

TEACHER GUIDE

4th–6th Grade

Includes Student
Worksheets

Science



Weekly Lesson Schedule



Student Worksheets



Quizzes



Answer Key

ELEMENTARY SCIENCE: SOIL, SEA, AND SKY





Elementary Science: Soil, Sea, and Sky



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First printing: March 2017

Fifth printing: July 2020

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For information write:

Master Books®, P.O. Box 726, Green Forest, AR 72638
Master Books® is a division of the New Leaf Publishing Group, Inc.

ISBN: 978-1-68344-025-3

ISBN: 978-1-61458-112-3 (digital)

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Bodie Hodge attended Southern Illinois University at Carbondale and received a B.S. and M.S. in mechanical engineering. He is a speaker, writer, and researcher for Answers in Genesis–USA.

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Tom Hennigan is an Associate Professor of Organismal Biology at Truett-McConnell College and has a B.S. in Natural Resources Management, an M.S. in Education, and an M.P.S. in Environmental and Forest Biology.

Dr. Jean Lightner is an adjunct professor with Liberty University Online. She has a B.S. in Agriculture (Animal Science major), a D.V.M., and an M.S. in veterinary preventive medicine.

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About Our Creationist Authors

Big Book of Earth & Sky: **Bodie Hodge** attended Southern Illinois University at Carbondale and received a B.S. and M.S. in mechanical engineering. Currently, Bodie is a speaker, writer, and researcher for Answers in Genesis–USA.

Bugs Big & Small: God Made Them All: **William Zinke** has been a science teacher for over ten years, recently serving overseas for three years in Kenya assisting a local mission. He and his wife help at the Creation Adventures Museum.

The Ecology Book: **Tom Hennigan** is an Associate Professor of Organismal Biology at Truett-McConnell College and has a B.S. in Natural Resources Management, an M.S. in Education, and an M.P.S. in Environmental and Forest Biology.

The Ecology Book: **Dr. Jean Lightner** is an adjunct professor with Liberty University Online. She has a B.S. in Agriculture (Animal Science major), a D.V.M., and a M.S. in veterinary preventive medicine.

Using This Teacher Guide

Features: The suggested weekly schedule enclosed has easy-to-manage lessons that guide the reading, worksheets, and all assessments. The pages of this guide are perforated and three-hole punched so materials are easy to tear out, hand out, grade, and store. Teachers are encouraged to adjust the schedule and materials needed in order to best work within their unique educational program.

Lesson Scheduling: Students are instructed to read the pages in their book and then complete the corresponding section provided by the teacher. Assessments that may include worksheets, activities, quizzes, and tests are given at regular intervals with space to record each grade. Space is provided on the weekly schedule for assignment dates, and flexibility in scheduling is encouraged. Teachers may adapt the scheduled days per each unique student situation. As the student completes each assignment, this can be marked with an “X” in the box.



Approximately 30 to 45 minutes per lesson, three days a week



Includes answer keys for worksheets and quizzes



Worksheets for each section



Quizzes are included to help reinforce learning and provide assessment opportunities



Designed for grades 4 to 6 in a one-year course

Course Objectives: Students completing this course will

- ✓ Explore the elements that make up the soil, the sea, and the sky
- ✓ Examine detailed charts and graphs about the earth's crust, caves, and clouds
- ✓ Discover God's purpose for creating insects, and the corruption caused by sin
- ✓ Compare and contrast the world's largest insects, insects designed with camouflage, the most beautiful insects, the weirdest insects, and more
- ✓ Study the relationship between living organisms and our place in God's wondrous creation
- ✓ Examine important words and concepts, from different habitats around the world to our stewardship of the world's resources
- ✓ Gain insight into influential scientists and their work
- ✓ More fully understand practical aspects of stewardship and our place in God's world.

Course Description

God's amazing world is filled with endless discoveries. Students will travel from the Earth's core to the edge of the outer atmosphere, and glimpse the Creator's hand all along the way. The *Big Book of Earth & Sky* can be read panel-by-panel as a book or unfolded as a 15-foot chart. This interactive tool begins the student's journey, where he or she will learn about caves, archaeology, mountains, oceans, weather, and more.

The course will help you bring out additional insights with worksheets, educational activities, additional readings, and all from a Christian creationist perspective, including the vivid, vibrant *Bugs Big & Small: God Made Them All* that helps children discover God's purpose for creating insects, along with the corruption caused by sin. Insects are small signposts to God's brilliant creativity. With their alluring beauty, incredible design features, and limitless variety, they are a living testament to an all-wise, wonderful Creator. With special hands-on activities, brilliant, full-color stunning images of insects, and more, it will help make science fascinating for young learners.

The Ecology Book encourages an understanding of a world designed not as a series of random evolutionary accidents but as a wondrous, well-thought out system of life around the globe created to enrich and support its different features. Activities provide additional ways to make the learning experience practical. Note: Because *The Ecology Book* was developed with three reading levels in mind, the material has been divided for students into the first two levels. Level One corresponds to grades 5–6, while Level Two is for those who read at grades 7–8.

Activities:

Activities are offered throughout the course and are considered optional, to be assigned at the teacher's discretion. As students work through each book in the course, activities are mentioned in the calendar, though teachers may choose to do them on the open schedule days if they wish. Some are listed on the worksheet pages and others are listed in the appendix.

