and cannot be adequately covered in this book. If you would like more information on this topic, please see the resource guide in the appendices. To help get you started, just a few examples of evidence supporting biblical creation are given on the following pages.

Evolutionary Myth: Humans have been around for more than one million years.

The Truth: If people have been on earth for a million years, there would be trillions of people on the earth today, even if we allowed for worst-case plagues, natural disasters, etc. The number of people on earth today is about 6.5 billion. If the population had grown at only a 0.01% rate (today's rate is over 1%) over 1 million years, there could be 10^{43} people today (that's a number with 43 zeros after it)! Repopulating the earth after the Flood would only require a population growth rate of 0.5%, half of what it is today.

John D. Morris, *The Young Earth* (Colorado Springs: Creation Life Publishers, 1994), pp. 70–71. See also “Billions of People in Thousands of Years?” at www.answersingenesis.org/go/billions-of-people.

Evolutionary Myth: Man evolved from an ape-like creature.

The Truth: All so-called “missing links” showing human evolution from apes have been shown to be either apes, humans, or deliberate hoaxes. These links remain missing.

Duane T. Gish, *The Amazing Story of Creation from Science and the Bible* (El Cajon: Institute for Creation Research, 1990), pp. 78–83.

Evolutionary Myth: All animals evolved from lower life forms.

The Truth: While Darwin predicted that the fossil record would show numerous transitional fossils, even more than 145 years later, all we have are a handful of disputable examples. For example, there are no fossils showing something that is part way between a dinosaur and a bird. Fossils show that a snail has always been a snail; a squid has always been a squid. God created each animal to reproduce after its kind (Genesis 1:20–25).

Ibid., pp. 36, 53–60.

Evolutionary Myth: Dinosaurs evolved into birds.

The Truth: Flying birds have streamlined bodies, with the weight centralized for balance in flight; hollow bones for lightness, which are also part of their breathing system; powerful muscles for flight; and very sharp vision. And birds have two of the most brilliantly-designed structures in nature—their feathers and special lungs. It is impossible to believe that a reptile could make that many changes over time and still survive.

Gregory Parker et al., *Biology: God's Living Creation* (Pensacola: A Beka Book, 1997), pp. 474–475.

Evolutionary Myth: Thousands of changes over millions of years resulted in the creatures we see today.

The Truth: What is now known about human and animal anatomy shows the body structures, from the cells to systems, to be infinitely more complex than was believed when Darwin published his work in 1859. Many biologists and especially microbiologists are now saying that there is no way these complex structures could have developed by natural processes.

Ibid., pp. 384–385.

Since the evidence does not support their theories, evolutionists are constantly coming up with new ways to try to support what they believe. One of their ideas is called punctuated equilibrium. This theory of evolution says that rapid evolution occurred in small isolated populations, and left no evidence in the fossil record. There is no evidence for this, nor any known mechanism to cause these rapid changes. Rather, it is merely wishful thinking. We need to teach our children the difference between science and wishful thinking.

Despite the claims of many scientists, if you examine the evidence objectively, it is obvious that evolution and millions of years have not been proven. You can be

confident that if you teach that what the Bible says is true, you won't go wrong. Instill in your student a confidence in the truth of the Bible in all areas. If scientific thought seems to contradict the Bible, realize that scientists often make mistakes, but God does not lie. At one time scientists believed that the earth was the center of the universe, that living things could spring from nonliving things, and that blood-letting was good for the body. All of these were believed to be scientific facts but have since been disproved, but the Word of God remains true. If we use modern "science" to interpret the Bible, what will happen to our faith in God's Word when scientists change their theories yet again?

Integrating the Seven C's

The Seven C's is a framework in which all of history, and the future to come, can be placed. As we go through our daily routines we may not understand how the details of life connect with the truth that we find in the Bible. This is also the case for students. When discussing the importance of the Bible you may find yourself telling students that the Bible is relevant in everyday activities. But how do we help the younger generation see that? The Seven C's are intended to help.

The Seven C's can be used to develop a biblical worldview in students, young or old. Much more than entertaining stories and religious teachings, the Bible has real connections to our everyday life. It may be hard, at first, to see how many connections there are, but with practice, the daily relevance of God's Word will come alive. Let's look at the Seven C's of History and how each can be connected to what the students are learning.



Creation

God perfectly created the heavens, the earth, and all that is in them in six normal-length days around 6,000 years ago.

This teaching is foundational to a biblical worldview and can be put into the context of any subject. In science, the amazing design that we see in nature—whether in the veins of a leaf or the complexity of your hand—is all the handiwork of God. Virtually all of the lessons in *God's Design for Science* can be related to God's creation of the heavens and earth.

Other contexts include:

Natural laws—any discussion of a law of nature naturally leads to God's creative power.

DNA and information—the information in every living thing was created by God's supreme intelligence.

Mathematics—the laws of mathematics reflect the order of the Creator.

Biological diversity—the distinct kinds of animals that we see were created during the Creation Week, not as products of evolution.

Art—the creativity of man is demonstrated through various art forms.

History—all time scales can be compared to the biblical time scale extending back about 6,000 years.

Ecology—God has called mankind to act as stewards over His creation.



Corruption

After God completed His perfect creation, Adam disobeyed God by eating the forbidden fruit. As a result, sin and death entered the world, and the world has been in decay since that time. This point is evident throughout the world that we live in. The struggle for survival in animals, the death of loved ones, and the violence all around us are all examples of the corrupting influence of sin.

Other contexts include:

Genetics—the mutations that lead to diseases, cancer, and variation within populations are the result of corruption.

Biological relationships—predators and parasites result from corruption.

History—wars and struggles between mankind, exemplified in the account of Cain and Abel, are a result of sin.



Catastrophe

God was grieved by the wickedness of mankind and judged this wickedness with a global Flood. The Flood covered the entire surface of the earth and killed all air-breathing creatures that were not aboard the Ark. The eight people and the animals aboard the Ark replenished the earth after God delivered them from the catastrophe.

The catastrophe described in the Bible would naturally leave behind much evidence. The studies of geology and of the biological diversity of animals on the planet are two of the most obvious applications of this event. Much of scientific understanding is based on how a scientist views the events of the Genesis Flood.

Other contexts include:

Biological diversity—all of the birds, mammals, and other air-breathing animals have populated the earth from the original kinds which left the Ark.

Geology—the layers of sedimentary rock seen in roadcuts, canyons, and other geologic features are testaments to the global Flood.

Geography—features like mountains, valleys, and plains were formed as the floodwaters receded.

Physics—rainbows are a perennial sign of God's faithfulness and His pledge to never flood the entire earth again.

Fossils—Most fossils are a result of the Flood rapidly burying plants and animals.

Plate tectonics—the rapid movement of the earth's plates likely accompanied the Flood.

Global warming/Ice Age—both of these items are likely a result of the activity of the Flood. The warming we are experiencing today has been present since the peak of the Ice Age (with variations over time).



Confusion

God commanded Noah and his descendants to spread across the earth. The refusal to obey this command and the building of the tower at Babel caused God to judge this sin. The common language of the people was confused and they spread across the globe as groups with a common language. All people are truly of "one blood" as descendants of Noah and, originally, Adam.

The confusion of the languages led people to scatter across the globe. As people settled in new areas, the traits they carried with them became concentrated in those populations. Traits like dark skin were beneficial in the tropics while other traits benefited populations in northern climates, and distinct people groups, not races, developed.

Other contexts include:

Genetics—the study of human DNA has shown that there is little difference in the genetic makeup of the so-called "races."

Languages—there are about seventy language groups from which all modern languages have developed.

Archaeology—the presence of common building structures, like pyramids, around the world confirms the biblical account.

