

TEACHER GUIDE

7th–12th Grade

Includes Student
Worksheets

Science



Answer Keys



Weekly Lesson Schedule



Worksheets



Quizzes & Tests

GENERAL SCIENCE 1: SURVEY OF EARTH AND SKY



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Includes Student
Worksheets

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Answer Keys



Weekly Lesson Schedule

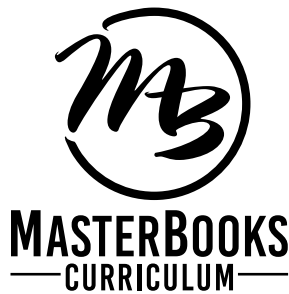


Worksheets



Quizzes & Tests

General Science 1



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About Our Creationist Authors

The New Weather Book: **Michael Oard** earned his master's degree in atmospheric science in 1973 from the University of Washington. He was a meteorologist with the National Weather Service beginning in 1973 and lead forecaster in Great Falls, Montana from 1981 to 2001. He has written numerous books related to the Ice Age, geology, and the Great Flood.

The New Astronomy Book: **Dr. Danny R. Faulkner** has a BS in math, MS in physics, and an MA and PhD in astronomy from Indiana University. He previously taught physics and astronomy at the University of South Carolina — Lancaster, and is now on staff at Answers in Genesis and the Creation Museum.

The Mineral Book: **David R. McQueen** was trained in mineralogy at the University of Tennessee (BA in geology) and at the University of Michigan (MS in geology). McQueen taught college geology at George Mason University, Virginia State University, East Tennessee State University, and the Institute for Creation Research's Graduate School.

The New Ocean Book: **Frank Sherwin** received his bachelor's degree in biology from Western State College and later obtained a master's degree in zoology. He is currently a Research Associate, Senior Lecturer, and Science Writer for the Institute for Creation Research.

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, five days a week



Includes answer keys for worksheets, quizzes, and tests



Worksheets for each section



Quizzes and tests are included to help reinforce learning and provide assessment opportunities



Designed for grades 7 to 12 in a one-year course to earn 1 science credit

Course Description

This is the suggested course sequence that allows one core area of science to be studied per quarter. You can change the sequence of the quarters per the needs or interests of your student; materials for each quarter are independent of one another to allow flexibility. In the quarter on meteorology, students will learn about God’s design of this complex world and its weather patterns that affect our lives every day. The quarter on astronomy extends God’s design to the universe itself, and how all creation declares the glory and power of God. The universe is beautiful and breathtaking in its scale, and the earth and vast expanse of the universe is a struggle to study, understand, or even comprehend in terms of its purpose and size. The quarter on minerals shows how minerals are a gift of God’s grace, from the diamond in an engagement ring to copper chains to components of video games. And the quarter on the oceans teaches about the oceans and the abundance and diversity of life, the wealth of resources, the latest discoveries, and the simple mysteries that have intrigued explorers and scientists for centuries. A better understanding of the world ensures careful stewardship of its grandeur and beauty for future generations, and leads to a deeper respect for the delicate balance of life that God created on planet Earth.

Course Objectives

Students completing this course will:

- ✓ Investigate how clouds form and how to identify the different types
- ✓ Review how to read a weather map, and what our responsibility is to the environment
- ✓ Learn how to survive in dangerous weather
- ✓ Identify what we know and are still trying to discover about planets, moons, and comets within our own solar system
- ✓ Evaluate up-to-date astronomical data and concepts
- ✓ Explore the dynamics of planets, stars, galaxies, and models for the cosmology of the universe
- ✓ Discover the best ways to observe the heavens
- ✓ Demonstrate a deeper understanding of the ocean tides, waves, and currents
- ✓ Explore the vast world of giant squids and other sea “monsters”
- ✓ Discover the impact of weather systems and the Great Flood on Earth’s land and seas
- ✓ Learn about the order and beauty of minerals shaped by the Creator
- ✓ Find out the properties of minerals, where they can be found, and how they are used, along with fun facts.

Optional Science Labs: Please see MasterBooks.com for recommended science labs and kits. These are not a part of the schedule, so they can be completed however you decide.

Note on Activities: High school students who take the course are expected to do a majority of the activities. The activities can be modified based on student interests and creativity, but should reflect an understanding of the core concepts being learned. Since specific activities are not mentioned on the schedule, you may decide which activities the students need to complete.

First Semester Suggested Daily Schedule

Date	Day	Assignment	Due Date	✓	Grade
First Semester-First Quarter — <i>The New Weather Book</i>					
Week 1	Day 1	Read Pages 4–7 • <i>The New Weather Book</i> • (NWB)			
	Day 2	God Created Weather Chapter 1: Worksheet 1 • Page 17 • Teacher Guide (TG)			
	Day 3	Read Pages 8–11 • (NWB)			
	Day 4	Read Pages 12–19 • (NWB)			
	Day 5	What Causes Earth's Weather Weather Chapter 2: Worksheet 1 • Pages 19–20 • (TG)			
Week 2	Day 6	What Causes Earth's Weather Weather Chapter 2: Worksheet 2 • Pages 21–22 • (TG)			
	Day 7	Read Pages 20–27 • (NWB)			
	Day 8	Read Pages 28–31 • (NWB)			
	Day 9	Water in the Atmosphere Weather Chapter 3: Worksheet 1 • Pages 23–24 • (TG)			
	Day 10	Water in the Atmosphere Weather Chapter 3: Worksheet 2 • Pages 25–26 • (TG)			
Week 3	Day 11	Weather Chapter 1–3: Quiz 1 • Pages 153–154 • (TG)			
	Day 12	Read Pages 32–36 • (NWB)			
	Day 13	Read Pages 37–39 • (NWB)			
	Day 14	Thunderstorms Weather Chapter 4: Worksheet 1 • Pages 27–28 • (TG)			
	Day 15	Thunderstorms Weather Chapter 4: Worksheet 2 • Page 29 • (TG)			
Week 4	Day 16	Read Pages 40–44 • (NWB)			
	Day 17	Read Pages 45–51 • (NWB)			
	Day 18	Dangerous Thunderstorms Weather Chapter 5: Worksheet 1 • Pages 31–32 • (TG)			
	Day 19	Dangerous Thunderstorms Weather Chapter 5: Worksheet 2 • Pages 33–34 • (TG)			
	Day 20	Dangerous Thunderstorms Weather Chapter 5: Worksheet 3 • Pages 35–36 • (TG)			
Week 5	Day 21	Read Pages 52–54 • (NWB)			
	Day 22	Read Pages 55–59 • (NWB)			
	Day 23	Hurricanes Weather Chapter 6: Worksheet 1 • Pages 37–38 • (TG)			
	Day 24	Hurricanes Weather Chapter 6: Worksheet 2 • Pages 39–40 • (TG)			
	Day 25	Weather Chapter 4–6: Quiz 2 • Pages 155–156 • (TG)			

Date	Day	Assignment	Due Date	✓	Grade
Week 6	Day 26	Read Pages 60–67 • (NWB)			
	Day 27	Winter Storms Weather Chapter 7: Worksheet 1 • Pages 41–42 • (TG)			
	Day 28	Winter Storms Weather Chapter 7: Worksheet 2 • Pages 43–44 • (TG)			
	Day 29	Winter Storms Weather Chapter 7: Worksheet 3 • Page 45 • (TG)			
	Day 30	Read Pages 68–73 • (NWB)			
Week 7	Day 31	Wild Weather Weather Chapter 8: Worksheet 1 • Page 47 • (TG)			
	Day 32	Wild Weather Weather Chapter 8: Worksheet 2 • Pages 49–50 • (TG)			
	Day 33	Read Pages 74–81 • (NWB)			
	Day 34	Climate in the Past Weather Chapter 9: Worksheet 1 • Page 51 • (TG)			
	Day 35	Climate in the Past Weather Chapter 9: Worksheet 2 • Pages 53–54 • (TG)			
Week 8	Day 36	Climate in the Past Weather Chapter 9: Worksheet 3 • Page 55 • (TG)			
	Day 37	Weather Chapter 7–9: Quiz 3 • Pages 157–158 • (TG)			
	Day 38	Read Pages 82–91 • (NWB)			
	Day 39	Climate Change Weather Chapter 10: Worksheet 1 • Page 57 • (TG)			
	Day 40	Climate Change Weather Chapter 10: Worksheet 2 • Page 59 • (TG)			
Week 9	Day 41	Climate Change Weather Chapter 10: Worksheet 3 • Pages 61–62 • (TG)			
	Day 42	Read Pages 92–94 • (NWB) God, Creation and You Weather Chapter 11: Worksheet 1 • Page 63 • (TG)			
	Day 43	God, Creation and You Weather Chapter 11: Worksheet 2 • Page 65 • (TG)			
	Day 44	Weather Chapter 10–11: Quiz 4 • Pages 159–160 • (TG)			
	Day 45	The New Weather Book Test • Pages 161–164 • (TG)			
First Semester-Second Quarter — <i>The New Astronomy Book</i>					
Week 1	Day 46	Read Pages 6–7 • <i>The New Astronomy Book</i> • (NAB) Astronomy Intro: Worksheet 1 • Pages 69–70 • (TG)			
	Day 47	Read Pages 8–11 • (NAB) • The Night Sky - Words on Astronomy Chapter 1: Worksheet 1 • Page 71 • (TG)			
	Day 48	The Night Sky - Questions/Activity on Astronomy Chapter 1: Worksheet 1 • Pages 71–72 • (TG)			
	Day 49	Read Pages 12–16 • (NAB)			
	Day 50	The Moon - Words/Questions on Astronomy Chapter 2: Worksheet 1 • Pages 73–74 • (TG)			