Grading Options for This Course:

It is always the prerogative of an educator to assess student grades however he or she might deem best. The following is only a suggested guideline based on the material presented through this course:

To calculate the percentage of the worksheets and quizzes the educator may use the following guide. Divide total number of questions correct (example: 43) by the total number of questions possible (example: 46) to calculate the percentage out of 100 possible. $43/46 = 93$ percent correct.

The suggested grade values are noted as follows: 90 to 100 percent = A; 80 to 89 percent = B; 70 to 79 percent = C; 60 to 69 percent = D; and 0 to 59 percent = F.

First Semester Suggested Daily Schedule

Date	Day	Assignment	Due Date	✓	Grade
First Semester-First Quarter					
Week 1	Day 1	Read Panel 1 (Starting with the Inner Core) <i>Big Book of Earth & Sky</i> (BB)			
	Day 2				
	Day 3	Complete Panel 1 Worksheet 1 • Page 17 • Teacher Guide (TG)			
	Day 4				
	Day 5	Complete Panel 1 Worksheet 1 Activity • Page 18 • (TG)			
Week 2	Day 6	Read Panel 2 • (BB)			
	Day 7				
	Day 8	Complete Panel 2 Worksheet 1 • Page 19 • (TG)			
	Day 9				
	Day 10	Complete Panel 2 Worksheet 1 Activity • Page 20 • (TG)			
Week 3	Day 11	Read Panel 3 • (BB)			
	Day 12				
	Day 13	Complete Panel 3 Worksheet 1 • Pages 21–22 • (TG)			
	Day 14				
	Day 15	Complete Panel 3 Worksheet 1 Activity • Page 22 • (TG)			
Week 4	Day 16	Read Panel 4 • (BB)			
	Day 17				
	Day 18	Complete Panel 4 Worksheet 1 • Page 23 • (TG)			
	Day 19				
	Day 20	Complete Panel 4 Worksheet 1 Activity • Page 24 • (TG)			
Week 5	Day 21	Read Panel 5 • (BB)			
	Day 22				
	Day 23	Complete Panel 5 Worksheet 1 • Page 25 • (TG)			
	Day 24				
	Day 25	Complete Panel 5 Worksheet 1 Activity • Page 26 • (TG)			
Week 6	Day 26	Read Panel 6 • (BB)			
	Day 27				
	Day 28	Complete Panel 6 Worksheet 1 • Page 27 • (TG)			
	Day 29				
	Day 30	Complete Panel 6 Worksheet 1 Activity • Page 28 • (TG)			
Week 7	Day 31	Read Panel 7 • (BB)			
	Day 32				
	Day 33	Complete Panel 7 Worksheet 1 • Page 29 • (TG)			
	Day 34				
	Day 35	Complete Panel 7 Worksheet 1 Activity • Page 30 • (TG)			

Date	Day	Assignment	Due Date	✓	Grade
Week 8	Day 36	Read Panel 8 • (BB)			
	Day 37				
	Day 38	Complete Panel 8 Worksheet 1 • Page 31 • (TG) Optional Cave Quiz • Page 113 • (TG)			
	Day 39				
	Day 40	Complete Panel 8 Worksheet 1 Activity • Page 32 • (TG)			
Week 9	Day 41	Read Panel 9 • (BB)			
	Day 42				
	Day 43	Complete Panel 9 Worksheet 1 • Page 33 • (TG)			
	Day 44				
	Day 45	Complete Panel 9 Worksheet 1 Activity • Page 34 • (TG)			
First Semester-Second Quarter					
Week 1	Day 46	Read Panel 10 • (BB)			
	Day 47				
	Day 48	Complete Panel 10 Worksheet 1 • Page 35 • (TG)			
	Day 49				
	Day 50	Complete Panel 10 Worksheet 1 Activity • Page 36 • (TG)			
Week 2	Day 51	Read Panel 11 • (BB)			
	Day 52				
	Day 53	Complete Panel 11 Worksheet 1 • Page 37 • (TG)			
	Day 54				
	Day 55	Complete Panel 11 Worksheet 1 Activity • Page 38 • (TG)			
Week 3	Day 56	Read Panel 12 • (BB)			
	Day 57				
	Day 58	Complete Panel 12 Worksheet 1 • Page 39 • (TG)			
	Day 59				
	Day 60	Complete Panel 12 Worksheet 1 Activity • Page 40 • (TG)			
Week 4	Day 61	Read Panel 13 • (BB)			
	Day 62				
	Day 63	Complete Panel 13 Worksheet 1 • Page 41 • (TG)			
	Day 64				
	Day 65	Complete Panel 13 Worksheet 1 Activity • Page 42 • (TG)			
Week 5	Day 66	Read Panel 14 • (BB)			
	Day 67				
	Day 68	Complete Panel 14 Worksheet 1 • Page 43 • (TG)			
	Day 69				
	Day 70	Complete Panel 14 Worksheet 1 Activity • Page 44 • (TG)			