Literature—recorded and oral records tell of similar events relating to the Flood and the dispersion at Babel.



Christ

God did not leave mankind without a way to be redeemed from its sinful state. The Law was given to Moses to show how far away man is from God's standard of perfection. Rather than the sacrifices, which only covered sins, people needed a Savior to take away their sin. This was accomplished when Jesus Christ came to earth to live a perfect life and, by that obedience, was able to be the sacrifice to satisfy God's wrath for all who believe.

The deity of Christ and the amazing plan that was set forth before the foundation of the earth is the core of Christian doctrine. The earthly life of Jesus was the fulfillment of many prophecies and confirms the truthfulness of the Bible. His miracles and presence in human form demonstrate that God is both intimately concerned with His creation and able to control it in an absolute way.

Other contexts include:

Psychology—popular secular psychology teaches of the inherent goodness of man, but Christ has lived the only perfect life. Mankind needs a Savior to redeem it from its unrighteousness.

Biology—Christ's virgin birth demonstrates God's sovereignty over nature.

Physics—turning the water into wine and the feeding of the five thousand demonstrate Christ's deity and His sovereignty over nature.

History—time is marked (in the western world) based on the birth of Christ despite current efforts to change the meaning.

Art—much art is based on the life of Christ and many of the masters are known for these depictions, whether on canvas or in music.



Cross

Because God is perfectly just and holy, He must punish sin. The sinless life of Jesus Christ was offered as a substitutionary sacrifice for all of those who will repent and put their faith in the Savior. After His death on the Cross, He defeated death by rising on the third day and is now seated at the right hand of God.

The events surrounding the crucifixion and resurrection have a most significant place in the life of Christians. Though there is no way to scientifically prove the resurrection, there is likewise no way to prove the stories of evolutionary history. These are matters of faith founded in the truth of God's Word and His character. The eyewitness testimony of over 500 people and the written Word of God provide the basis for our belief.

Other contexts include:

Biology—the biological details of the crucifixion can be studied alongside the anatomy of the human body.

History—the use of crucifixion as a method of punishment was short-lived in historical terms and not known at the time it was prophesied.

Art—the crucifixion and resurrection have inspired many wonderful works of art.



Consummation

God, in His great mercy, has promised that He will restore the earth to its original state—a world without death, suffering, war, and disease. The corruption introduced by Adam's sin will be removed. Those who have repented and put their trust in the completed work of Christ on the Cross will experience life in this new heaven and earth. We will be able to enjoy and worship God forever in a perfect place.

This future event is a little more difficult to connect with academic subjects. However, the hope of a life in God's presence and in the absence of sin can be inserted in discussions of human conflict, disease, suffering, and sin in general.

Other contexts include:

History—in discussions of war or human conflict the coming age offers hope.

Biology—the violent struggle for life seen in the predator-prey relationships will no longer taint the earth.

Medicine—while we struggle to find cures for diseases and alleviate the suffering of those enduring the effects of the Curse, we ultimately place our hope in the healing that will come in the eternal state.

The preceding examples are given to provide ideas for integrating the Seven C's of History into a broad range of curriculum activities. Give your students, and yourself, a better understanding of the Seven C's framework by using AiG's *Answers for Kids* curriculum. The first seven lessons of this curriculum cover the Seven C's and will establish a solid understanding of the true history, and future, of the universe. Full lesson plans, activities, and student resources are provided in the curriculum set.

AiG offers bookmarks displaying the Seven C's and a wall chart. These can be used as visual cues for the students to help them recall the information and integrate new learning into its proper place in a biblical worldview.

Even if you use other curricula, you can still incorporate the Seven C's teaching into those. Using this approach will help students make firm connections between biblical events and every aspect of the world around them, and they will begin to develop a truly biblical worldview and not just add pieces of the Bible to what they learn in "the real world."

First Semester Suggested Daily Schedule

Date	Day	Assignment	Due Date	✓	Grade
First Semester-First Quarter					
Week 1	Day 1	The World of Plants Unit 1: Introduction to Life Science Read Lesson 1: Is It Alive? • Pages 14-17 • <i>God's Design: Life</i> • (GDL) Complete Worksheet • Pages 25-26 • <i>Teacher Guide</i> • (TG)			
	Day 2	Read Lesson 2: What Is a Kingdom? • Pages 18-20 • (GDL) Complete Worksheet • Pages 27-29 • (TG)			
	Day 3	Read Lesson 3: Classification System • Pages 21-23 • (GDL) Complete Worksheet • Pages 31-32 • (TG)			
	Day 4	Read Special Feature: Carl Linnaeus • Pages 24-25 • (GDL)			
	Day 5				
Week 2	Day 6	Read Lesson 4: Plant & Animal Cells • Pages 26-29 • (GDL) Complete Worksheet • Pages 33-34 • (TG)			
	Day 7	Read Special Feature: Cells • Page 30 • (GDL)			
	Day 8	Complete Introduction to Life Science Quiz 1 (Lessons 1-4) Pages 309-310 • (TG)			
	Day 9	Plants Unit 2: Flowering Plants & Seeds Read Lesson 5: Flowering Plants • Pages 32-34 • (GDL) Complete Worksheet • Pages 35-36 • (TG)			
	Day 10				
Week 3	Day 11	Read Lesson 6: Grasses • Pages 35-37 • (GDL) Complete Worksheet • Pages 37-39 • (TG)			
	Day 12	Read Lesson 7: Trees • Pages 38-40 • (GDL) Complete Worksheet • Pages 41-42 • (TG)			
	Day 13	Read Special Feature: Redwoods • Page 41 • (GDL)			
	Day 14	Read Lesson 8: Seeds • Pages 42-44 • (GDL) Complete Worksheet • Pages 43-45 • (TG)			
	Day 15				
Week 4	Day 16	Read Lesson 9: Monocots & Dicots • Pages 45-47 • (GDL) Complete Worksheet • Pages 47-48 • (TG)			
	Day 17	Read Lesson 10: Seeds—Where Are They? • Pages 48-51 • (GDL) Complete Worksheet • Pages 49-52 • (TG)			
	Day 18	Read Special Feature: George Washington Carver Pages 52-53 • (GDL)			
	Day 19	Complete Flowering Plants & Seeds Quiz 2 (Lessons 5-10) Pages 311-312 • (TG)			
	Day 20				
Week 5	Day 21	Plants Unit 3: Roots & Stems Read Lesson 11: Roots • Pages 55-57 • (GDL) Complete Worksheet • Pages 53-54 • (TG)			
	Day 22	Read Lesson 12: Special Roots • Pages 58-60 • (GDL) Complete Worksheet • Pages 55-56 • (TG)			
	Day 23	Read Lesson 13: Stems • Pages 61-63 • (GDL) Complete Worksheet • Pages 57-58 • (TG)			
	Day 24	Read Lesson 14: Stem Structure • Pages 64-65 • (GDL) Complete Worksheet • Pages 59-60 • (TG)			
	Day 25				