Date	Day	Assignment	Due Date	✓	Grade
Week 2	Day 51	The Moon - Activity on Astronomy Chapter 2: Worksheet 1 • Page 74 • (TG)			
	Day 52	Read Pages 17–21 • (NAB)			
	Day 53	The Moon - Words/Questions on Astronomy Chapter 2: Worksheet 2 • Pages 75–76 • (TG)			
	Day 54	The Moon - Activities on Astronomy Chapter 2: Worksheet 2 • Page 76 • (TG)			
	Day 55	Read Pages 22–25 • (NAB)			
Week 3	Day 56	The Solar System Astronomy Chapter 3: Worksheet 1 • Pages 77–78 • (TG)			
	Day 57	Astronomy Intro–Chapter 3: Quiz 1 • Pages 165–166 • (TG)			
	Day 58	Read Pages 26–29 • (NAB)			
	Day 59	Two Kinds of Planets - Words/Questions on Astronomy Chapter 4: Worksheet 1 • Pages 79–80 • (TG)			
	Day 60	Two Kinds of Planets - Activity on Astronomy Chapter 4: Worksheet 1 • Page 80 • (TG)			
Week 4	Day 61	Read Pages 30–35 • (NAB))			
	Day 62	Two Kinds of Planets - Words/Questions on Astronomy Chapter 4: Worksheet 2 • Pages 81–82 • (TG)			
	Day 63	Two Kinds of Planets - Activity on Astronomy Chapter 4: Worksheet 2 • Page 82 • (TG)			
	Day 64	Read Pages 36–39 • (NAB)			
	Day 65	The Sun - Words/Questions on Astronomy Chapter 5: Worksheet 1 • Pages 83–84 • (TG)			
Week 5	Day 66	The Sun - Activity on Astronomy Chapter 5: Worksheet 1 • Page 84 • (TG)			
	Day 67	Read Pages 40–43 • (NAB)			
	Day 68	Telescopes Astronomy Chapter 6: Worksheet 1 • Pages 85–86 • (TG)			
	Day 69	Read Pages 44–47 • (NAB)			
	Day 70	History of Astronomy Astronomy Chapter 7: Worksheet 1 • Pages 87–88 • (TG)			
Week 6	Day 71	Astronomy Chapter 4–7: Quiz 2 • Page 167–168 • (TG)			
	Day 72	Read Pages 48–55 • (AB)			
	Day 73	Stars Astronomy Chapter 8: Worksheet 1 • Pages 89–90 • (TG)			
	Day 74	Read Pages 56–59 • (AB)			
	Day 75	Extrasolar Planets Astronomy Chapter 9: Worksheet 1 • Pages 91–92 • (TG)			

Date	Day	Assignment	Due Date	✓	Grade
Week 7	Day 76	Read Pages 60–63 • (AB)			
	Day 77	Star Clusters and Nebulae Astronomy Chapter 10: Worksheet 1 • Pages 93–94 • (TG)			
	Day 78	Read Pages 64–70 • (NAB)			
	Day 79	Our Galaxy: The Milky Way Astronomy Chapter 11: Worksheet 1 • Pages 95–96 • (TG)			
	Day 80	Astronomy Chapter 8–11: Quiz 3 • Pages 169–170 • (TG)			
Week 8	Day 81	Read Pages 72–75 • (NAB)			
	Day 82	Light-Travel-Time Problem Astronomy Chapter 12: Worksheet 1 • Pages 97–98 • (TG)			
	Day 83	Read Pages 76–79 • (NAB)			
	Day 84	The Expanding Universe Astronomy Chapter 13: Worksheet 1 • Pages 99–100 • (TG)			
	Day 85	Read Pages 80–83 • (NAB)			
Week 9	Day 86	Quasars and Active Galaxies Astronomy Chapter 14: Worksheet 1 • Pages 101–102 • (TG)			
	Day 87	Read Pages 84–89 • (NAB)			
	Day 88	Cosmology Astronomy Chapter 15: Worksheet 1 • Pages 103–104 • (TG)			
	Day 89	Astronomy Chapter 12–15: Quiz 4 • Pages 171–172 • (TG)			
	Day 90	The New Astronomy Book Test • Pages 173–176 • (TG)			
		Mid-Term Grade			

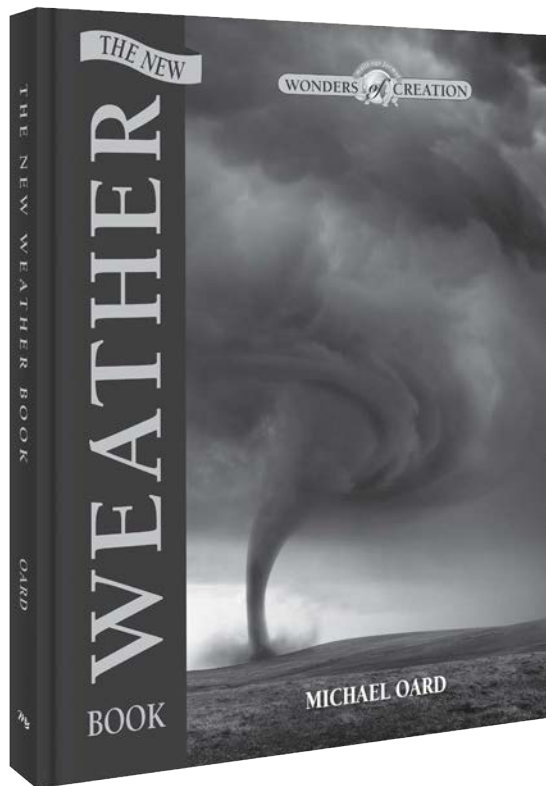
Second Semester Suggested Daily Schedule

Date	Day	Assignment	Due Date	✓	Grade
Second Semester-Third Quarter — <i>The Mineral Book</i>					
Week 1	Day 91	Read Pages 8–13 • <i>The Mineral Book</i> • (MB)			
	Day 92	Where Do We Find Minerals? Minerals Chapter 1: Worksheet 1 • Page 107 • Teacher Guide (TG)			
	Day 93	Read Pages 14–19 • (MB)			
	Day 94	Where Do We Find Minerals? Minerals Chapter 1: Worksheet 2 • Page 108 • (TG)			
	Day 95	Read Pages 20–24 • (MB)			
Week 2	Day 96	What is a Mineral? Minerals Chapter 2: Worksheet 1 • Page 109 • (TG)			
	Day 97	Read Pages 25–29 • (MB)			
	Day 98	What is a Mineral? Minerals Chapter 2: Worksheet 2 • Page 110 • (TG)			
	Day 99	Minerals Chapter 1–2 Quiz 1 • Pages 177–178 • (TG)			
	Day 100	Mineral Notebook Activity Worksheet • Pages 111–112 • (TG)			