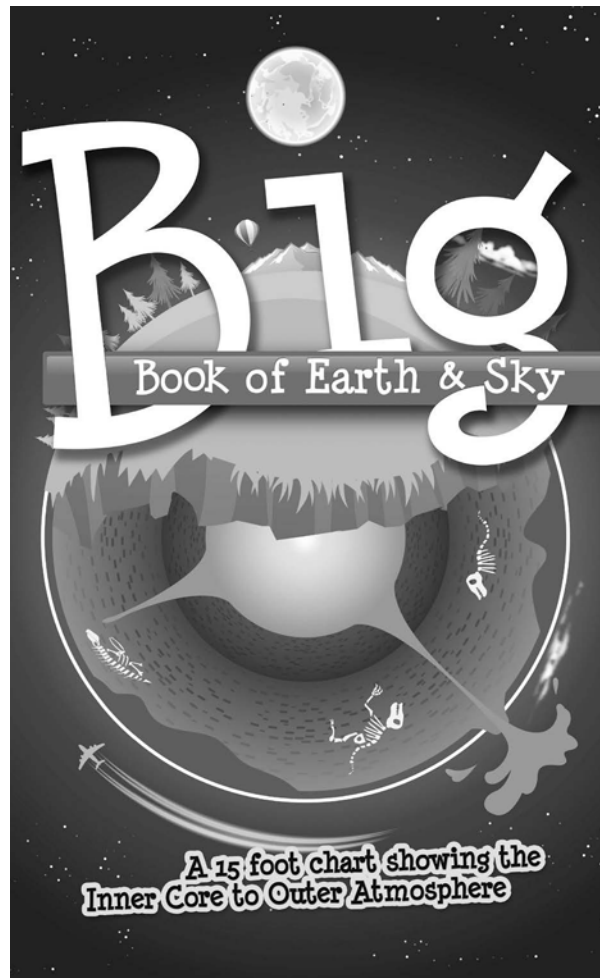
Date	Day	Assignment	Due Date	✓	Grade
Week 6	Day 71	Read Panel 15 • (BB)			
	Day 72				
	Day 73	Complete Panel 15 Worksheet 1 • Page 45 • (TG)			
	Day 74				
	Day 75	Complete Panel 15 Worksheet 1 Activity • Page 46 • (TG)			
Week 7	Day 76	Read Panel 16 • (BB)			
	Day 77				
	Day 78	Complete Panel 16 Worksheet 1 • Page 47 • (TG)			
	Day 79				
	Day 80	Complete Panel 16 Worksheet 1 Activity • Page 48 • (TG)			
Week 8	Day 81	Read Panel 17 • (BB)			
	Day 82				
	Day 83	Complete Panel 17 Worksheet 1 • Page 49 • (TG)			
	Day 84				
	Day 85	Complete Panel 17 Worksheet 1 Activity • Page 50 • (TG)			
Week 9	Day 86	Read Panel 18 • (BB)			
	Day 87				
	Day 88	Complete Panel 18 Worksheet 1 • Page 51 • (TG)			
	Day 89				
	Day 90	Complete Panel 18 Worksheet 1 Activity • Page 52 • (TG)			
		Mid-Term Grade			

Second Semester Suggested Daily Schedule

Date	Day	Assignment	Due Date	✓	Grade
Second Semester-Third Quarter					
Week 1	Day 91	Read Panel 19 • (BB)			
	Day 92				
	Day 93	Complete Panel 19 Worksheet 1 • Page 53 • (TG)			
	Day 94				
	Day 95	Complete Panel 19 Worksheet 1 Activity • Page 54 • (TG)			
Week 2	Day 96	Read Panel 20 • (BB)			
	Day 97				
	Day 98	Complete Panel 20 Worksheet 1 • Page 55 • (TG)			
	Day 99				
	Day 100	Complete Panel 20 Worksheet 1 Activity • Page 56 • (TG)			
Week 3	Day 101	Read Panel 21 • (BB)			
	Day 102				
	Day 103	Complete Panel 21 Worksheet 1 • Page 57 • (TG)			
	Day 104				
	Day 105	Big Book of Earth & Sky Quiz • Page 115 • (TG)			
Week 4	Day 106	Read Pages 5–11 • <i>Bugs Big & Small: God Made Them All</i> (BB&S) • (Bug activities are found in the appendix)			
	Day 107				
	Day 108	Complete Amazing Creepy Crawlers Worksheet 1 Page 61 • (TG)			
	Day 109				
	Day 110	Read Pages 79–80 (Words to Know) • (BB&S)			
Week 5	Day 111	Complete Words to Know Worksheet 1 • Page 63 • (TG)			
	Day 112				
	Day 113	Read Pages 13–19 • (BB&S)			
	Day 114				
	Day 115	Complete Jumbo Giants Worksheet 1 • Page 65 • (TG)			
Week 6	Day 116	Read Pages 20–29 • (BB&S)			
	Day 117				
	Day 118	Complete Jumbo Giants Worksheet 2 • Page 67 • (TG)			
	Day 119				
	Day 120	Read Pages 30–35 • (BB&S)			
Week 7	Day 121	Complete Weird & Wonderful Worksheet 1 • Page 69 • (TG)			
	Day 122				
	Day 123	Read Pages 36–41 • (BB&S)			
	Day 124				
	Day 125	Complete Weird & Wonderful Worksheet 2 • Page 71 • (TG)			