Date	Day	Assignment	Due Date	✓	Grade
Week 6	Day 26	Read Lesson 15: Stem Growth • Pages 66-68 • (GDL) Complete Worksheet • Pages 61-62 • (TG)			
	Day 27	Complete Roots & Stems Quiz 3 (Lessons 11-15) Pages 313-314 • (TG)			
	Day 28	Plants Unit 4: Leaves Read Lesson 16: Photosynthesis • Pages 70-73 • (GDL) Complete Worksheet • Pages 63-67 • (TG)			
	Day 29	Read Lesson 17: Arrangement of Leaves • Pages 74-76 • (GDL) Complete Worksheet • Pages 69-70 • (TG)			
	Day 30				
Week 7	Day 31	Read Lesson 18: Leaves—Shape & Design • Pages 77-80 • (GDL) Complete Worksheet • Pages 71-72 • (TG)			
	Day 32	Read Lesson 19: Changing Colors • Pages 81-83 • (GDL) Complete Worksheet • Pages 73-74 • (TG)			
	Day 33	Read Lesson 20: Tree Identification: Final Project Pages 84-86 • (GDL) Complete Worksheet • Pages 75-76 • (TG)			
	Day 34	Complete Leaves Quiz 4 (Lessons 16-20) • Pages 315-316 • (TG)			
	Day 35				
Week 8	Day 36	Plants Unit 5: Flowers & Fruits Read Lesson 21: Flowers • Pages 88-90 • (GDL) Complete Worksheet • Pages 77-79 • (TG)			
	Day 37	Read Lesson 22: Pollination • Pages 91-93 • (GDL) Complete Worksheet • Pages 81-83 • (TG)			
	Day 38	Read Special Feature: Pierre-Joseph Redoute • Page 94 • (GDL)			
	Day 39	Read Lesson 23: Flower Dissection • Pages 95-97 • (GDL) Complete Worksheet • Pages 85-86 • (TG)			
	Day 40				
Week 9	Day 41	Read Special Feature: A Rose by Any Other Name • Page 98 • (GDL)			
	Day 42	Read Lesson 24: Fruits • Pages 99-101 • (GDL) Complete Worksheet • Pages 87-89 • (TG)			
	Day 43	Read Lesson 25: Annuals, Biennials, & Perennials Pages 102-104 • (GDL) Complete Worksheet • Pages 91-92 • (TG)			
	Day 44	Complete Flowers & Fruits Quiz 5 (Lessons 21-25) Pages 317-318 • (TG)			
	Day 45				
First Semester-Second Quarter					
Week 1	Day 46	Plants Unit 6: Unusual Plants Read Lesson 26: Meat-eating Plants • Pages 106-108 • (GDL) Complete Worksheet • Pages 93-94 • (TG)			
	Day 47	Read Lesson 27: Parasites & Passengers • Pages 109-111 • (GDL) Complete Worksheet • Pages 95-96 • (TG)			
	Day 48	Read Lesson 28: Tropisms • Pages 112-114 • (GDL) Complete Worksheet • Pages 97-98 • (TG)			
	Day 49	Read Lesson 29: Survival Techniques • Pages 115-116 • (GDL) Complete Worksheet • Pages 99-100 • (TG)			
	Day 50				

Date	Day	Assignment	Due Date	✓	Grade
Week 2	Day 51	Read Lesson 30: Reproduction without Seeds Pages 117-119 • (GDL) • Complete Worksheet • Pages 101-102 • (TG)			
	Day 52	Read Lesson 31: Ferns • Pages 120-122 • (GDL) Complete Worksheet • Pages 103-104 • (TG)			
	Day 53	Read Lesson 32: Mosses • Pages 123-125 • (GDL) Complete Worksheet • Pages 105-106 • (TG)			
	Day 54	Read Lesson 33: Algae • Pages 126-128 • (GDL) Complete Worksheet • Pages 107-108 • (TG)			
	Day 55				
Week 3	Day 56	Read Lesson 34: Fungi • Pages 129-131 • (GDL) Complete Worksheet • Pages 109-110 • (TG)			
	Day 57	Complete Unusual Plants Quiz 6 (Lessons 26-34) Pages 319-320 • (TG)			
	Day 58	Complete World of Plants Final Exam (Lessons 1-34) Pages 321-323 • (TG)			
	Day 59	Read Lesson 35: Conclusion • Page 132 • (GDL) Complete Worksheet • Page 111 • (TG)			
	Day 60				
Week 4	Day 61	The Human Body Unit 1: Body Overview Read Lesson 1: The Creation of Life • Pages 140-141 • (GDL) Complete Worksheet • Pages 115-116 • (TG)			
	Day 62	Read Lesson 2: Overview of the Human Body Pages 142-143 • (GDL) Complete Worksheet • Pages 117-121 • (TG)			
	Day 63	Read Special Feature: Leonardo da Vinci • Pages 144-145 • (GDL)			
	Day 64	Read Lesson 3: Cells, Tissues, & Organs • Pages 146-148 • (GDL) Complete Worksheet • Pages 123-125 • (TG)			
	Day 65				
Week 5	Day 66	Complete Body Overview Quiz 1 (Lessons 1-3) Pages 327-328 • (TG)			
	Day 67	Body Unit 2: Bones & Muscles Read Lesson 4: The Skeletal System • Pages 150-152 • (GDL) Complete Worksheet • Pages 127-131 • (TG)			
	Day 68	Read Lesson 5: Names of Bones • Pages 153-155 • (GDL) Complete Worksheet • Pages 133-135 • (TG)			
	Day 69	Read Lesson 6: Types of Bones • Pages 156-158 • (GDL) Complete Worksheet • Pages 137-138 • (TG)			
	Day 70				
Week 6	Day 71	Read Lesson 7: Joints • Pages 159-161 • (GDL) Complete Worksheet • Pages 139-140 • (TG)			
	Day 72	Read Lesson 8: The Muscular System • Pages 162-164 • (GDL) Complete Worksheet • Pages 141-142 • (TG)			
	Day 73	Read Lesson 9: Different Types of Muscles • Pages 165-166 • (GDL) Complete Worksheet • Pages 143-144 • (TG)			
	Day 74	Read Lesson 10: Hands & Feet • Pages 167-169 • (GDL) Complete Worksheet • Pages 145-146 • (TG)			
	Day 75				

Date	Day	Assignment	Due Date	✓	Grade
Week 7	Day 76	Complete Bones & Muscles Quiz 2 (Lessons 4-10) Pages 329-330 • (TG)			
	Day 77	Body Unit 3: Nerves & Senses Read Lesson 11: The Nervous System • Pages 171-173 • (GDL) Complete Worksheet • Pages 147-149 • (TG)			
	Day 78	Read Lesson 12: The Brain • Pages 174-176 • (GDL) Complete Worksheet • Pages 151-152 • (TG)			
	Day 79	Read Lesson 13: Learning & Thinking • Pages 177-179 • (GDL) Complete Worksheet • Pages 153-154 • (TG)			
	Day 80				
Week 8	Day 81	Read Special Feature: Brain Surgery • Pages 180-181 • (GDL)			
	Day 82	Read Lesson 14: Reflexes & Nerves • Pages 182-184 • (GDL) Complete Worksheet • Pages 155-156 • (TG)			
	Day 83	Read Lesson 15: The Five Senses • Pages 185-187 • (GDL) Complete Worksheet • Pages 157-158 • (TG)			
	Day 84	Read Lesson 16: The Eye • Pages 188-190 • (GDL) Complete Worksheet • Pages 159-160 • (TG)			
	Day 85				
Week 9	Day 86	Read Lesson 17: The Ear • Pages 191-193 • (GDL) Complete Worksheet • Pages 161-162 • (TG)			
	Day 87	Read Lesson 18: Taste & Smell • Pages 194-196 • (GDL) Complete Worksheet • Pages 163-164 • (TG)			
	Day 88	Complete Nerves & Senses Quiz 3 (Lessons 11-18) Pages 331-332 • (TG)			
	Day 89	Body Unit 4: The Digestion System Read Lesson 19: The Digestive System • Pages 198-200 • (GDL) Complete Worksheet • Pages 165-168 • (TG)			
	Day 90				
		Mid-Term Grade			