Date	Day	Assignment	Due Date	✓	Grade
Week 3	Day 101	Read Pages 30–35 • (MB)			
	Day 102	How Do I Identify a Mineral? Minerals Chapter 3: Worksheet 1 • Page 113 • (TG)			
	Day 103	Read Pages 36–41 • (MB)			
	Day 104	How Do I Identify a Mineral? Minerals Chapter 3: Worksheet 2 • Page 114 • (TG)			
	Day 105	Read Pages 42–48 • (MB)			
Week 4	Day 106	Discovering the Minerals in the Bible Minerals Chapter 4: Worksheet 1 • Page 115 • (TG)			
	Day 107	Read Pages 49–55 • (MB)			
	Day 108	Discovering the Minerals in the Bible Minerals Chapter 4: Worksheet 2 • Page 116 • (TG)			
	Day 109	Continue adding to the Mineral Notebook Pages 111–112 • (TG)			
	Day 110	Minerals Chapter 3–4: Quiz 2 • Pages 179–180 • (TG)			
Week 5	Day 111	Read Pages 56–60 • (MB)			
	Day 112	A World of Valuable Minerals Minerals Chapter 5: Worksheet 1 • Page 117 • (TG)			
	Day 113	Read Pages 61–65 • (MB)			
	Day 114	A World of Valuable Minerals Minerals Chapter 5: Worksheet 2 • Page 118 • (TG)			
	Day 115	Read Pages 66–68 • (MB)			
Week 6	Day 116	Minerals and Creation Science Minerals Chapter 6: Worksheet 1 • Page 119 • (TG)			
	Day 117	Read Pages 69–71 • (MB)			
	Day 118	Minerals and Creation Science Minerals Chapter 6: Worksheet 2 • Page 120 • (TG)			
	Day 119	Continue adding to the Mineral Notebook Pages 111–112 • (TG)			
	Day 120	Minerals Chapters 5–6: Quiz 3 • Pages 181–182 • (TG)			
Week 7	Day 121	Read Pages 72–73 • (MB)			
	Day 122	Minerals and the Lordship of Jesus Minerals Chapter 7: Worksheet 1 • Page 121 • (TG)			
	Day 123	Read Pages 74–77 • (MB)			
	Day 124	Minerals and the Lordship of Jesus Minerals Chapter 7: Worksheet 2 • Page 122 • (TG)			
	Day 125	Read Pages 78–81 • (MB)			

Date	Day	Assignment	Due Date	✓	Grade
Week 8	Day 126	Building a Mineral Collection Minerals Chapter 8: Worksheet 1 • Page 123 • (TG)			
	Day 127	Read Pages 82–89 • (MB)			
	Day 128	Building a Mineral Collection Minerals Chapter 8: Worksheet 2 • Page 124 • (TG)			
	Day 129	Read and Study Bible References for Minerals and Metals Pages 90–91 • (MB)			
	Day 130	Bible References for Minerals and Metals Worksheet 1 • Page 125 • (TG)			
Week 9	Day 131	Read and Study the Periodic Table of the Elements Page 92 • (MB)			
	Day 132	Periodic Table of the Elements Worksheet 1 • Pages 126–127 • (TG)			
	Day 133	Continue adding to the Mineral Notebook Pages 111–112 • (TG)			
	Day 134	Minerals Chapter 7–8: Quiz 4 • Pages 183–184 • (TG)			
	Day 135	The Mineral Book Test • Pages 185–187 • (TG)			
Second Semester-Fourth Quarter — <i>The New Ocean Book</i>					
Week 1	Day 136	Read Pages 6–9 • <i>The New Ocean Book</i> • (NOB)			
	Day 137	Introduction to the Oceans • Ocean Chapter 1: Worksheet 1 Page 131 • Teacher Guide • (TG)			
	Day 138	Read Pages 10–11 • (NOB)			
	Day 139	Research and the Deep Oceans Ocean Chapter 2: Worksheet 1 • Page 132 • (TG)			
	Day 140	Read Pages 12–13 • (NOB)			
Week 2	Day 141	Research and the Deep Oceans Ocean Chapter 2: Worksheet 2 • Page 133 • (TG)			
	Day 142	Read Pages 14–17 • (NOB)			
	Day 143	Physical Characteristics of the Ocean Ocean Chapter 3: Worksheet 1 • Page 134 • (TG)			
	Day 144	Read Pages 18–21 • (NOB)			
	Day 145	Physical Characteristics of the Ocean Ocean Chapter 3: Worksheet 2 • Page 135 • (TG)			
Week 3	Day 146	Ocean Chapter 1–3: Quiz 1 • Pages 189–190 • (TG)			
	Day 147	Read Pages 22–25 • (NOB)			
	Day 148	Composition of the Oceans' Waters Ocean Chapter 4: Worksheet 1 • Page 136 • (TG)			
	Day 149	Read Pages 26–29 • (NOB)			
	Day 150	Composition of the Oceans' Waters Ocean Chapter 4: Worksheet 2 • Page 137 • (TG)			

Date	Day	Assignment	Due Date	✓	Grade
Week 4	Day 151	Read Pages 30–35 • (NOB)			
	Day 152	Tides, Waves, and Currents Ocean Chapter 5: Worksheet 1 • Page 138 • (TG)			
	Day 153	Read Pages 36–41 • (NOB)			
	Day 154	Tides, Waves, and Currents Ocean Chapter 5: Worksheet 2 • Page 139 • (TG)			
	Day 155	Read Pages 42–47 • (NOB)			
Week 5	Day 156	Weather Ocean Chapter 6: Worksheet 1 • Page 140 • (TG)			
	Day 157	Ocean Chapter 4–6 Quiz 2 • Pages 191–192 • (TG)			
	Day 158	Read Pages 48–53 • (NOB)			
	Day 159	Harvesting the Ocean Ocean Chapter 7: Worksheet 1 • Page 141 • (TG)			
	Day 160	Read Pages 54–57 • (NOB)			
Week 6	Day 161	Harvesting the Ocean Ocean Chapter 7: Worksheet 2 • Page 142 • (TG)			
	Day 162	Read Pages 58–61 • (NOB)			
	Day 163	Marine Life Ocean Chapter 8: Worksheet 1 • Page 143 • (TG)			
	Day 164	Read Pages 62–65 • (NOB)			
	Day 165	Marine Life Ocean Chapter 8: Worksheet 2 • Page 144 • (TG)			
Week 7	Day 166	Read Pages 66–71 • (NOB)			
	Day 167	Marine Life Ocean Chapter 8: Worksheet 3 • Page 145 • (TG)			
	Day 168	Read Pages 72–77 • (NOB)			
	Day 169	Exploring the Coral Reef Ocean Chapter 9: Worksheet 1 • Page 146 • (TG)			
	Day 170	Ocean Chapter 7–9 Quiz 3 • Pages 193–194 • (TG)			
Week 8	Day 171	Read Pages 78–81 • (NOB)			
	Day 172	Ocean Vessels & Exploration Ocean Chapter 10: Worksheet 1 • Page 147 • (TG)			
	Day 173	Read Pages 82–85 • (NOB)			
	Day 174	Ocean Vessels & Exploration Ocean Chapter 10: Worksheet 2 • Page 148 • (TG)			
	Day 175	Read Pages 86–89 • (NOB)			
Week 9	Day 176	The Genesis Flood Ocean Chapter 11: Worksheet 1 • Page 149 • (TG)			
	Day 177	Read Pages 90–93 • (NOB)			
	Day 178	The Genesis Flood Ocean Chapter 11: Worksheet 2 • Page 150 • (TG)			
	Day 179	Ocean Chapter 10–11: Quiz 4 • Pages 195–196 • (TG)			
	Day 180	The New Ocean Book Test • Pages 197–198 • (TG)			
		Final Grade			



Meteorology Worksheets
for Use with
The New Weather Book



Words to Know (Definitions can be found in the Glossary in the back of this Teacher Guide.)

atmosphere

axis

carbon dioxide

climate

latitudes

nitrogen

oxygen

tide

Short Answer

1. How did Adam and Eve's first sin affect the weather?

2. Why can humans predict the weather?

3. Explain how weather affects your life.

4. Explain the anthropic principle in relation to the following terms:
 - a. Tides:

 - b. Seasons:

 - c. Temperature:

 - d. Atmosphere:



Words to Know

arid

barometer

condensation

dew point

Doppler radar

Short Answer, Fill in the Blank, and True or False

1. _____ is the momentary condition of the air.
2. Weather is composed of eight components. What are they?
 - a.
 - b.
 - c.
 - d.
 - e.
 - f.
 - g.
 - h.
3. Why is the sun called the weather engine?
4. _____ act like a blanket to keep the earth warmer at night.

5. What causes the earth's winds?
6. Describe what causes the Coriolis Force.
7. True or False: The Coriolis force moves in a clockwise rotation.
8. What causes the jet stream?

Activity

Sketch a picture of the globe and jet streams on page 11 of *The New Weather Book*. Be sure to label the jet streams and the equator.



Words to Know

equator

low-pressure system

ice cap

meteorologist

precipitation

weather balloon

Short Answer and Fill in the Blank

1. Where are storms usually found?

2. Give the memory tip to tell the difference between a cold and warm front.

3. Give two types of weather observations and how they are taken.
 - a.

 - b.

4. Draw and label the four types of weather fronts.
 - a.

 - b.