Date	Day	Assignment	Due Date	✓	Grade
Week 8	Day 126	Read Pages 42–49 • (BB&S)			
	Day 127				
	Day 128	Complete Weird & Wonderful Worksheet 3 • Page 73 • (TG)			
	Day 129				
	Day 130	Read Pages 50–55 • (BB&S)			
Week 9	Day 131	Complete Bugs in Camo Worksheet 1 • Page 75 • (TG)			
	Day 132				
	Day 133	Read Pages 56–61 • (BB&S)			
	Day 134				
	Day 135	Complete Bugs in Camo Worksheet 2 • Page 77 • (TG)			
Second Semester-Fourth Quarter					
Week 1	Day 136	Read Pages 63–67 • (BB&S)			
	Day 137				
	Day 138	Complete Bizarre and Beautiful Worksheet 1 Page 79 • (TG)			
	Day 139				
	Day 140	Read Pages 68–71 • (BB&S)			
Week 2	Day 141	Complete Bizarre and Beautiful Worksheet 2 Page 81 • (TG)			
	Day 142				
	Day 143	Read Pages 72–77 • (BB&S)			
	Day 144				
	Day 145	Complete Bizarre and Beautiful Worksheet 3 Page 83 • (TG)			
Week 3	Day 146	Read Page 78 • (BB&S)			
	Day 147				
	Day 148	Complete Worksheet 1 • Page 85 • (TG)			
	Day 149				
	Day 150	Read Insect Cards in the back of the book • (BB&S)			
Week 4	Day 151	Complete Bug Cards Worksheet 1 • Page 87 • (TG)			
	Day 152				
	Day 153	Read Pages 79–80 • Review Insect Cards • (BB&S)			
	Day 154				
	Day 155	<i>Bugs Big & Small: God Made Them All Quiz</i> Page 117 (TG)			

Date	Day	Assignment	Due Date	✓	Grade
Week 5	Day 156	Read Chapter 1 Pages 6–9 (Levels 1 and/or 2) • <i>The Ecology Book</i> (EB) • Complete Harmony in Creation Worksheet 1 Page 91 • (TG)			
	Day 157				
	Day 158	Read Chapter 2 Pages 10–17 (Levels 1 and/or 2) • (EB) Complete Ecology: The Study of “Our House” Worksheet 1 Pages 93–94 • (TG)			
	Day 159				
	Day 160	Read Chapter 3 Pages 18–23 (Levels 1 and/or 2) • (EB) Complete The Dominion Mandate Worksheet 1 Page 95 • (TG)			
Week 6	Day 161	Activities Day • Complete Activities • Page 96 • (TG)			
	Day 162				
	Day 163	Read Chapter 4 Pages 24–31 (Levels 1 and/or 2) • (EB) Complete What’s on the Menu Today? Worksheet 1 Pages 97–98 • (TG)			
	Day 164				
	Day 165	Read Chapter 5 Pages 32–41 (Levels 1 and/or 2) • (EB) Complete Taking a Liking to Lichens Worksheet 1 Pages 99–100 • (TG)			
Week 7	Day 166	Activities Day • Complete Activities • Page 100 • (TG)			
	Day 167				
	Day 168	Read Chapter 6 Pages 42–51 (Levels 1 and/or 2) • (EB) Complete A Fungus Among Us Worksheet 1 Pages 101–102 • (TG)			
	Day 169				
	Day 170	Read Chapter 7 Pages 52–61 (Levels 1 and/or 2) • (EB) Complete The Plant–Bacteria Connection Worksheet 1 Pages 103–104 • (TG)			
Week 8	Day 171	Activities Day • Complete Activities • Page 104 • (TG)			
	Day 172				
	Day 173	Read Chapter 8 Pages 62–69 (Levels 1 and/or 2) • (EB) Complete Of Bacteria, Cattle, and Men Worksheet 1 Page 105 • (TG)			
	Day 174				
	Day 175	Read Chapter 9 Pages 70–75 (Levels 1 and/or 2) • (EB) Complete To the Root of the Matter Worksheet 1 Page 107 • (TG)			
Week 9	Day 176	Read Chapter 10 Pages 76–83 (Levels 1 and/or 2) • (EB) Complete Doing Ecology in God’s Creation Worksheet 1 Page 109 • (TG)			
	Day 177				
	Day 178	Activities Day • Complete Activities • Page 110 • (TG)			
	Day 179				
	Day 180	<i>The Ecology Book Quiz</i> • Pages 119–121 (TG)			
		Final Grade			