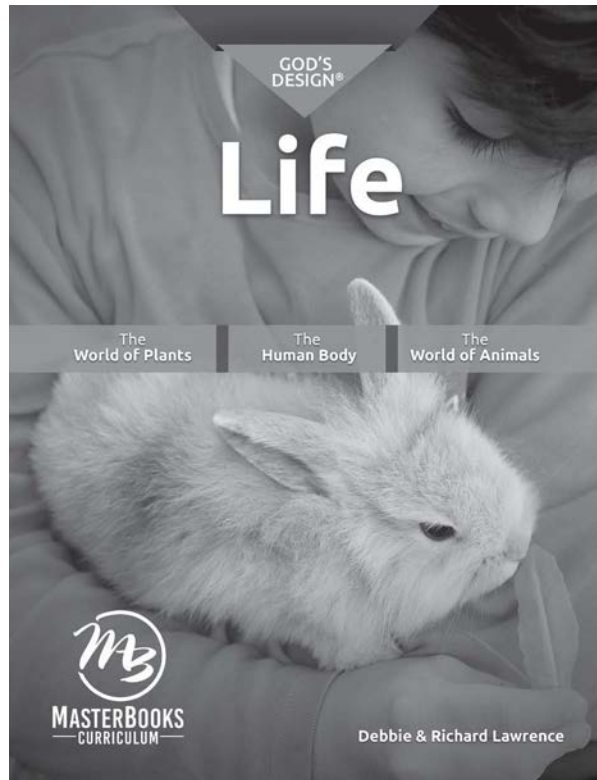
Second Semester Suggested Daily Schedule

Date	Day	Assignment	Due Date	✓	Grade
Second Semester-Third Quarter					
Week 1	Day 91	Read Lesson 20: Teeth • Pages 201-203 • (GDL) Complete Worksheet • Pages 169-170 • (TG)			
	Day 92	Read Lesson 21: Dental Health • Pages 204-205 • (GDL) Complete Worksheet • Pages 171-172 • (TG)			
	Day 93	Read Lesson 22: Nutrition • Pages 206-208 Complete Worksheet • Pages 173-174 • (TG)			
	Day 94	Read Special Feature: Florence Nightingale Pages 209-210 • (GDL)			
	Day 95				
Week 2	Day 96	Read Lesson 23: Vitamins & Minerals • Pages 211-213 • (GDL) Complete Worksheet • Pages 175-176 • (TG)			
	Day 97	Complete Digestive System Quiz 4 (Lessons 19-23) Pages 333-334 • (TG)			
	Day 98	Body Unit 5: Heart & Lungs Read Lesson 24: The Circulatory System Pages 215-218 • (GDL) Complete Worksheet • Pages 177-178 • (TG)			
	Day 99	Read Lesson 25: The Heart • Pages 219-221 • (GDL) Complete Worksheet • Pages 179-181 • (TG)			
	Day 100				
Week 3	Day 101	Read Lesson 26: Blood • Pages 222-224 • (GDL) Complete Worksheet • Pages 183-186 • (TG)			
	Day 102	Read Special Feature: Blood — Who Needs It? Page 225 • (GDL)			
	Day 103	Read Lesson 27: The Respiratory System Pages 226-228 • (GDL) Complete Worksheet • Pages 187-188 • (TG)			
	Day 104	Read Lesson 28: The Lungs • Pages 229-231 • (GDL) Complete Worksheet • Pages 189-190 • (TG)			
	Day 105				
Week 4	Day 106	Complete Heart & Lungs Quiz 5 (Lessons 24-28) Pages 335-336 • (TG)			
	Day 107	Body Unit 6: Skin & Immunity Read Lesson 29: The Skin • Pages 233-235 • (GDL) Complete Worksheet • Pages 191-192 • (TG)			
	Day 108	Read Lesson 30: Cross-section of Skin • Pages 236-238 • (GDL) Complete Worksheet • Pages 193-194 • (TG)			
	Day 109	Read Lesson 31: Fingerprints • Pages 239-242 • (GDL) Complete Worksheet • Pages 195-197 • (TG)			
	Day 110				

Date	Day	Assignment	Due Date	✓	Grade
Week 5	Day 111	Read Lesson 32: The Immune System • Pages 243-245 • (GDL) Complete Worksheet • Pages 199-200 • (TG)			
	Day 112	Read Lesson 33: Genetics • Pages 246-248 • (GDL) Complete Worksheet • Pages 210-203 • (TG)			
	Day 113	Read Special Feature: Gregor Mendel • Pages 249-250 • (GDL)			
	Day 114	Complete Skin & Immunity Quiz 6 (Lessons 29-33) Pages 337-338 • (TG)			
	Day 115				
Week 6	Day 116	Read Lesson 34: Body Poster: Final Project Pages 251-252 • (GDL) Complete Worksheet • Pages 205-206 • (TG)			
	Day 117	Complete The Human Body Final Exam (Lessons 1-34) Pages 339-342 • (TG)			
	Day 118	Read Lesson 35: Conclusion • Page 253 • (GDL) Complete Worksheet • Page 207 • (TG)			
	Day 119	The World of Animals Unit 1: Mammals Read Lesson 1: The World of Animals • Pages 262-263 • (GDL) Complete Worksheet • Pages 211-212 • (TG)			
	Day 120				
Week 7	Day 121	Read Lesson 2: Vertebrates • Pages 264-265 • (GDL) Complete Worksheet • Pages 213-214 • (TG)			
	Day 122	Read Lesson 3: Mammals • Pages 266-268 • (GDL) Complete Worksheet • Pages 215-217 • (TG)			
	Day 123	Read Lesson 4: Mammals Large & Small Pages 269-272 • (GDL) Complete Worksheet • Pages 219-220 • (TG)			
	Day 124	Read Lesson 5: Monkeys & Apes • Pages 273-275 • (GDL) Complete Worksheet • Pages 221-223 • (TG)			
	Day 125				
Week 8	Day 126	Read Special Feature: Man & Monkeys • Pages 276-277 • (GDL)			
	Day 127	Read Lesson 6: Aquatic Mammals • Pages 278-281 • (GDL) Complete Worksheet • Pages 225-226 • (TG)			
	Day 128	Read Lesson 7: Marsupials • Pages 282-284 • (GDL) Complete Worksheet • Pages 227-228 • (TG)			
	Day 129	Complete Mammals Quiz 1 (Lessons 1-7) Pages 345-346 • (TG)			
	Day 130				
Week 9	Day 131	Animals Unit 2: Birds & Fish Read Lesson 8: Birds • Pages 286-289 • (GDL) Complete Worksheet • Pages 229-232 • (TG)			
	Day 132	Read Special Feature: Charles Darwin • Page 290 • (GDL)			
	Day 133	Read Lesson 9: Flight • Pages 291-294 • (GDL) Complete Worksheet • Pages 233-235 • (TG)			
	Day 134	Read Lesson 10: The Bird's Digestive System Pages 295-297 • (GDL) Complete Worksheet • Pages 237-239 • (TG)			
	Day 135				

