

Observing God's World

*Fourth
Edition*



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ANSWER KEY

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Table of Contents

Introduction	v
Text Key	1
Chapter 1—Plentiful Plants	1
Comprehension Check 1.1, Page 9	1
Comprehension Check 1.2, Page 14	1
Comprehension Check 1.3, Page 22	1
Comprehension Check 1.4, Page 31	1
Comprehension Check 1.5, Page 38	1
Comprehension Check 1.6, Pages 46	1
Comprehension Check 1.7, Pages 54	2
Comprehension Check 1.8, Page 62	2
Chapter Checkup, Pages 64–66	2
Chapter 2—Observing Invertebrates	5
Comprehension Check 2.1, Page 69	5
Just for FUN, Page 70	6
Comprehension Check 2.2, Page 74	6
Comprehension Check 2.3, Page 79	6
Comprehension Check 2.4, Page 85	6
Comprehension Check 2.5, Page 89	7
Comprehension Check 2.6, Page 92	7
Comprehension Check 2.7, Page 97	9
Comprehension Check 2.8, Page 102	9
Comprehension Check 2.9, Page 108	10
Comprehension Check 2.10, Page 114	10
Comprehension Check 2.11, Page 121	11
Chapter Checkup, Pages 122–124	11
Chapter 3—Our Fascinating Earth.....	16
Comprehension Check 3.1, Page 130	16
Comprehension Check 3.2, Page 136	16
Comprehension Check 3.3, Page 140	16
Comprehension Check 3.4, Page 144	17
Comprehension Check 3.5, Page 148	17
Comprehension Check 3.6, Page 154	18
Comprehension Check 3.7, Page 159	18
Comprehension Check 3.8, Page 166	18
Comprehension Check 3.9, Page 170	19
Comprehension Check 3.10, Page 174	19
Chapter Checkup, Pages 175–177	19
Chapter 4—God’s Great Universe	24
Comprehension Check 4.1, Page 180	24
Comprehension Check 4.2, Page 185	24
Comprehension Check 4.3, Page 194	24
Comprehension Check 4.4, Page 204	25
Comprehension Check 4.5, Page 211	25

Comprehension Check 4.6, Page 214 26
Comprehension Check 4.7, Page 217 26
Comprehension Check 4.8, Page 221 26
Comprehension Check 4.9, Page 229 26
Chapter Checkup, Pages 230–231 27

Chapter 5—Exploring Space33

Comprehension Check 5.1, Page 235 33
Comprehension Check 5.2, Page 243 33
Comprehension Check 5.3, Page 249 33
Comprehension Check 5.4, Page 253 33
Comprehension Check 5.5, Page 255 33
Comprehension Check 5.6, Page 257 34
Comprehension Check 5.7, Page 262 34
Comprehension Check 5.8, Page 268 35
Comprehension Check 5.9, Page 275 35
Chapter Checkup, Pages 278–279 35

Chapter 6—Matter and Chemistry39

Comprehension Check 6.1, Page 284 39
Comprehension Check 6.2, Page 288 39
Comprehension Check 6.3, Page 291 40
Comprehension Check 6.4, Page 300 40
Comprehension Check 6.5, Page 307 41
Chapter Checkup, Pages 308–309 41

Introduction

This answer key for *Observing God's World*, Fourth Edition (Copyright © 2010), was developed by the staff of Christian Liberty Press to help the instructor be as successful as possible in teaching this course. We have provided sample answers for the exercises required of students who are enrolled in Christian Liberty Academy School System (CLASS). CLASS requires its students to complete all the "Comprehension Check" questions found at the end of each section within a given chapter and the "Chapter Checkup" sections at the end of the chapter.

This key should be used by the instructor to review the student's daily work. In the "Comprehension Check" sections, the student's answers should be the same for the short answer questions (*Clues*) and close to the same for the longer responses (*Explain*). In the "Chapter Checkup" sections, students do not have to use the same wording in their answers, but they should give the same information. Some questions have more answers given than required and are marked by *Answers will vary*; the student only needs to give the required number of responses as stated.