Worksheets
for Use with
Big Book of Earth & Sky



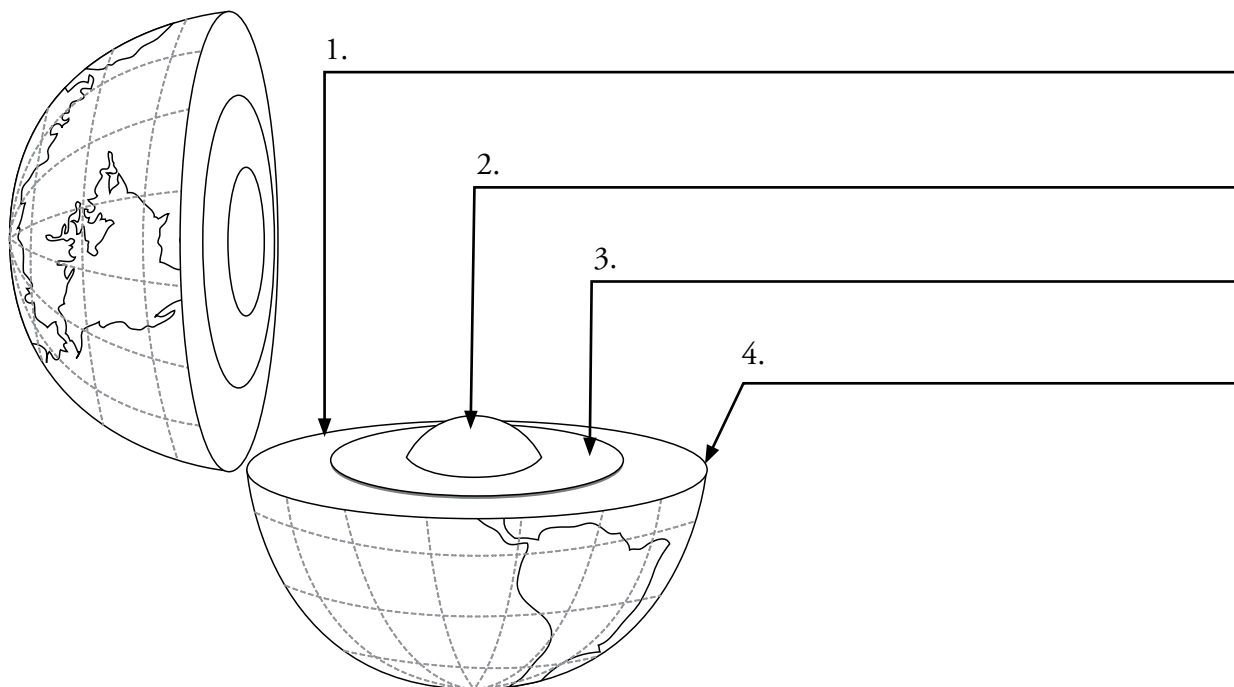
Fill in the blanks with words from the following list:

inner core

outer core

crust

mantle



Fill in the blanks:

iron

liquid

magnetic

mantle

solid

inner core

5. The rocks in the upper part of the mantle are very dense and _____.
6. The outer core is so hot that it is molten _____.
7. There may be convection-type currents in the outer core that play a role in producing earth's _____ field.
8. The inner core is composed mostly of _____.
9. The _____ is approximately 1,802 miles thick.
10. The _____ is approximately 778 miles thick.

Activity:

Draw an image of the earth with the image cut to reveal the interior sections or create a model of the earth from play dough or strips of paper dipped in a simple mixture of flour and water. If you make the mixture, let it dry and then paint the earth with all the wondrous colors God filled it with!



Word search:

Paleontology is the study of fossils. Fossils have fascinated humans for centuries. From the smallest diatoms to the largest dinosaurs, finding a fossil is an exciting and rewarding experience. Learning about fossils, their origins, and how to collect them can be both fun and educational. Read the following terms to know about the study of paleontology and then find and circle all the words in the word search below.

arthropod — all creatures with jointed legs and a tough outside skeleton (exoskeleton) made of chitin: insects, crabs and shrimp, spiders, centipedes, and millipedes

cephalopods — means “head-footed,” since their tentacles come out of their heads; the most complex of all the invertebrates are the squid and octopus in the mollusk class

diatoms — microscopic, one-celled plants whose walls are decorated with glass (SiO₂) in exquisite patterns; mined and sold as diatomaceous earth

echinoderms — meaning “spiny-skinned,” members of the starfish/sea star group usually have bony plates and spines

A J U S Y H T P P W E G Q D Z A S V P I
 E P D V N X P H O X D C J B Q A U H W S
 K E F Y T M E S O N E F X H K F A A J S
 Y H D U Z V J W N C F N H N M K Z K J D
 L K O J N Z T H H W X A Z L S H S M E O
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 E A P Z D J K X J Z Q T R I L O B I T E
 S Y W N A S Z A C D L P M A Z L D X B X
 N S D I O L I T U A N K O E Q C H P S U

gastropods — means “stomach-footed,” since they walk on their stomachs; mollusk class to which snails belong

living fossils — creatures found alive today that evolutionists thought became extinct millions of years ago

nautiloids — fossils with tapered, chambered shells. Some are coiled like the modern nautilus, others are curved like bananas, and still others are straight, like ice cream cones.

paleontologist — a person who studies fossils

protozoan — one-celled shelled animals

spicules — sponges that have hard skeletal structures of crystal-like spines

trace fossils — are not remains of plant or animal parts, but show evidence of once-living things

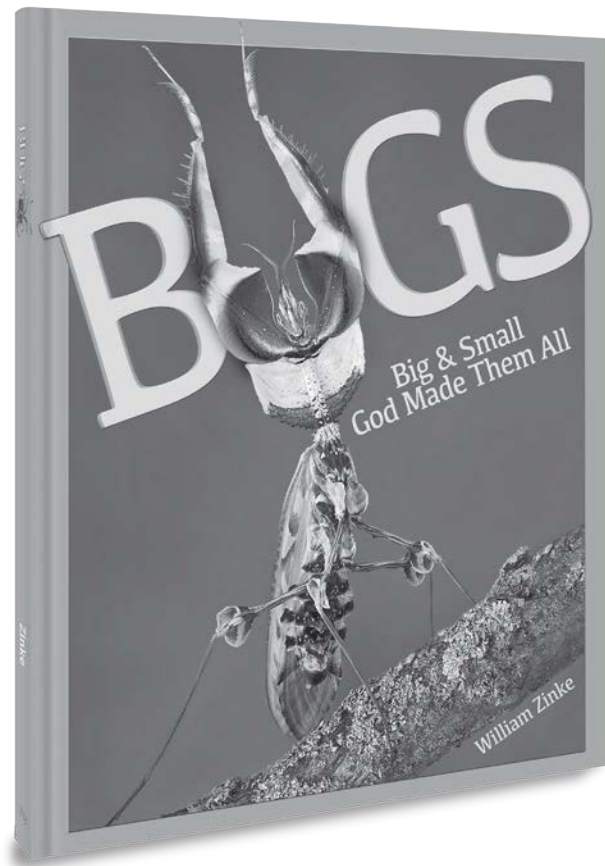
trilobite — a crab-like creature; was the first fossil found buried in abundance around the world

vertebrates — animals with backbones

Activity:

Choose one of the following activities for the day!