Date	Day	Assignment	Due Date	✓	Grade
Second Semester-Fourth Quarter					
Week 1	Day 136	Read Lesson 11: Fish • Pages 298-300 • (GDL) Complete Worksheet • Pages 241-244 • (TG)			
	Day 137	Read Lesson 12: Fins & Other Fish Anatomy Pages 301-303 • (GDL) Complete Worksheet • Pages 245-247 • (TG)			
	Day 138	Read Lesson 13: Cartilaginous Fish • Pages 304-306 • (GDL) Complete Worksheet • Pages 249-250 • (TG)			
	Day 139	Complete Birds & Fish Quiz 2 (Lessons 8-13) Pages 347-348 • (TG)			
	Day 140				
Week 2	Day 141	Animals Unit 3: Amphibians & Reptiles Read Lesson 14: Amphibians • Pages 308-310 • (GDL) Complete Worksheet • Pages 251-252 • (TG)			
	Day 142	Read Lesson 15: Amphibian Metamorphosis Pages 311-313 • (GDL) Complete Worksheet • Pages 253-254 • (TG)			
	Day 143	Read Lesson 16: Reptiles • Pages 314-316 • (GDL) Complete Worksheet • Pages 257-258 • (TG)			
	Day 144	Read Special Feature: When Did the Dinosaurs Live? Pages 317-318 • (GDL)			
	Day 145				
Week 3	Day 146	Read Lesson 17: Snakes • Pages 319-321 • (GDL) Complete Worksheet • Pages 259-260 • (TG)			
	Day 147	Read Special Feature: Rattlesnakes • Page 322 • (GDL)			
	Day 148	Read Lesson 18: Lizards • Pages 323-325 • (GDL) Complete Worksheet • Pages 261-262 • (TG)			
	Day 149	Read Lesson 19: Turtles & Crocodiles • Pages 326-328 • (GDL) Complete Worksheet • Pages 263-265 • (TG)			
	Day 150				
Week 4	Day 151	Complete Amphibians & Reptiles Quiz 3 (Lessons 14-19) Pages 349-350 • (TG)			
	Day 152	Animals Unit 4: Arthropods Read Lesson 20: Invertebrates • Pages 330-332 • (GDL) Complete Worksheet • Pages 267-268 • (TG)			
	Day 153	Read Lesson 21: Arthropods • Pages 333-335 • (GDL) Complete Worksheet • Pages 269-271 • (TG)			
	Day 154	Read Lesson 22: Insects • Pages 336-338 • (GDL) Complete Worksheet • Pages 273-275 • (TG)			
	Day 155				

Date	Day	Assignment	Due Date	✓	Grade
Week 5	Day 156	Read Lesson 23: Insect Metamorphosis • Pages 339-341 • (GDL) Complete Worksheet • Pages 277-279 • (TG)			
	Day 157	Read Lesson 24: Arachnids • Pages 342-344 • (GDL) Complete Worksheet • Pages 281-282 • (TG)			
	Day 158	Read Lesson 25: Crustaceans • Pages 345-346 • (GDL) Complete Worksheet • Pages 283-284 • (TG)			
	Day 159	Read Lesson 26: Myriapods • Pages 347-349 • (GDL) Complete Worksheet • Pages 285-286 • (TG)			
	Day 160				
Week 6	Day 161	Complete Arthropods Quiz 4 (Lessons 20-26) Pages 351-352 • (TG)			
	Day 162	Animals Unit 5: Other Invertebrates Read Lesson 27: Mollusks • Pages 351-353 • (GDL) Complete Worksheet • Pages 287-288 • (TG)			
	Day 163	Read Lesson 28: Cnidarians • Pages 354-357 • (GDL) Complete Worksheet • Pages 289-291 • (TG)			
	Day 164	Read Lesson 29: Echinoderms • Pages 358-360 • (GDL) Complete Worksheet • Pages 293-294 • (TG)			
	Day 165				
Week 7	Day 166	Read Lesson 30: Sponges • Pages 361-362 • (GDL) Complete Worksheet • Pages 295-296 • (TG)			
	Day 167	Read Lesson 31: Worms • Pages 363-365 • (GDL) Complete Worksheet • Pages 297-298 • (TG)			
	Day 168	Complete Other Invertebrates Quiz 5 (Lessons 27-31) Pages 353-354 • (TG)			
	Day 169	Animals Unit 6: Simple Organisms Read Lesson 32: Kingdom Protista • Pages 367-369 • (GDL) Complete Worksheet • Pages 299-300 • (TG)			
	Day 170				
Week 8	Day 171	Read Lesson 33: Kingdom Monera & Viruses Pages 370-372 • (GDL) Complete Worksheet • Pages 301-302 • (TG)			
	Day 172	Read Special Feature: Louis Pasteur — Got Milk? Pages 373-374 • (GDL)			
	Day 173	Complete Simple Organisms Quiz 6 (Lessons 32-33) Pages 355-356 • (TG)			
	Day 174	Read Lesson 34: Animal Notebook: Final Project Page 375-376 Complete Worksheet • Pages 303-304 • (TG)			
	Day 175				
Week 9	Day 176	Study day for final exam			
	Day 177	Study day for final exam			
	Day 178	Complete World of Animals Final Exam (Lessons 1-34) Pages 357-360 • (TG)			
	Day 179	Read Lesson 35: Conclusion • Page 377 • (GDL) Complete Worksheet • Page 305 • (TG)			
	Day 180				
		Final Grade			



Plant Worksheets
for Use with
The World of Plants
(God's Design: Life Series)



1

Is It Alive?

Biology is the study of living things.



Supply list

- Copy of "Is It Alive?" worksheet
- Six items to display/discuss: some living, some nonliving (book, pet, can, eraser, plant, etc.)



Is It Alive? Scavenger Hunt

Read about the "Is It Alive? Scavenger Hunt" on page 16 of your student book; the "Is It Alive?" Worksheet is on page 26 of this teacher guide.



Law of Biogenesis

Read about the Law of Biogenesis on pages 16–17 of the student book. Explain it to your teacher.



What did we learn?

1. What are the six questions you should ask to determine if something is biologically alive?
 - a.
 - b.
 - c.
 - d.
 - e.
 - f.
 - g.
2. Does the Bible refer to plants as living things?



Taking it further

1. Do scientists consider a piece of wood that has been cut off of a tree living? (Hint: Is it growing? Can it respond?)
2. Is paper alive?
3. Is a seed alive?

Name _____

Date _____

Is It Alive?

Scavenger Hunt Worksheet

Be sure to examine several different types of items including plants, animals, and nonliving things.

1. Write the name of the item you are examining in the first column.
2. Answer each question with a yes, no, or don't know.
3. If all of the answers are yes, then the item is alive.

Item	Does it eat?	Does it breathe?	Does it grow?	Does it reproduce?	Can it move?	Does it have cells?	Is it alive?



2

What Is a Kingdom?

It's alive, but what is it?



Supply list

- Poster board
- Pen
- Copy of "Clue Cards"
- Scissors



Clue Cards for "Animal or Plant" Game

See page 19 of the student textbook for directions for this activity. Clue cards are found on page 29 of this teacher guide. If using the course with younger children, the instructor may want to cut out the cards for the game.

1. Plants only
2. Animals only
3. Both

Example:

Animals	Both	Plants



Dichotomous Key Challenge

Be sure to choose both an animal and a plant. Do you understand more how dichotomous keys are used in identification? Explain to your teacher what you have learned.



What did we learn?