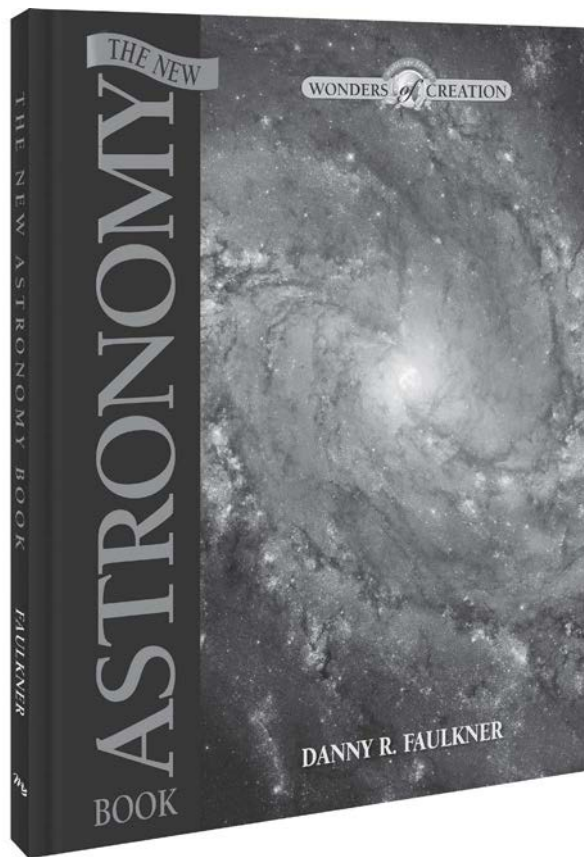
 - c.

 - d.

5. Why are weather forecasts sometimes incorrect?
6. Explain how general circulation causes climate.
7. What is the general circulation?
8. The earth has a total of _____ average circulations.

Activities (Note: Always ask a parent or teacher before using the Internet for research.)

1. Write a report on your weather. Describe the climate and features of the area that you live in and what affects your weather. (You may want to contact a local station and ask if you can interview a weather person.)
2. Write a report on the history of meteorology.
3. Write a report on NOAA. Describe what NOAA does, including the various components.
4. Produce a weather show detailing weather extremes and strange facts. (You may use information found on pages 18–19 of *The New Weather Book*, but be sure to find some of your own.) Make it fun. Gather your friends and family to listen to your television show! Hint: Write notes on note cards as reminders of facts you want to give.



Astronomy Worksheets
for Use with
The New Astronomy Book

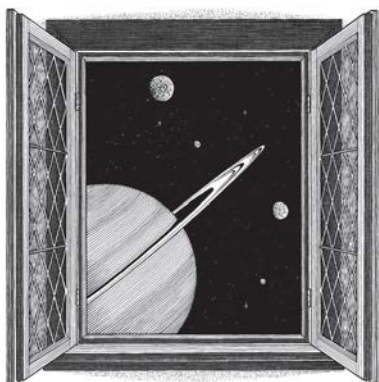
Special Course Activity Options

(NOTE: These can be done in combination with or rather than activities on each worksheet as noted on the daily schedule.) All project options will have the opportunity to score 100 points for their selected project. NASA, creation ministries, and libraries can be important sources of information for the projects of choice. Please be aware when searching other space-related sites that most do not include a biblical worldview.

Project notebook: This is a way to record results from the various suggested activities on *The New Astronomy Book* worksheets. NOTE: Grading should be based on the quality of research, coherence of presentation, good essay structure, and attribution of sources used.

Creative or Conceptual Projects: Artistic or engineering-focused; these are projects that include drawing or conceptualizing based on limited information. Could include various forms, for example:

- Drawing a series of images of imaginative colonies and facilities on the moon or Mars, ship designs that consider use of alternative renewable energy sources as fuel, exploration of potential commercial aspects of space-related activities.
- Student may choose to incorporate space-themed selections as part of a separate art course, or choose to imagine and draw structures, buildings, or dwellings related to space travel or colonization. (For example: imagine and draw a space library with no printed books, or greenhouses on Mars.)
- Younger students may want to fashion a children's story that they write and illustrate related to travel and study on another planet. Or they may do simple drawings.



Historical

- History of man's race to space
- The story of NASA's formation and operations
- A landmark space-related achievement
- Development of telescopes or other technology aiding in man's study of stars

Cultural

- Which countries have achieved reaching space and why? Why have some not?
- What areas of possible dispute arise in terms of the space race (i.e., military functions, claiming of resources, potential monopolies by one or a small number of countries)?

Scientific

- Write an 8- to 10-page biography of a scientist, astronomer, or astronaut mentioned in the book
- Discuss any theory noted in the book or related to space exploration or understanding the universe

Futuristic

- Imagine how a space-based governing body would function when the focus is no longer on individual countries or planets.
- What are the biggest challenges of manned exploration in distant space, and what solutions can you imagine to solve them?
- What viable reasons can you discuss that would justify spending vast amounts of money to colonize other areas of space or seek possible life in other places in space despite having no evidence that it exists, especially with the challenges already facing mankind on earth?



Words to Know

comet

astronomy

astronomical

spectroscopy

astrophysics

Short Answer

Read Genesis 1:14-19 in your Bible to help you answer the following questions.

1. According to verses 14–15, what were the three purposes of stars?
2. What were the two great lights — the one that governs the day and the one that governs the night?
3. Verses 17–18 echo which of the other verses in the passage?
4. In verse 18, how does God describe this part of creation?
5. On what day of the creation week did these events occur?

Activity

Take a look at the night sky!

Go out this evening just after dark. Mark your position on this drawing in relation to your house or a tree, and then draw in the moon and the constellations you recognize. Wait a few moments for your eyes to get used to the dark, and then note three other things that catch your attention in the night sky.

Hint! You can go to the following link: <http://nightsky.jpl.nasa.gov/planner.cfm>. You will find some helpful information and other links — including information on how clear it will be for night viewing and even a link for a site that allows you to download monthly evening sky maps for free. There are also free apps that help you identify what you see in the night sky.

You can also use the charts on pages 90 and 91 in your student book to help identify constellations.





Words to Know

constellations

axis

celestial

circumpolar

revolution period

pagan

retrograde motion

Short Answer

1. Describe how stars move in the north near the North Pole.
2. How do circumpolar stars move in the Southern Hemisphere, and does the South Pole have a main star like Polaris is in the north?
3. Is Orion a winter or summer constellation in the Northern Hemisphere? Which would it be in the Southern Hemisphere?
4. What is a NEO? Can you give a recent example of a NEO that was mentioned on the news?
5. Is the study of the constellations a result of discoveries by modern science and space probes?
6. Which has the faster orbit cycle, the moon or the sun?

7. How long is the revolution of the sun? How long is the revolution of the moon?
8. Is rotation or revolution the circular motion around an axis that passes through the center of a body, such as a planet or moon?
9. List the five planets that appear as bright as stars in the sky.
 - a.
 - b.
 - c.
 - d.
 - e.
10. The light of which two planets is too faint to be seen with the naked eye, and was not discovered until the invention of telescopes?

Activity

Try to create a model out of things readily available in your home that will allow you to demonstrate retrograde motion. Remember, you can be as creative as you want to be, but it doesn't have to be a costly activity. For example, it could be done with balls, marbles, or even small rocks. Use chalk on a piece of cardboard to trace the path of objects and demonstrate retrograde motion.



Words to Know

unmanned

lunar

maria

highlands

asteroids

impact basins

bombardment

Short Answer

1. Compared to earth, how large is the moon?
2. What is the radius of the moon's orbit in miles?
3. Name one of three NASA space programs that focused on developing manned spaceflight.
4. What landmark of human achievements in space occurred on July 20, 1969?
5. What is synchronous orbit? Does the earth or the moon exhibit this orbit?
6. Who was the first person to see craters on the moon?
7. What two theories were debated in trying to explain the craters on the moon?

8. Why are some areas of the moon's surface darker than others?
9. How do evolutionists use EHB and LHB to explain the moon?
10. How does the moon produce light?

Activity

Find a calendar that marks the phases of the moon. Highlight the following moon phases on this calendar, marking up six different months:

First Quarter

Gibbous

Waxing Gibbous

Full Moon

Waning Gibbous

Third Quarter

New Moon

Discover if the phases always land on the same days of the month. Is there a set number of days between the same phases in consecutive months? Is there a set number of days between each of the various phases within a given month?



Fill in the Blank

Fill in the missing words in the paragraph below using the words from this list:

sun high full lunar spring tide
difference neap tide quarter small

The _____ also produces tides, but because it is so much farther away than the moon, its tides aren't nearly as high. At new and _____ moon, both _____ and solar tides work together, and we say that this is _____. This name refers to how much the tides leap from very low levels at low tide to very high levels at high tide. On the other hand, at the _____ phases, the lunar and solar tides compete. This is a _____, and low tide is large, but the _____ between high and low tide is _____ at neap tide.