1. Take a field trip to your local natural history museum. Take along a sketch pad and pencil and draw different fossil types.
2. Draw four pictures showing the steps to how a dinosaur fossil was formed, based on the steps discussed on panel 2.
3. Make your own fossil with the help of your teacher. Materials needed: plaster of Paris or play dough, paper plates or aluminum pie plates, objects to press into medium (leaves, dinosaur toys, etc.). Pour the plaster of Paris into aluminum pie plates or paper plates (or pass out jars of play dough and a paper plate) — one plate or jar per student. Press the objects (or hands) into the plaster or play dough.



Worksheets
for Use with
Bug Big & Small: God Made Them All



Fill in the blank:

blood	<i>Coleoptera</i>	<i>Diptera</i>
fertilizing	<i>Lepidoptera</i>	mosquito
pollen	pollinate	sin
vegetarians		

1. _____ means “sheath wing.”
2. _____ means “scale wing.”
3. _____ means “two wing.”
4. Pollinators are insects and other creatures that transfer pollen or seeds from one flower to another, _____ them.
5. Often a bee eats from a specific type of flower as long as it is available, making sure the right _____ gets to the right flowers.
6. The deadliest animal on earth is the _____.
7. It was man’s _____ that brought corruption and death upon the whole creation.
8. If insects cannot _____ flowers, apple tree blossoms will not develop into fruit.
9. Female mosquitoes only use _____ as a supplement for their eggs.
10. Male mosquitoes are actually _____.

Note: See bug activities in the appendix!



Fill in the blank:

Bioluminescence	Decaying	Ecosystem
Elytra	Evolution	Iridescent
Metamorphosis	Parasites	Setae
Toxin		

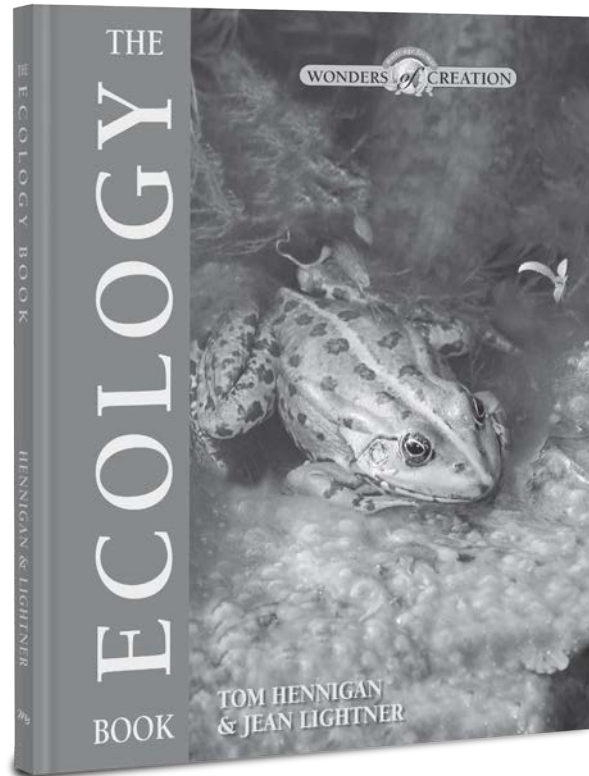
1. _____: the hardened portions of a bug meant to protect their wings underneath.
2. _____: the breaking down of once-living materials.
3. _____: bristle-like hairs on some bugs that can help them move or help them trap air under water.
4. _____: an area of the world where specific living things are made for the nonliving world.
5. _____: the process by which some insects transform into an adult through stages.
6. _____: a creature or organism that feeds on another organism, called a host.
7. _____: this light is created by chemicals mixing with oxygen.
8. _____: a substance that is poisonous or harmful if touched or swallowed.
9. _____: refers to the brilliant, beautiful colors displayed on an object.
10. _____: the false belief that all life came from nothing, not by God's powerful hand.



Fill in the blank:

Atlas	<i>Chalcosoma</i>	design
Elephant	Entomophagy	Hercules
insects	larval	Megasoma
metamorphosis		

1. There are way more _____ than any other animal on earth.
2. The strength of the _____ beetle comes from the thick muscle strands connecting their legs to the rest of their exoskeleton.
3. _____ beetles get their name from their bulky size and long trunk-like horn.
4. _____ grubs can reach a weight of almost half a pound.
5. Beetles go through complete _____, with a caterpillar-like larval stage, a pupa stage, and an adult flying stage.
6. _____ is a big word given for those who eat insects for food.
7. Most giant beetles spend their _____ stage consuming rotting logs or other decaying plant material.
8. The horn of the _____ beetle can be almost a third of the size of its whole body.
9. The giants (_____) are found in southeast Asia and throughout Indonesia.
10. The creation model assumes that common _____ features point to a common Designer, rather than a common ancestor.