1. What do plants and animals have in common?

2. What makes plants unique?

3. What makes animals unique?



Taking it further

1. Are mushrooms plants?

2. Why do you think they are or are not?

Clue Cards

Alive

Cells

Chlorophyll

Photosynthesis

Moves around

Reproduces same kind

Needs the sun

Needs oxygen

Cannot move around

Cannot make food

Needs carbon dioxide

Carbon dioxide is
a waste product

Designed by God

No chlorophyll

Eaten by animals

Created on the third
day of creation



3

Classification System

Taxonomy—classification of living things



Supply list

- Plant and animal guides or an encyclopedia



Remembering the System

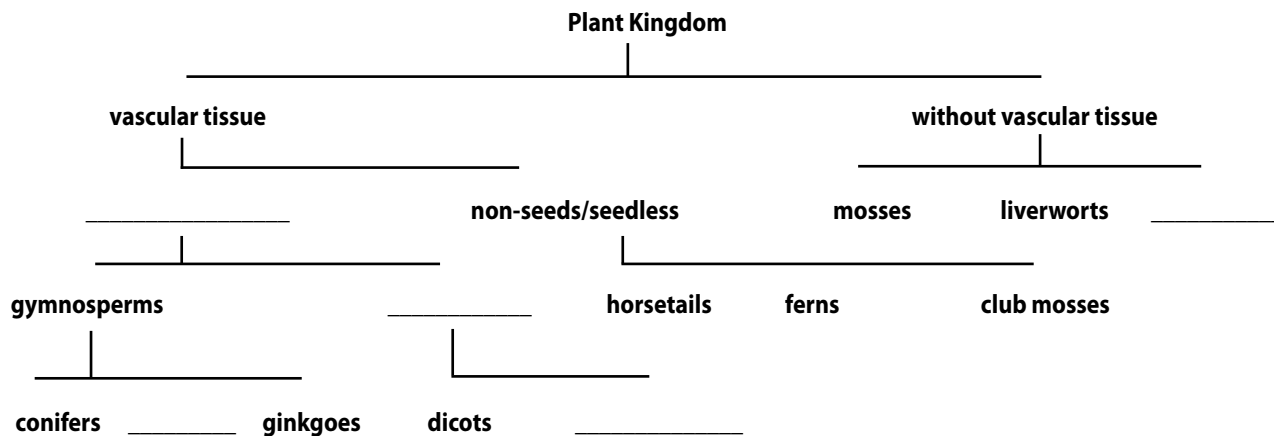
Memorize one of the sayings to help you remember the classification system on page 22 of your student book. Recite it to your teacher. Then look up the classification for at least three of your favorite animals or plants. Which animals did you choose?

- 1.
- 2.
- 3.



Challenge: Plant Classification

Using the information on page 23 of your student textbook, complete the following chart by filling in the blanks with the correct word:





What did we learn?

1. What are the five kingdoms recognized today?
 - a.
 - b.
 - c.
 - d.
 - e.

2. How do scientists determine how to classify a living thing?

3. What are the seven levels of the classification system?
 - a.
 - b.
 - c.
 - d.
 - e.
 - f.
 - g.



Taking it further

1. Why can pet dogs breed with wild wolves?

2. How many of each animal did Noah take on the Ark?



4

Plant & Animal Cells

The smallest unit of life



Supply list

- Option A: Paper models
- Colored construction paper
- Scissors
- Glue
- Option B: 3-D models (messier but more fun)
- Supply list below for each child

For each child:

- Small shoe box
- 1 qt. plastic zipper bag
- Several green grapes
- Several raisins
- 1 large red grape or marble

For everyone to use

- Yellow gelatin mix (**Note:** mix this gelatin according to the package directions about an hour before you plan to do the project. An adult will need to supervise this step if hot water is used.)



Making a model of a cell!

Follow the instructions on page 28 of your student book. Instructions for both Option A and Option B are given.



Supplies for Challenge

- Microscope
- Slides
- Onion
- Sharp knife

Mitosis

Follow the procedure given on page 29 of your student book. (Caution! Adult supervision is needed and this should only be used for older students unless the teacher is using the knife to carefully cut the onion.)

What did we learn?

1. What parts or structures do all plant and animal cells have?
2. What structures are unique to plants?
3. What distinguishes animal cells from plant cells?

Taking it further

1. A euglena is a single-celled living organism that can move around by itself. It eats other creatures, but it also has chlorophyll in its cell. Is it a plant, an animal, or something else?

Note to instructor:

On page 28 of the student book, you will see another activity called “Other Organelles.” This can be used for students who wish to learn more or as an opportunity to earn bonus points. You can modify the activity by assigning either specific organelles or a required number to complete for the bonus assignment if you do not want the student to do the full list.



5

Flowering Plants

God's gift of life to the world



Supply list

- A field guide for flowers
- Access to several flowering plants (What you have growing in your garden or yard is probably sufficient.)



Examining Flowers Activity

Follow the instructions on page 33 of the student book to learn how to identify flowers. How many flowers were you able to identify? Share with your teacher what you have learned about identifying flowers.



Supplies for Challenge

- Research materials—depends on your selected topic



Plants in Industry Challenge

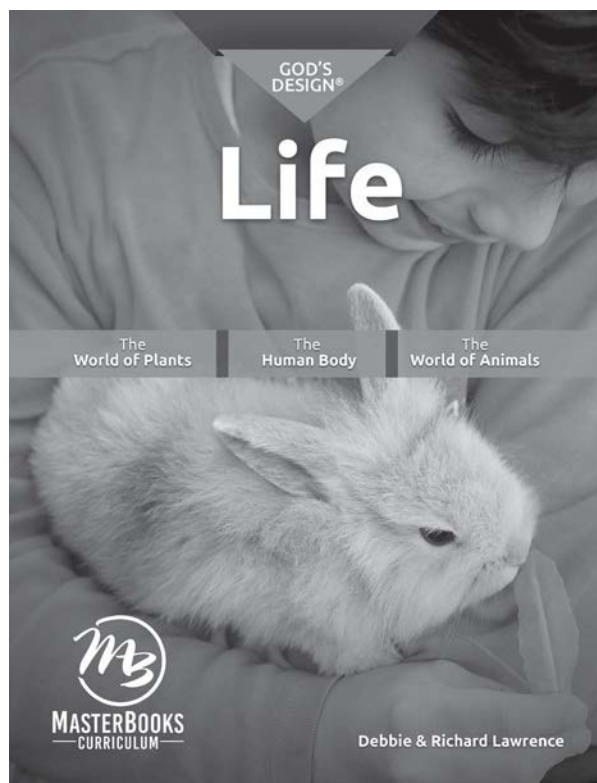
Choose an industry where plants are used. Suggested topics in your student book include cotton used in clothing, trees used in building, reeds used to make baskets, plants used for making medicines, or something you may choose. Prepare a short oral report or a written presentation of what you learned. Be specific on why the particular plant is used for the industry you have chosen.



What did we learn?

1. What are the four major parts of a plant?

2. What is the purpose for each part?



Worksheet Answer Keys
for Use with
God's Design: Life Series

The World of Plants — Worksheet Answer Keys

Unit 1: Introduction to Life Science

1. Is It Alive?

What did we learn?

1. What are the six questions you should ask to determine if something is alive? **Does it eat?, Does it “breathe”?, Does it grow?, Does it reproduce?, Can it move?, Does it have cells?**
2. Does the Bible refer to plants as living things? **How we classify plants in today’s scientific world is different from how it was classified in the Bible. Also, there is a difference between people & animals and plants. While we consider both to be “living,” plants are considered food and do not have the breath of life within them.**

Taking it further

1. Do scientists consider a piece of wood that has been cut off of a tree living? (Hint: Is it growing? Can it respond?) **No, it is not living anymore; although the tree it came from may still be living.**
2. Is paper alive? **No. It is made from wood but it is not alive.**
3. Is a seed alive? **This is a harder question. A seed has the potential for biological life, but it is not growing. You have to decide for yourself.**

2. What Is a Kingdom?

Clue Cards for Animal or Plant Game

1. Plants only—**Chlorophyll, photosynthesis, needs sun, cannot move around, needs carbon dioxide, created on the 3rd day of creation.**
2. Animals only—**Moves around, cannot make food, carbon dioxide is a waste product, no chlorophyll.**
3. Both—**Alive, cells, reproduces same kind, needs oxygen, designed by God, eaten by animals.**

What did we learn?