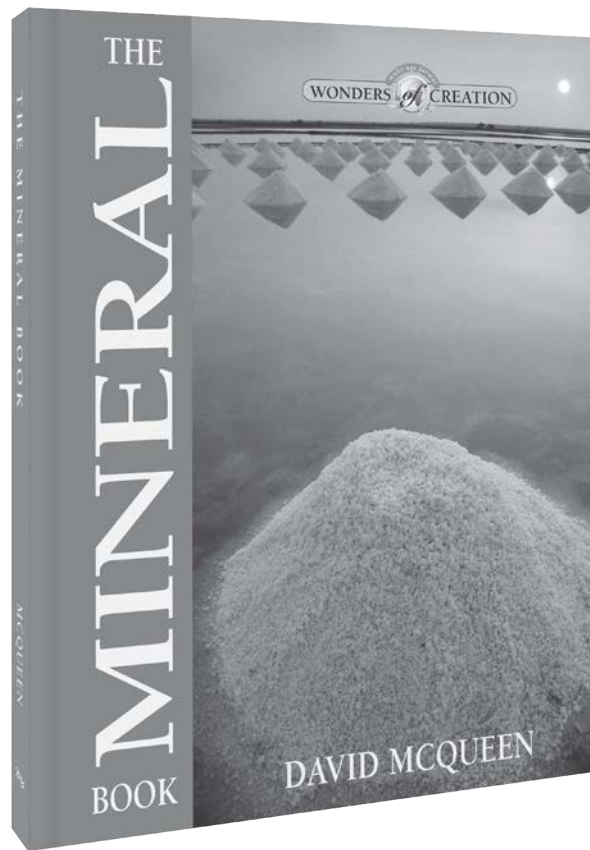
Short Answer

1. How does gravity from both the moon and the earth impact one another?
2. Is the moon's gravity pull on earth evenly distributed?
3. What is a lunar eclipse?
4. What is the only time a lunar eclipse can occur, and why?
5. What is the other name for the earth's shadow?
6. What clues helped lead ancient astronomers to realize that the earth was round?

7. Did the early church or Christians really teach that the world was flat?
8. During total solar eclipses, what are the corona and the prominences?
9. Why do the sun and the moon appear to be the same size during a solar eclipse?
10. What is the shape of the moon's orbit?

Activities

1. In a short, one-page essay, explain how the sun and the moon and stars help to mark the passage of time.
2. Go to the library and see if you can find a book about astronauts Neil Armstrong, Buzz Aldrin, or Michael Collins. See if you can discover the training they had to undergo in order to become astronauts. Imagine space travel today with all of the amazing technological advances. What kinds of skills do you think you would need in order to become an astronaut today? Write down five possible skills you feel would be needed. Visit www.nasa.gov and search for astronaut training to see if any of your guesses are part of the program!



Mineralogy Worksheets

for Use with

The Mineral Book



Words to Know

rare minerals

chemical interactions

native mineral

evaporation

deep-shaft mining

solution mining

Short Answer

1. How many minerals are there estimated to be in the world?
2. What was salt used for in 2 Chronicles?
3. Where is the largest salt mine in the United States? The world?
4. Why does solution mining (or salt panning) take a toll on the health of the workers?
5. Name the seven minerals we benefit from in a typical morning.

Activities (Note: Always ask a parent for permission to use the internet for research.)

1. Write a report on the how the “Scarlet Thread” winds it way through Scripture. With a parent’s permission, research the work done by Dr. W. A. Criswell. Use both your research and the Bible to write your report.
2. Make a list of minerals that remind you of teachings in the Bible. You may start with the the three given on page 9.



Short Answer

1. How do we get the minerals our bodies need?
2. Write out Romans 1:20 and memorize it.
3. Write out Hebrews 11:6 and memorize it.
4. What are the three types of rocks, and when were they formed?
5. Name the three types of breaker boys and what their job was.
6. What kinds of expenses go into operating a mineral mine?
7. What kind of rock did Michelangelo use to sculpt his figure of Moses?
8. What kinds of minerals have been used to create lasting color in paints for artwork?

Activities (Note: Always ask a parent for permission to use the internet for research.)

1. Create a chart that shows the minerals our body needs listed on page 14. Include the kinds of food that contain the minerals we need. Record what you eat for a week. Check off each kind of food you eat that contains the minerals your body needs.
2. Write a report on what can happen when we are missing a needed mineral in our diet.
3. Write a report on rare minerals.
4. Write a report on the working conditions of breaker boys.
5. Write a report on the types of equipment and vehicles modern mining operations use.
6. Compare the definitions of minerals from three mineral or geology books in your library or from online sources. If you can, obtain a copy of *The Geology Book* and read chapter 8. Note the differences between secular sources and Christian sources.



Words to Know

geodes

Johannes Gutenberg (1395–1468)

cuprous

cupric

compounds

inorganic

valence

Short Answer

1. What does Exodus 28:15 say amethyst was used for?
2. Explain how geodes are formed.
3. How can we be more extraordinary than a geode?
4. What does it mean to subdue the earth according to God's command, and how does it apply to minerals?
5. What gift was given to the United States by France that is completely covered in copper?

Activities (Note: Always ask a parent for permission to use the internet for research.)

1. Look in your house for pennies older than 1983. After 1982, pennies have actually been copper-plated zinc coins, which are cheaper to produce. How many did you find?
2. Write a report on the many uses of copper. Describe the attributes of copper that make it so useful.



Short Answer and Fill in the Blank

1. What metal did Johannes Gutenberg use to construct a printing press?
2. Name the five foundations the book has given to define a mineral.
3. What terms should we be aware of and why?
4. What are the six basic types of crystal structure?
5. List 5 things that indicate something is not a mineral.
6. _____ make up a rock just as _____ make up a brick wall, in a great variety of _____.
7. What mineral is the metal tungsten refined from?
8. Write out Philippians 4:19 and memorize it.

Activities (Note: Always ask a parent for permission to use the internet for research.)

1. Do a word search on copper in the Bible. How many times is it used? Is copper (or brass or bronze) mentioned more in the Old Testament than the New? What is the Greek word for copper? The Hebrew? Try using various versions to see if copper is used more often by certain translators.
2. Write a report on the many uses of tungsten. Describe the attributes of tungsten that make it so useful.



Create a Mineral Notebook!

Create a Mineral Notebook!

- ✓ You will need a 3-ring binder.
- ✓ Make at least 10 copies of the next page. Make as many as you will need to study the minerals you are interested in. 3-hole punch them and put them into your binder.
- ✓ You may also want to use divider pages with tabs to make it easier to find certain minerals.
- ✓ Go to page 21. Complete your first mineral page using the information given here on the amethyst. Write the name on the page. Draw or print out a picture of the mineral, then fill out the mineral identification information. Write about the mineral, and include a fun fact. Find and copy a Bible verse about the mineral.
- ✓ Continue to fill out a new mineral page each time you come to a new one in the book.
- ✓ Fill out a new mineral page for any mineral you are interested in studying.

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[illegible]

MINERAL FOCUS

CHEMICAL FORMULA

CRYSTAL SYSTEM

HARDNESS

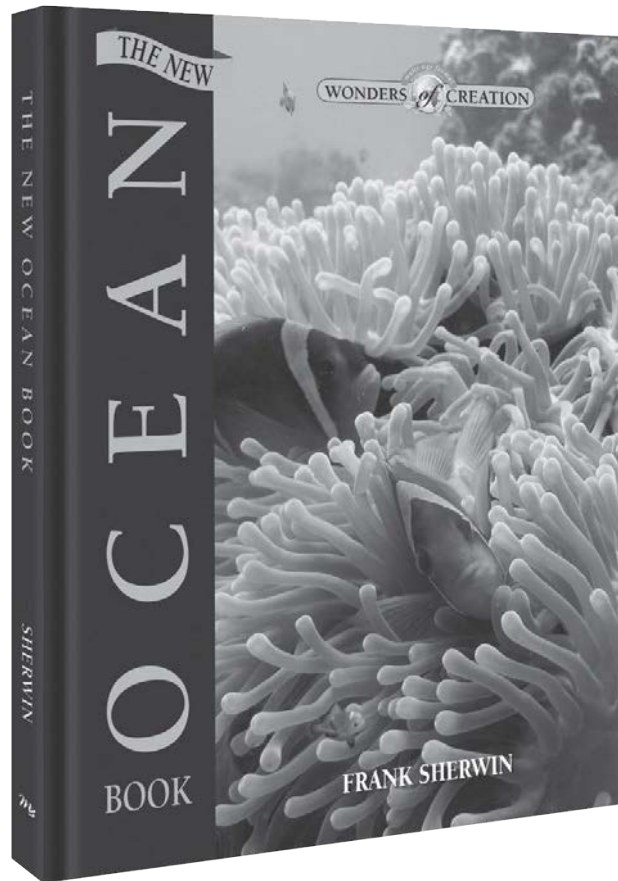
LUSTER

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STREAK

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Oceanography Worksheets
for Use with
The New Ocean Book



Words to Know

photosynthetic organisms

Ring of Fire

Short Answer

1. What is Earth's nickname?
2. Describe the size of the Earth's oceans.
3. What do oceans help regulate?
4. Name the two things that each provide half our atmosphere's oxygen.
5. Write out Nehemiah 9:6 and commit it to memory.
6. How much of the American population live within fifty miles of the coast of an ocean?
7. Name the five distinct oceans that scientists recognize in order of size.