Worksheets
for Use with
The Ecology Book



Define:**Level One**

1. harmony
2. Trinity

Level Two

3. commensalism
4. mutualism (symbiosis)
5. parasitism

Multiple choice (level one or two):

6. In our world today
 - a) we see only perfect harmonious relationships.
 - b) we see not only harmonious relationships but also harmful relationships.
 - c) we don't see relationships at all.
 - d) we see only harmful relationships.

Discussion questions (level one or two):

The following approaches may be used for answering the questions below: (1) The questions may be answered on a sheet of paper as essay questions; (2) Depending on the class size, the students may be organized in discussion groups to discuss answers to the questions; (3) Depending on the class size, the parent or teacher may guide a class discussion to answer the questions.

7. Explain how an understanding of the Trinity can help us understand the world God created.
8. What happened that broke the harmony found in the original creation?



Define:**Level One**

1. ecology
2. population

Level Two

3. abiotic
4. baraminology
5. biodiversity
6. biome
7. biosphere
8. biotic
9. ecological system (ecosystem)
10. hybridization (hybrids)
11. protocol
12. species

Multiple choice (level one or two):**Level One**

13. Scientific names (e.g., *Strix varia* for the barred owl)
 - a. have two words which together refer to a single species.
 - b. include a first word naming the genus and a second naming the species.
 - c. are generally in Latin or Greek.
 - d. all of the above.

14. Ecologists use Latin and/or Greek to name creatures in order to
- help ecologists be consistent in the naming of organisms.
 - help ecologists speak the same language with one another.
 - further identify the creature into genus and species.
 - all of the above.

Level Two

15. Ecology is
- the study of animals and plants in relation to each other and to their environments.
 - an underwater environment.
 - a concept opposed to the Bible.
 - a and c.
16. Which of the following ecosystems would not be considered a biome?
- desert
 - drop of water
 - tropical rainforest
 - tundra

Discussion questions:

Level One

17. Compare/contrast the contributions of Ernst Haeckel and William Derham to ecology.

Level Two

18. What is baraminology? How does it differ from the species concept?

Quizzes



Match the following terms:

active caves	arthropods	cave
cenote	echolocation	karst
karstlands	relict caves	sinkholes
troglobites		

- _____ the areas of land that host caves
- _____ caves without a flowing stream, which may have ponds or dripping water
- _____ a water-filled shaft
- _____ sound waves such as those sent out by bats that hit an object and an echo comes back, helping them identify the object
- _____ funnel-shaped hollows, from a few feet to hundreds of feet in diameter
- _____ creatures that live only in caves (from Greek for “cave dwellers”)
- _____ live caves that have a flowing stream in them
- _____ an invertebrate animal; some live on land and some in water (including crustaceans, centipedes, millipedes, spiders, scorpions, and insects)
- _____ the term scientists use for caves
- _____ considered a natural opening in rocks, accessible to humans, which is longer than it is deep and is at least 33 feet in length



Seek and Find Quiz! Search the *Big Book of Earth & Sky* to find the answers to 15 of the WHO, WHAT, WHERE, and HOW questions! Set a time limit if you wish, but either way have fun searching! (Simply divide those correctly answered by 15 for the grade percentage.)

Short answers:

1. Where does lava come from?
2. Where do you find the ozone layer?
3. Who gave the clouds their scientific names?
4. What is the fastest bird?
5. When do animals hibernate?
6. Who were the first to reach the deepest part of the ocean?
7. Who broke the record for the highest skydive?
8. Where is the deepest part of the world's oceans?
9. Where is the deepest mine in the world?
10. What are the four types of algae named by color?
11. Where do meteors generally burn up in the atmosphere?
12. What percentage of water on earth is fresh or "sweet"?
13. How deep can you go underwater?
14. What shape is the earth?
15. How did a fossil reptile help scientists design better delta-wing aircraft?

**Answers
to
Worksheets and Quizzes**

Big Book of Earth & Sky Worksheet Answer Keys

Panel 1 Worksheet 1

1. mantle
2. inner core
3. outer core
4. crust
5. solid
6. liquid
7. magnetic
8. iron
9. mantle
10. inner core

5. flood
6. plates
7. mountains
8. sound
9. Challenger
10. A. 3
B. 5
C. 6
D. 1
E. 2
F. 4

Panel 2 Worksheet 1

A J U S Y H T S E T A R B E T R E V P I
 E P D V N X P H O X D C J B Q A U H W S
 K E F Y T M E S O N E F X H K F A A J S
 Y H D U Z V J W N C F N H N M K Z K J D
 L K O J N Z T H H W X A Z L S H S M E O
 I M P J W L D I U R U O O R L D D S P P
 V V O D O I N G O T X Z Q B H U O E Z O
 I P R H C O V W P J T O Y S P Q P L W R
 N N H C D B H E J T Z T M V F N O U X T
 G O T E Q L S K N K D O J K X F L C D S
 F J R R D X Q K P L T R J J Z F A I H A
 O M A G Q Y K R T A E P M C V G H P A G
 S W M F N Y U H I A Y G E T A O P S O L
 S N G Y B U N D A P A G T K W M E M Y S
 I I K S T R A C E F O S S I L S C K D X
 L S O P A L E O N T O L O G I S T F X Y
 S X M D D L W A W J J N C B M X A Z U T
 E A P Z D J K X J Z Q T R I L O B I T E
 S Y W N A S Z A C D L P M A Z L D X B X
 N S D I O L I T U A N K O E Q C H P S U