1. What do plants and animals have in common? **God created them all, all are alive, all have cells, all reproduce their own kind, and all need oxygen.**
2. What makes plants unique? **They have chlorophyll, perform photosynthesis, and cannot move freely.**

3. What makes animals unique? **They cannot produce their own food and can move freely.**

Taking it further

1. Are mushrooms plants? **No, they do not have chlorophyll or perform photosynthesis.**
2. Why do you think they are or are not? **Fungi have most of the characteristics of plants, but do not have chlorophyll and can live without sunlight. This is why scientists now group them in their own kingdom.**

3. Classification System

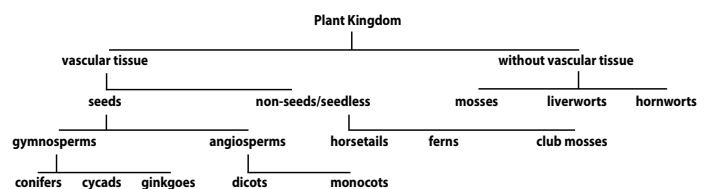
What did we learn?

1. What are the five kingdoms recognized today? **Plants, animals, fungi, protists, and monerans.**
2. How do scientists determine how to classify a living thing? **They look at common characteristics and at different characteristics.**
3. What are the seven levels of the classification system? **Kingdom, phylum, class, order, family, genus, and species.**

Taking it further

1. Why can pet dogs breed with wild wolves? **They are both the same kind of animal. Wolves, jackals, coyotes, wild dogs, and domestic dogs all came from the same ancestors. If any two animals can produce fertile offspring then they are most likely from the same animal kind. Wolves don’t generally breed with domestic dogs because of their location and habits, but biologically they are the same kind of animal.**
2. How many of each animal did Noah take on the Ark? **Two of some animals and seven of other animals (see Genesis 7). Noah would only have taken two canines (dogs) on the Ark. Afterwards, the offspring of those two dogs resulted in the wide variety of dogs we see today.**

Challenge: Plant Classification



4. Plant & Animal Cells

What did we learn?

1. What parts or structures do all plant and animal cells have? **Cell membrane, nucleus, vacuoles, mitochondria, and cytoplasm.**
2. What structures are unique to plants? **Cell wall and chloroplasts.**
3. What distinguishes animal cells from plant cells? Possible answers: **Plant cells can perform photosynthesis and have cell walls but animal cells do not; their shape is different.**

Taking it further

1. A euglena is a single-celled living organism that can move around by itself. It eats other creatures, but it also has chlorophyll in its cell. Is it a plant, an animal, or something else? **Scientists do not agree on this and other unusual creatures. They usually put them in their own category, called protists.**

Unit 2: Flowering Plants & Seeds

5. Flowering Plants

What did we learn?

1. What are the four major parts of a plant? **Roots, stem, leaves and flowers.**
2. What is the purpose for each part? **Roots hold the plant in place and suck up water and nutrients. Stems help the plant stand up and to move water and nutrients inside the plant. Leaves turn sunlight into food. Flowers produce seeds.**

Taking it further

1. What characteristics other than the flowers can be used to help identify a plant? **Leaves, fruit, and bark can all be used to identify a plant that is not in bloom.**
2. What similarities did you notice between the flowers you examined? **Answers will vary.**
3. What differences did you see? **Answers will vary.**
4. Can you use size to determine what a plant is? Why or why not? (Hint: Is a tiny seedling just as much an oak tree as the giant oak that is 100 years old?) **Size alone cannot tell you what a plant is.**

5. Why might you need to identify a plant? Possible answers: **To recognize poisonous plants such as poison ivy, to choose good plants for a garden or landscape, and to enjoy God's creation are just a few reasons.**

6. Grasses

What did we learn?

1. Name four types of grass. **Turf, cereal, forage, and ornamental.**
2. Describe the roots of a grass plant. **Fibrous root system with many small roots going out in several directions.**
3. Why are grasses so important? **They are a major food source for animals and humans.**

Taking it further

1. Why can grass be cut over and over and still grow, while a tree that is cut down will die? **Recall that the leaves of the grass grow from the base of the plant. So cutting off the top of the leaves does not damage the growing center of the plant. However, trees grow at the ends of the stems and branches.**
2. Why is grass so hard to get rid of in a flower garden? **Consider the root structure; its fibrous design helps the plant spread and survive.**
3. What part of grass plants do humans eat? **They generally eat the seeds.**
4. What part of grass plants do most animals eat? **They usually eat the leaves and the seeds.**
5. Why can a cow eat certain grasses that you can't? **Cows have a very different digestive system that can break down the grass that humans can't digest.**

7. Trees

What Kind of Tree is This?

1. **Angiosperm, broad leaf, flowers, oak, maple, cherry should all have deciduous picture only. Gymnosperm, needles, cones, fir, pine, spruce, conifer should all have evergreen only. Seeds, bark, and growth rings should have both pictures. Note, a few evergreen trees have broad leaves so both pictures could be acceptable for this word. Also, a few trees that bear cones lose their leaves, so conifer could have both pictures.**

The World of Plants Master Supply List

The following table lists all the supplies used for *God's Design for Life: World of Plants* activities. You will need to look up the individual lessons in the student book to obtain the specific details for the individual activities (such as quantity, color, etc.). The letter *c* denotes that the lesson number refers to the challenge activity. Common supplies such as colored pencils, construction paper, markers, scissors, tape, etc., are not listed.

Supplies needed (see lessons for details)	Lesson	Supplies needed (see lessons for details)	Lesson
<input type="checkbox"/> Aloe plant	17c	<input type="checkbox"/> Grass plant	6
<input type="checkbox"/> Bread slices (homemade or with no preservatives)	34	<input type="checkbox"/> Grapes (red and green)	4
<input type="checkbox"/> Cactus plant	29	<input type="checkbox"/> Hairspray (aerosol)	34c
<input type="checkbox"/> Cardboard boxes or shoe boxes	4, 16, 26	<input type="checkbox"/> Index cards or sketch pad	7, 17, 20, 34c
<input type="checkbox"/> Coffee filters	19c	<input type="checkbox"/> Jars (1 must have a lid)	8, 9, 30
<input type="checkbox"/> Coffee stirrer	27	<input type="checkbox"/> Knife or scalpel (very sharp)	9, 18, 23, 24
<input type="checkbox"/> Corn meal or yellow sand	21, 31	<input type="checkbox"/> Leaves (fresh)	19c, 20
<input type="checkbox"/> Craft sticks	6c	<input type="checkbox"/> Magnifying glass (use as needed)	6, 9, 11, 20, 22c, 29, 32
<input type="checkbox"/> Dried moss (from craft store)	32	<input type="checkbox"/> Microscope and slides	4c, 22c, 33c
<input type="checkbox"/> Encyclopedia (plant and animal)	3	<input type="checkbox"/> Modeling clay	21
<input type="checkbox"/> Fern frond	31	<input type="checkbox"/> Peat moss	32c
<input type="checkbox"/> Field guide (flowers)	5	<input type="checkbox"/> Photo album with magnetic pages or 3-ring binder	20
<input type="checkbox"/> Field guide (plants)	27	<input type="checkbox"/> Pinecones (scales tightly shut)	10
<input type="checkbox"/> Field guide (trees)	20	<input type="checkbox"/> Pipe cleaners	21
<input type="checkbox"/> Fingernail polish remover	19c	<input type="checkbox"/> Plants (fast-growing; e.g. mint plants)	16, 28
<input type="checkbox"/> Flower (composite, such as daisy, sunflower, or zinnia—fresh)	23c	<input type="checkbox"/> Plastic cups (clear)	13, 32c
<input type="checkbox"/> Flower (such as lily—fresh)	23	<input type="checkbox"/> Plastic zipper bags	4, 20, 34
<input type="checkbox"/> Flower bulbs (tulips, daffodils, etc.—optional)	12	<input type="checkbox"/> Pollen	22c
<input type="checkbox"/> Food coloring	13, 18	<input type="checkbox"/> Pond water	33c
<input type="checkbox"/> Fruits, nuts, and vegetables	4c, 12, 10, 11, 13, 24, 30, 34c	<input type="checkbox"/> Poster board/tagboard	2, 12c, 19, 35
<input type="checkbox"/> Gelatin mix (yellow)	4	<input type="checkbox"/> Potting soil	6c, 13, 30
		<input type="checkbox"/> Seeds (bean, corn, grass, coconut, radish)	6c, 8, 9, 10c, 11c, 35
		<input type="checkbox"/> Steel wool	8
		<input type="checkbox"/> Straws (flexible)	21, 27
		<input type="checkbox"/> Vinegar	6c
		<input type="checkbox"/> Wooden pencils	7c
		<input type="checkbox"/> Yard stick/meter stick	9

The Human Body Master Supply List

The following table lists all the supplies used for *God's Design for Life: The Human Body* activities. You will need to look up the individual lessons in the student book to obtain the specific details for the individual activities (such as quantity, color, etc.). The letter *c* denotes that the lesson number refers to the challenge activity. Common supplies such as colored pencils, construction paper, markers, scissors, tape, etc., are not listed.