Activities (Note: Always ask a parent for permission to use the internet for research.)

1. Write a report on the how the ocean gets its varieties of color.
2. Write a report on the effects the ocean has on our weather.
3. Write a report on what we know about the bottom of the ocean.
4. Draw a map as shown on page 9. Research the trade routes and draw them on the map. Continue to add new information you learn in this course to your map.



Words to Know

oceanography

meteorology

Short Answer and Fill in the Blank

1. Name diverse fields studied as part of oceanography, or marine science.
2. What disciplines should a good oceanographer be knowledgeable in?
3. What ship set out for England to conduct the first expedition devoted to oceanographic research? When did it set off? How long was the expedition to last?
4. What belief held by Professor Edward Forbes was proven wrong by the HMS *Challenger* scientists?
5. There has been more exploration of the ocean bottom since _____ than in all the rest of recorded history.
6. What does the book of Genesis say about water?

Activities (Note: Always ask a parent for permission to use the internet for research.)

1. Research the various fields in oceanography. Write a report on one of them. Include a job description and how it benefits mankind. Discuss what people are learning about the ocean through the study of the field you have chosen.
2. Write a report on the expedition of the HMS *Challenger*. Discuss some of the discoveries made on this voyage.
3. Write a report on the Mindanao Trench. Include the information we have learned about this area through technology.



Short Answer and Fill in the Blank

1. What did the Deep Sea Drilling Project do?
2. How and where are the core samples stored?
3. What was the main emphasis of oceanography in the mid-90s?
4. What have scientists used to determine where to penetrate the sea floor with drill holes tens-of-thousands of feet deep?
5. In 2012 the deepest drilling to date was conducted by R/V Chikyu, a vessel of the International Ocean Drilling Program. The borehole went to an amazing depth of _____ feet.

Multiple Choice

 Match the areas of study to each branch of oceanography.

- | | |
|--------------------------|--------------------------------|
| a. Marine Biology | b. Marine Geology & Geophysics |
| c. Physical Oceanography | d. Chemical Oceanography |
6. _____ the study of the chemical composition of seawater and material in suspension, the nature of dissolved gases and solids, chemical cycles like the carbon cycle, the acidity of seawater in relationship to the ocean bottom and the atmosphere
 7. _____ the application of the scientific method to the ocean's animal and plant life
 8. _____ the study of the physical features of the ocean's water, such as temperature, density, waves, currents, tides, sea ice, air-sea interaction, the ability to transmit sound and light
 9. _____ the study of the nature and physics of the ocean's solid structure, including all aspects of the continental slopes and shelves and the ocean basins

Activities

 (Note: Always ask a parent for permission to use the internet for research.)

1. Write a report on why and how we should care for our oceans. Include scriptural reasons why we should care about our oceans. Include specific things we can do to keep oceans healthy and why it matters.
2. Write a report on one of the areas of oceanographic research disciplines (on page 13) and how it helps us to understand God's creation.

Quizzes & Tests Section



Define: (5 Points Each Answer)

1. climate: _____

2. nitrogen: _____

3. oxygen: _____

4. precipitation: _____

5. cirrus clouds: _____

6. cold front: _____

7. evaporation: _____

8. stratus clouds: _____

9. warm front: _____

10. water vapor: _____

Short Answer: (5 Points Each Question)

1. How did Adam and Eve's first sin affect the weather?
2. Why can humans predict the weather?
3. Why is the sun called the weather engine?

4. Draw and label the four types of weather fronts.
5. Why are weather forecasts sometimes incorrect?
6. Explain how general circulation causes climate.
7. Describe the water cycle.
8. Which two cloud classifications are made of only water drops?
9. Describe the differences between warm fronts and cold fronts.
10. What is the most common way for fog to form?



Match Vocabulary Words with Definitions: (5 Points Each Answer)

- | | |
|----------------------------|----------------------------|
| 1. _____ Continental shelf | 5. _____ Uniformitarianism |
| 2. _____ Continental slope | 6. _____ Vertebrates |
| 3. _____ Glaciers | 7. _____ Catastrophism |
| 4. _____ Icebergs | 8. _____ Circumnavigation |
-
- a. Begins at the edge of the continental shelf and reaches into the ocean's greater depth.
 - b. Massive floating chunks of frozen fresh water that have originated from fallen snow and have broken off an ice sheet or glacier.
 - c. The submerged land adjacent to a continent.
 - d. The philosophy about the past, which allows for totally different processes and/or different process rates, scales, and intensities than those operating today. Includes the idea that processes such as creation and dynamic global flooding have shaped the entire planet.
 - e. The philosophy about the past that assumes no past events of a different nature than those possible today, and/or operating at rates, scales, and intensities far greater than those operating today. The slogan "the present is the key to the past" characterizes this idea.
 - f. To make a voyage around the world.
 - g. Great masses of snow turned to ice that flow like a large frozen river and move slowly and steadily downhill.
 - h. Animals with a backbone.

Short Answer: (5 Points Each Answer)

1. What do oceans help regulate?

2. Write out Nehemiah 9:6.

3. Name the five distinct oceans that scientists recognize in order of size.

4. What is the best known and most intensively studied current?

5. What caused the death of seemingly healthy squid in July 2002?
6. Hurricanes form over a warm sea surface and require very high air humidity and a force to start the wind spiraling. What provides the force?
7. What is the fastest growing source of the world's energy?
8. What do toothed whales use to search for food?
9. What is said to be “the largest biological construction on the planet”?
10. Write out Genesis 7:19.
11. How many tribes and nations on Earth have retained some type of tradition or a variation of the account of the Flood at the beginning of their history?
12. How long ago was the Genesis Flood?

Answer Keys

The Weather Book —● Worksheet Answer Keys

God Created

Chapter 1 Worksheet 1

atmosphere — the body of gasses that surround the earth.

axis — an imaginary straight line through the center of the earth on which it rotates

carbon dioxide — a colorless, odorless gas formed during respiration, combustion, and organic decomposition

climate — the weather conditions that are particular to a certain area, such as wind, precipitation, and temperature.

latitudes — the distance north or south of the equator measured with imaginary lines on a map or globe

nitrogen — a naturally occurring element that is responsible for around four-fifths of the earth's atmosphere

oxygen — a colorless, odorless gas that is 21 percent of our atmosphere essential for plant and animal respiration

tide — a raising and lowering of the water in the oceans and seas caused by the gravitational pull of the moon. The sun causes some, but to a lesser degree.

1. When Adam and Eve disobeyed God's commands, they allowed evil to enter the world. Bad weather is a result of the presence of sin in the world.
2. God created the world with a perfect design and order, which allows us to predict hours of daylight, seasons, and weather.
3. Answers will vary.
4.
 - a. Tides: God placed the moon at exactly the right distance to maintain oceanic tides, which prevent flooding and pollution.
 - b. Seasons: God tilted the earth's axis; the earth's tilt and rotation creates seasons.
 - c. Temperature: God created just the right amount of gasses in the air to make sure the earth isn't too hot or too cold.

- d. Atmosphere: God created an atmosphere around the earth that shields it from harmful rays and meteors

What Causes Weather

Chapter 2 Worksheet 1

arid — a dry climate lacking moisture

barometer — a weather instrument used to measure the pressure of the atmosphere

condensation — the act of water vapor changing from a gas to a liquid

dew point — the temperature at which air becomes saturated and dew forms

Doppler radar — a special type of radar used to track severe weather by detecting wind speed and direction

1. weather
2.
 - a. temperature; b. precipitation; c. wind direction and speed; d. visibility; e. water vapor in the air; f. air pressure; g. cloud conditions; h. air quality
3. The sun is responsible for differences in heating around the earth. At night, infrared radiation cools the earth, and the sunrise warms the earth during the day.
4. Clouds
5. The difference between daytime sunshine and nighttime infrared cooling causes temperature differences between the tropics and polar latitudes. These temperature differences cause air pressure changes, which push the earth's winds.
6. Because of the earth spinning on its axis, air flow in the atmosphere is more complicated. The spin causes air to move to the right in the Northern Hemisphere and to the left in the Southern Hemisphere. This deflecting force on the air is called the Coriolis force.
7. False; the Coriolis force moves in a counterclockwise rotation
8. The jet stream is caused by the difference in temperature between the tropical and polar latitudes.