Panel 4 Worksheet 1

B G E R E H P S Y H T A B E O ñ I N L E
 A I L F F E E R R E I R R A B T A E R G
 T B R C E W A T A U C U R R E N T H U L
 H D H E S E O I E N J I R S Q A H Y V P
 Y H C F T B R L C D S Z Y J I S U D M I
 S A L U E A N R N T E P B Y V Y V R N O
 C V V A L N W U E L A C A Z S M K O C D
 A O C E B U E H C I N S S T E D I T R W
 P H E N U A N D S Z R E A G L A L H N O
 H Y G U B T U S E I H R X N I M X E R T
 O M R E I D Y P N L K H A R G I S R W R
 X G U K S S I U I M R C H B N E A M D E
 G N S R W J U Q M T J N A G T G H A J D
 O B M I Z I R P U Y I E R R I G ñ L J N
 J D R P H N L Q L Y R R B C B I O V N U
 F G O T G S N T O A Z T O M N P T E L M
 Z Y T I Q B K E I H U Q R A G Z W N O U
 M Q S D Y K N B B F R M L V J Z G T O J
 P Z S E G D I R C I N A E C O H E D C H
 O Y Z H J B C N K O Z E Z R H P Q M T V

Panel 3 Worksheet 1

1. good
2. Pangaea
3. millions of years
4. weeks or even months

Panel 5 Worksheet 1

1. humpback whale
2. herring
3. crustaceans
4. plankton
5. invertebrates

Bugs Big & Small — Worksheet Answer Keys

Pages 5–11

Worksheet 1

1. Coleoptera
2. Lepidoptera
3. Diptera
4. fertilizing
5. pollen
6. mosquito
7. sin
8. pollinate
9. blood
10. vegetarians

Pages 79–80

Worksheet 1

1. Elytra
2. Decaying
3. Setae
4. Ecosystem
5. Metamorphosis
6. Parasites
7. Bioluminescence
8. Toxin
9. Iridescent
10. Evolution

Pages 13–19

Worksheet 1

1. insects
2. Hercules
3. Elephant
4. Megasoma
5. metamorphosis
6. Entomophagy
7. larval
8. Atlas

9. Chalcosoma

10. design

Pages 20–29

Worksheet 2

1. Goliath
2. skeletons
3. Titan
4. Feather
5. Large
6. mandibles
7. Pseudoscorpions
8. Harlequin
9. Comet
10. Jungle

Pages 30–35

Worksheet 1

1. termite
2. food
3. Namib
4. Whirligig
5. Diving
6. elytra
7. setae
8. chemical
9. Mole
10. Ironclad

Pages 36–41

Worksheet 2

1. Dung
2. immune
3. Giraffe
4. leaf
5. polarized

The Ecology Book — Worksheet Answer Keys

Chapter 1

Worksheet 1

1. **harmony** — a pleasing and beneficial relationship.
2. **Trinity** — God exists as a Trinity, so His is, by nature, relational.
3. **commensalism** — a type of symbiosis between two or more different organisms where one is benefited and the other is not affected one way or the other.
4. **mutualism (symbiosis)** — a type of symbiosis where two or more organisms benefit from one another. Some researchers equate symbiosis and mutualism as the same relationship and others do not.
5. **parasitism** — a type of symbiosis of two different organisms where one benefits by the relationship and the other is harmed.
6. b.
7. The Trinity encompasses the concept that God is relational and Father, Son, and Holy Spirit have always existed in perfect loving harmony. God created the world with harmonious relationships, reflecting who He is.
8. Consult the text where these verses are cited for an explanation of their significance in relation to the material being studied.
4. **baraminology** — comes from the Hebrew: bara [to create] and mín [kind] and means the study of the created “kind.”
5. **biodiversity** — the number and variety of organisms and habitats in an area (also includes the genetic differences between creatures in an environment).
6. **biome** — a very large ecosystem; examples include the tropical rain forest, desert, and eastern deciduous forest.
7. **biosphere** — the living portion of planet Earth.
8. **biotic** — the living portion of an ecosystem; examples include bacteria, animals, plants, protists, and fungi.
9. **ecological system (ecosystem)** — location where the relationships of organisms with each other and their environment takes place. It can be as small as a drop of water to as large as earth’s biosphere.
10. **hybridization (hybrids)** — when two different organisms (different species or genera) mate and have offspring. Examples include tiger/lion, camel/llama, false killer whale/bottlenose dolphin, polar bear/grizzly bear.
11. **protocol** — a detailed plan for doing a science experiment.
12. **species** — at its basic level, a species is a group of creatures that have a stable structure and that can reproduce with each other. The offspring of these parents are then able to reproduce with each other.

Chapter 2

Worksheet 1

1. **ecology** — the study of the relationships of living things with each other and with their non-living environment.
2. **population** — the population concept is difficult to define, but it can be simply described as the group of one species in an area that have equal chances of mating with one another.
3. **abiotic** — the non-living portion of an ecosystem; examples include water, air, and rocks.
13. d.
14. d.
15. d.
16. b.
17. Ernst Haeckel coined the word ecology (oecologie). Despite the fact that he studied creation, he never acknowledged the Creator. William Derham also studied God’s creation. He understood it from a biblical worldview. In some