Supplies needed (see lessons for details)	Lesson
<input type="checkbox"/> Aluminum foil	20
<input type="checkbox"/> Anatomy book	5–34
<input type="checkbox"/> Balloons	28
<input type="checkbox"/> Bible	1, 35
<input type="checkbox"/> Candy sprinkles	26
<input type="checkbox"/> Chicken bones	6c
<input type="checkbox"/> Cinnamon, peppermint, and other spices	18
<input type="checkbox"/> Dental floss	21
<input type="checkbox"/> Dissection kit	25c
<input type="checkbox"/> DNA model kit (optional)	33c
<input type="checkbox"/> Eyedropper	31c
<input type="checkbox"/> Food coloring	31c
<input type="checkbox"/> Fruits, nuts, and vegetables	18
<input type="checkbox"/> Gel pens (washable)	5
<input type="checkbox"/> Gloves (rubber or latex)	25c
<input type="checkbox"/> Hand lotion	29
<input type="checkbox"/> Heart (from a cow or sheep)	25c
<input type="checkbox"/> Index cards	13, 31
<input type="checkbox"/> Jelly beans (white)	26
<input type="checkbox"/> Knife or scalpel (very sharp)	25c
<input type="checkbox"/> Lemon juice	18
<input type="checkbox"/> Light corn syrup	26, 31c

Supplies needed (see lessons for details)	Lesson
<input type="checkbox"/> Magnifying glass	8c
<input type="checkbox"/> Mirror	1, 21, 29
<input type="checkbox"/> Modeling clay	12, 20
<input type="checkbox"/> Newsprint (or other large roll of paper)	34
<input type="checkbox"/> Paper towels	18
<input type="checkbox"/> Paper fasteners (brads)	2, 4
<input type="checkbox"/> Plaster of Paris	20
<input type="checkbox"/> Plastic zipper bags	15
<input type="checkbox"/> Poster board/tagboard	20
<input type="checkbox"/> Rubber/plastic gloves	25c
<input type="checkbox"/> Red Hots candies	26
<input type="checkbox"/> Rubber bands	7c
<input type="checkbox"/> Ruler	11
<input type="checkbox"/> Salt	18
<input type="checkbox"/> Steak (or other meat—raw)	8c
<input type="checkbox"/> Stopwatch	9, 11, 24, 28
<input type="checkbox"/> Straight pins	15
<input type="checkbox"/> Sugar	18
<input type="checkbox"/> Tacks	7c
<input type="checkbox"/> Tape measure (cloth—the kind used for sewing)	28
<input type="checkbox"/> Tape measure (metal)	4c
<input type="checkbox"/> Toothbrush	21
<input type="checkbox"/> Toothpaste	21
<input type="checkbox"/> Toothpicks	14
<input type="checkbox"/> Vinegar	6c, 18
<input type="checkbox"/> Wooden pencils	7c
<input type="checkbox"/> Yard stick/meter stick	9, 31c

The World of Animals Master Supply List

The following table lists all the supplies used for *God's Design for Life: World of Animals* activities. You will need to look up the individual lessons in the student book to obtain the specific details for the individual activities (such as quantity, color, etc.). The letter *c* denotes that the lesson number refers to the challenge activity. Common supplies such as colored pencils, construction paper, markers, scissors, tape, etc. are not listed.

Supplies needed (see lessons for details)	Lesson
<input type="checkbox"/> 3-ring binder	2
<input type="checkbox"/> Ammonia	28
<input type="checkbox"/> Baking dish	28
<input type="checkbox"/> Balloons	21c, 27c
<input type="checkbox"/> Bible	35
<input type="checkbox"/> Bird feeder (optional)	8
<input type="checkbox"/> Butterfly larvae (caterpillars)	23
<input type="checkbox"/> Chocolate chips (mini size)	29
<input type="checkbox"/> Crushed chocolate cookies	31
<input type="checkbox"/> Dissection kit	29c
<input type="checkbox"/> Dividers with tabs (12 or 13 per student)	2
<input type="checkbox"/> Encyclopedia (animal)	all
<input type="checkbox"/> Face paint	18
<input type="checkbox"/> Fake fur or felt	7
<input type="checkbox"/> Feather (can purchase at craft store)	9
<input type="checkbox"/> Field guide (birds)	8
<input type="checkbox"/> Field guide (sea shells)	27
<input type="checkbox"/> Flexible wire	24
<input type="checkbox"/> Flour	21c
<input type="checkbox"/> Food coloring	28
<input type="checkbox"/> Goldfish snack crackers	11
<input type="checkbox"/> Gummy worms	31
<input type="checkbox"/> Hair/fur from 2 or more mammals	3
<input type="checkbox"/> Hydras (live)	28c
<input type="checkbox"/> Index cards	22
<input type="checkbox"/> Instant chocolate pudding	31
<input type="checkbox"/> Liquid bluing	28

Supplies needed (see lessons for details)	Lesson
<input type="checkbox"/> Magnifying glass	9, 24, 25
<input type="checkbox"/> Marshmallows (large and small)	24
<input type="checkbox"/> Microscope and slides (optional)	32
<input type="checkbox"/> Modeling clay	13, 25, 26c
<input type="checkbox"/> Newspaper	21c
<input type="checkbox"/> Owl pellet (optional)	10
<input type="checkbox"/> Pipe cleaners	22, 24, 26c
<input type="checkbox"/> Plastic zipper bags	7
<input type="checkbox"/> Pond water (optional)	32
<input type="checkbox"/> Poster board/tagboard	7, 29
<input type="checkbox"/> Rubber/plastic gloves	29c
<input type="checkbox"/> Salt	28
<input type="checkbox"/> Sand dollar (dead and dried; check at craft store—optional)	29
<input type="checkbox"/> Spider web (optional)	24
<input type="checkbox"/> Starfish (dead and dried; check at craft store—optional)	29
<input type="checkbox"/> Salt dough	29
<input type="checkbox"/> Sequins or flat beads	16
<input type="checkbox"/> Sea shells	27
<input type="checkbox"/> Soap (anti-bacterial hand)	33
<input type="checkbox"/> Sponge (natural—optional)	30
<input type="checkbox"/> Sponge (synthetic)	30
<input type="checkbox"/> Starfish (preserved for dissection)	29c
<input type="checkbox"/> Stopwatch	6
<input type="checkbox"/> String	21c
<input type="checkbox"/> Styrofoam balls	22
<input type="checkbox"/> Tadpoles and tank (optional)	15
<input type="checkbox"/> Tape (cloth)	19
<input type="checkbox"/> Tempera paints	30
<input type="checkbox"/> Toothbrush	6
<input type="checkbox"/> Toothpicks	22, 24
<input type="checkbox"/> Yarn	32