What Causes Weather

Chapter 2 Worksheet 2

equator — an imaginary line dividing the Northern and Southern Hemispheres

low-pressure system — Warm, moist air that usually brings storms with strong winds. The air spirals counter-clockwise around a low center in the Northern Hemisphere and clockwise in the Southern Hemisphere. Because the air is spiraling toward the center of the low, it is forced upward, forming clouds and precipitation.

ice cap — an extensive covering of ice and snow

meteorologist — a person who interprets scientific data and forecasts the weather

precipitation — falling moisture in the form of rain, sleet, snow, hail, or drizzle

weather balloon — a balloon used to carry weather instruments into the atmosphere to gather data

1. The storm is usually found below the southwest wind of the jet stream.
2. Think of the triangles as icicles and the semicircles as blisters.
3. Surface Observation — Each weather station takes measurements of temperature, dew point, clouds, precipitation, pressure, and wind speed and direction.

Upper Air Observation — This is done by weather balloons and taken twice a day, at noon and midnight Greenwich time in England.
4. Cold front: line with triangles. Warm front: line with semicircles. Stationary front: line with triangles on top and semicircles on the bottom. Occluded front: line with alternating triangles and semicircles on top
5. Meteorologists can only interpret weather maps created by computers, which are not perfect. Despite all the tools they have, meteorologists do not have a complete understanding of the earth and its atmosphere.
6. The general circulation is the average flow of air in various locations. The earth has six average circulations, which determines the climate in different areas.

7. The differences in heating across the earth and the weather cause an average flow of air called the general circulation.
8. six

Water in the Atmosphere

Chapter 3 Worksheet 1

cirrus clouds — a high altitude cloud made of ice crystals that appears thin, white, and feathery

cold front — a boundary of cold air, usually moving from the north or west, which is displacing the warm air

convection clouds — clouds that occur in a rising up-draft, usually when the sun's radiation warms the earth. This causes the water vapor to condense.

evaporation — to change into a vapor such as the evaporation of water by the warming of the sun

fog — clouds that form on the surface of the ground

humid — a weather condition containing a large amount of moisture or water vapor

1. About half of it comes from plants, wet ground, rivers, and lakes. The other half of our precipitation on land is evaporated from the ocean.
2. Rain falls from clouds in the sky and runoff goes into bodies of water that eventually go to the oceans. Water in the ocean evaporates into the atmosphere, where it turns into precipitation. Some water soaks deep into the ground, creating the water table.
3. True
4. The age of the ocean is more like thousands of years rather than millions of years.
5. a. Cumulus; b. Stratus; c. Cirrus
6. Stratus and cumulus

Water in the Atmosphere

Chapter 3 Worksheet 2

relative humidity — the amount of water vapor in the air compared to the amount of

The New Astronomy Book — Worksheet Answer Keys

What is Astronomy?

Introduction Worksheet 1

comet — small bodies in space that contain frozen dust, gases, and even rocks that have orbits of their own; made up of a nucleus, often with a trail of particles and dust that follows it

astronomy — the study of heavenly bodies, things outside of the earth, including the sun, moon, and stars

astronomical — part of or related to aspects within astronomy; also used to describe extremely large distances or amounts

spectroscopy — the study of spectra

astrophysics — the application of modern physics to the study of astronomy

1. To separate night and day; signs to mark sacred times, days, and years; to give light on the earth
2. Sun for the day, moon for the night
3. Verses 14–15
4. As being good
5. Day three

The Night Sky

Chapter 1 Worksheet 1

constellations — a group of stars that seems to form a pattern or shape

axis — an imaginary line, vertical and horizontal, around which a planet or other body rotates

celestial — a reference term related to the universe and objects within it

circumpolar — means “around the pole,” referring to stars that from a given location neither rise nor set but appear to circle the pole

revolution period — the length of time it takes a body in space to complete an orbit around another object; for example, the earth around the sun.

pagan — refers to ancient cultures that were not based on Christianity, Islam, or Judaism

retrograde motion — when a planet appears to move east to west with respect to the stars, opposite from its normal motion

1. They don't rise or set, but instead move in a counterclockwise circle.
2. They appear to move clockwise around the south celestial pole; no, it does not.
3. Winter; summer
4. A NEO is a near earth object. NEOs include comets and asteroids close to earth; answers will vary.
5. No. Study of them can be traced back to ancient civilizations like Egypt, Greece, and Babylon.
6. The moon
7. A year; one month
8. Rotation
9. a. Mercury
b. Venus
c. Mars
d. Jupiter
e. Saturn
10. Uranus and Neptune

The Moon

Chapter 2 Worksheet 1

unmanned — refers to missions or spacecraft that do not have humans onboard to operate them in space

lunar — referring to features and aspects related to and upon the moon

maria — Latin for “seas”; refers to the darker areas of the moon's surface, at lower elevations; so called because astronomers once thought they might be bodies of water

highlands — areas of the craters on the surface of the moon that appear lighter and are at a high elevation

asteroids — considered to be minor planets, especially if located in the inner region of our solar system

impact basins — refers to large, round, dark features on the surface of the moon, created by impacts of large space objects of some kind

bombardment — when an object in space, like the moon, has been struck by many other objects (comets, meteors, etc.) in space

1. One-fourth the earth's diameter and containing only a little more than 1 percent of the mass of the earth.
2. 240,000 miles
3. Mercury, Gemini, and Apollo
4. The first manned lunar landing of Apollo 11
5. When an object in space rotates on its axis at the same rate that it revolves around another body, like a planet; the moon
6. Galileo
7. Volcanic activity or impacts
8. This is because some portions of the moon reflect light better than other portions. The lighter portions of the moon are made of rock similar to granite, while the darker areas are made of rock similar to basalt. Granite and basalt are common rocks on earth. Granite usually is lighter than basalt.
9. They are periods of bombardment thought to have occurred over a long period of time to create the features of the moon that we see today.
10. It doesn't. It reflects light it gets from the sun.

The Moon

Chapter 2 Worksheet 2

The sun also produces tides, but because it is so much farther away than the moon, its tides aren't nearly as high. At new and full moon, both lunar and solar tides work together, and we say that this is spring tide. This name refers to how much the tides leap from very low levels at low tide to very high levels at high tide. On the other hand, at the quarter phases, the lunar and solar tides compete. This is a neap tide, and low tide is large, but the difference between high and low tide is small at neap tide.

1. The earth's gravity pulls on the moon, causing the moon to orbit the earth. But the moon's gravity also pulls on the earth and even alters its shape a little. The moon's gravity also impacts the ocean tides.
2. No. The moon's gravity pulls on the side of the earth facing the moon (sublunar) more than it pulls on the earth's center. And the moon's gravity pulls on the earth's center more than it pulls on the side of the earth away from the moon (antipodal). This differential force of the moon's gravity stretches the earth.
3. This is when the earth's shadow falls on the moon.
4. They can only happen when the moon is full, and the earth's shadow actually falls on the moon, not above or below as it normally does.
5. Umbra
6. They knew the earth's shadow caused lunar eclipses, and that it was always circular. They also realized that only a sphere casts a circular shadow.
7. No, this is a myth.
8. The corona is the outermost layer of the sun; prominences are loops of gas that follow the sun's magnetic fields.
9. The sun is 400 times larger, but it is also 400 times farther away, giving the illusion of it being the same size as the moon.
10. An ellipse

The Solar System

Chapter 3 Worksheet 1

satellites — another word to describe moons that orbit planets

planet — a large celestial body that is orbiting around a star

minor planets — another name preferred by astronomers and given to bodies orbiting the sun that are also called asteroids, smaller than planets

nucleus — the center portion of a comet, usually made of ice and dust

The Mineral Book — Worksheet Answer Keys

Where Do We Find Minerals

Chapter 1 Worksheet 1

rare minerals — Those minerals that are more uncommon, generally more valuable, and often harder to gather because of the process involved.

chemical interactions — The reaction that occurs when two or more chemicals are combined.

native mineral — A native element (or mineral) you pick up that looks like a rock, but is actually a mineral composed mostly of a metal.

evaporation — In drier coastal climates, near salty sea water or salt lakes, salt water is directed into shallow pools, where the wind and sun help evaporate the water and leave behind the salt.

deep-shaft mining — Much like regular mining for minerals like zinc and copper, this involves drilling shafts into the earth where salt deposits are found, crushing the salt, and bringing it to the surface, usually to be used as rock salt.

solution mining — Most table salt is made from gathering salt from salt beds and injecting water into the mix to remove the salt. This brine solution is then evaporated in salt pans at a processing plant.