Various charts have been placed sporadically throughout the key for the instructor to use as teaching aids. These charts may be reproduced for the student to examine or memorize.

May God grant you wisdom and diligence as you seek to teach your children the laws and realities of God's marvelous universe.

TEXT KEY

Chapter 1—Plentiful Plants

◆ Comprehension Check 1.1, Page 9

1. photosynthesis
2. chlorophyll
3. glucose
4. stem, midrib, veins
5. modified leaf
6. bladderwort, pitcher plant, sundew, Venus's-flytrap

◆ Comprehension Check 1.2, Page 14

1. shoot system, root system
2. taproot
3. root cap
4. root hairs
5. epiphytes ➔ vanilla plant, Spanish moss
6. cellulose

◆ Comprehension Check 1.3, Page 22

1. fertilization
2. pollination ➔ bees, butterflies, flies, wasps (*only three are needed*)
3. that which develops from the flower's ovary
4. moisture, warmth
5. embryo, cotyledon(s), seed coat
6. botanist

◆ Comprehension Check 1.4, Page 31

1. ray flowers, disk flowers; *daisies* belong to the composite family
2. legumes
3. rose
4. bulb
5. grass

◆ Comprehension Check 1.5, Page 38

1. A tree is a tall plant that has a single woody stem.
2. *one year* ➔ annual; *two years* ➔ biennial; *many years* ➔ perennial
3. *tallest* ➔ the California redwoods; *oldest* ➔ the bristlecone pines
4. dendrologists
5. bud
6. cambium layer
7. Girdling stops nourishment from reaching the roots; ultimately, this procedure causes the tree to die.
8. annual growth rings; how old the tree is

◆ Comprehension Check 1.6, Page 46

1. broadleaf trees
2. deciduous trees
3. Trees' leaves change color in the fall because of blocked pipelines in the stems.

Element	Uses
nickel	ingredient used in stainless steel; also in rechargeable batteries; additionally, used as a lining for tanks holding corrosive chemicals; used in US coin called the “nickel” (alloy of 25% nickel and 75% copper)
lead	was used in plumbing (<i>plumbum</i> , Latin for lead), but poisonous—especially to the brain; today used in car batteries; also used to make wheel weights and firearms ammunition

7. Answers will vary. Several elements are given, but **only two are required for each category**.

Alkali Metals	Alkaline Earth Metals	Halogens	Noble Gases
lithium	beryllium	fluorine	helium
sodium	magnesium	chlorine	neon
potassium	calcium	bromine	argon
rubidium	strontium	iodine	krypton
cesium	barium	astatine	xenon
francium	radium		radon
			ununoctium

8. Instead of melting, solid iodine turns directly into a gas.

◆ Comprehension Check 6.5, Page 307

Clues:

- molecule
- compound
- H₂O; CO₂
- diamond
- chemical reaction
- combustion (or burning)

Explain:

- A *mixture* is simply the combination of two different substances that retain their own properties; however, a *compound* is the blending of two different substances that become bonded together (forming a union of elements).
- Sodium chloride* is not considered a molecular compound because it is not made up of individual molecules; it consists of crystals that contain equal numbers of sodium and chlorine atoms. It is an **ionic compound** (i.e., contains charged atoms).

◆ Chapter Checkup, Pages 308–309

A. Define each term.

- chemistry* ⇨ study of what substances are made of and how one substance can be changed into another
- matter* ⇨ anything that takes up space and has mass
- weight* ⇨ measure of the pull of gravity on an object
- mass* ⇨ amount of matter that makes up an object
- density* ⇨ amount of matter (mass) in one unit of volume (space)
- atoms* ⇨ tiny particles from which all substances are composed; the smallest particles of an element