1. 5,000
2. A covenant salt; a sign of an unbreakable agreement
3. New York; Ontario, Canada
4. They are often exposed to salty brine with little protective gear and very harsh weather conditions.
5. 1. Salt, 2. Iron, 3. Chromium, 4. Quartz, 5. Graphite, 6. Gypsum, 7. Clay

Where Do We Find Minerals

Chapter 1 Worksheet 2

1. By eating the right kind of food
2. “For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made, even

his eternal power and Godhead; so that they are without excuse”

3. “But without faith it is impossible to please him: for he that cometh to God must believe that he is, and that he is a rewarder of them that diligently seek him”
4. igneous (like lava), metamorphic (like marble) and sedimentary (like sandstone). All three kinds of rocks were formed both during the Creation week and the Flood year.
5. Spraggers — slowed the racing mine cars down with sprags, pieces of wood used as manual breaks.

Nippers — would open the doors when the mule and driver pulling the coal cars passed through, often sitting alone in the damp darkness.

Mule drivers — older boys who helped bring down empty coal cars throughout the entire mine, and pulled out the loaded carts.
6. equipment, the land rights, environmental regulations, trained personnel, transportation, time of processing, etc.
7. marble
8. red and brown clay, as well as greens from malachite, blues from azurite, and yellows from fool’s gold.

What is a Mineral?

Chapter 2 Worksheet 1

geodes — Spherical and hollow stones that contain quartz crystals inside them.

Johannes Gutenberg (1395–1468) — Found a way to use copper and other metals to construct a printing press.

cuprous — Something that contains copper in the monovalent state.

cupric — Something that contains copper in the bivalent state.

compounds — Objects that contain two or more parts.

inorganic — Containing no plant or animal material.

valence — Determines the number of atoms that will unite in a chemical reaction.

1. Amethyst was one of the gemstones on the “breastplate of justice,” part of the ephod that Aaron was to wear as high priest.
2. Geodes are created in sedimentary and volcanic rock. The round or sphere-shaped oddities are formed because there are cavities inside them, often left behind from gas bubbles, which water and minerals pass through. The rock exterior hardens and crystals form on the inside.
3. God takes us and pours His Spirit into us, saving us and forming His beautiful life and power within us. No matter how ordinary one may look on the outside, if one is in Christ, He has made us so much more extraordinary than any geode!
4. We should make good and wise use of the things He created. Minerals are a precious gift to us. It is our job to find ways they can be used to glorify Him.
5. The Statue of Liberty

What is a Mineral?

Chapter 2 Worksheet 2

1. Copper and other metals
2. a. A mineral is a special group of compounds created by God.
b. A mineral has a fixed chemistry.
c. A mineral contains a crystalline structure.
d. A mineral is inorganic.
e. A mineral exists as a solid.
3. naturally occurring and Mother Earth; they write God completely out of the picture!
4. cubic, tetragonal, orthorhombic, hexagonal, monoclinic, and triclinic
5. a. It is organic (contains no plants)
b. It is a fossil (is not the remains of plants and animals)
c. It is a liquid (other than mercury)
d. It is a gas (minerals are not invisible particles)

e. It is a rock (rocks are made up of minerals)

6. Minerals, bricks, arrangements
7. wolframite
8. “But my God shall supply all your need according to his riches in glory by Christ Jesus”

How Do I Identify a Mineral?

Chapter 3 Worksheet 1

mineralogy — The part of geology that deals with the science of minerals.

luster — Related to the amount of shine or reflective quality of a particular object.

heft — Related to the weight or heaviness of an object, or testing the weight by lifting it.

Friedrich Mohs (1773–1839) — Developed the Mohs’ scale to help determine the hardness of minerals.

symmetry — The balance of opposite sides of an object in regard to size and form

adamantine — “reflecting like a diamond facet.”

dull — one type of non-metallic luster

1. Chemistry
2. 5,000, 100, about 12, 4
3. Crystallize, six
4. Is the luster metallic or non-metallic?
5. No
6. God’s, handiwork, worship

How Do I Identify a Mineral?

Chapter 3 Worksheet 2

1. Creation, large, feet, evolutionary
2. Ruler, rock hammer, a coin
3. Christ
4. Black, white
5. Twofold-The crystal face repeats 2 times (or every 180 degrees) when the crystal is spun on the axis.

Fourfold-The crystal face repeats 4 times (or every 90 degrees) when the crystal is spun on any axis.

The New Ocean Book — Worksheet Answer Keys

Introduction to the Oceans

Chapter 1 Worksheet 1

photosynthetic organisms — Free-floating ocean life that release oxygen.

Ring of Fire — A ring of volcanic activity that circles the Pacific Ocean.

1. Blue Planet
2. The Earth's oceans contain 97 percent of all the surface water on the planet. Filling an average depth of 2½ miles, Earth's oceans would cover the surface of her moon nine times!
3. Along with the atmosphere, the oceans help to regulate the climate and weather of the world.
4. Plants, tiny ocean organisms
5. "You alone are the Lord; You have made heaven, The heaven of heavens, with all their host, The earth and everything on it, The seas and all that is in them, And You preserve them all. The host of heaven worships You." — Nehemiah 9:6
6. Three-quarters
7. Pacific Ocean, Atlantic Ocean, Indian Ocean, Southern Ocean, and Arctic Ocean

Research and the Deep Oceans

Chapter 2 Worksheet 1

oceanography — the exploration and scientific study of phenomena associated with the world's seas, oceans, and their surrounding environment.

meteorology — Study that determines weather patterns.

1. zoology, physics, meteorology
2. chemical oceanography, physical oceanography, marine geology and geophysics, and biological oceanography
3. HMS *Challenger*, December of 1872, three and half years
4. life below 1,800 feet (549 m) was impossible
5. 1950
6. The book of Genesis states the earth began as a watery chaos thousands of years ago. Water was present from the beginning.

What is a Mineral?

Chapter 2 Worksheet 2

1. They extracted core samples from the ocean bottom. Scientists sometimes placed sensors into the hole to gather more information, such as temperature readings. Scientists examined, and continue to examine, the composition of the thin multicolored bands of core sediments.
2. They are stored in cold, hermetically sealed (airtight) rooms throughout the world.
3. exploration
4. satellites
5. 25,394
6. d.
7. a.
8. c.
9. b.

Physical Characteristics of the Ocean

Chapter 3 Worksheet 1

abyssal — A term used for animals, water, or land in the deepest part of the ocean, 13,000 feet (4,000 m) or deeper.

bathyscaph — A deep-diving submersible designed like a blimp. Its name means "deep ship."

continental shelf — The submerged land adjacent to a continent.

continental slope — Begins at the edge of the continental shelf and reaches into the ocean's greater depth.

1. The shoreline
2. 275,000 miles
3. The coast
4. Any four: wave action, currents, tides, the action of oysters, mussels, other sea creatures, and various types of vegetation
5. Cities
6. 5%
7. 2.5%
8. Fifty, basins, half

9. They have been found in virtually every area of the ocean floor.
10. seamounts with peaks close to the surface had their tops eroded by wave action

Physical Characteristics of the Ocean Chapter 3 Worksheet 2

1. Subduction, crustal, Genesis Flood
2. the theoretical process whereby one oceanic plate slides under another crustal plate
3. The Mariana Trench
4. mountain ranges under the ocean, primarily composed of long crests of young basaltic rock.
5. A third
6. It formed suddenly (violently) and includes “mature” looking beaches.
7. ninety
8. seafloor spreading
9. continental slope
10. It is found in an area of the Marian Trench in the western Pacific near Guam called the Challenger Deep. It is seven miles below sea level.

Composition of the Oceans’ Waters Chapter 4 Worksheet 1

glaciers — Great masses of snow turned to ice that flow like a large frozen river and move slowly and steadily downhill.

icebergs — Massive floating chunks of frozen fresh water that have originated from fallen snow and have broken off an ice sheet or glacier.

salinity — Measurement of the total amount of the dissolved solids or minerals in water.

water density — Weight of water divided by the amount of space it occupies and is determined by pressure, salinity, and temperature.

1. Continent, mountains, ocean
2. the chemical makeup of the seas influenced by acid/base (pH) levels, environmental factors, sediments and currents
3. Approximately 97%
4. Salt, 420

5. The kidneys need three liters of water for every liter of salt consumed. Due to the high salt content, drinking seawater speeds up the rate of dehydration and leads to a slow and painful death
6. glands
7. Gold, currency

Composition of the Oceans’ Waters Chapter 4 Worksheet 2

1. 330 million
2. Thousands, water
3. Salty, warmer, waterfalls
4. Less than one-tenth of one percent
5. Roughly six million square miles
6. 45,000, 4
7. Warm, ten
8. The two polar regions of the world
9. 90

Tides, Waves, and Currents Chapter 5 Worksheet 1

convection — The transfer of heat by the circulation of moving currents in either air or water.

drag — Friction created between the bottom of an advancing wave and the surface over which it is moving. Near the shore, this friction causes the wave’s bottom to advance slower than its crest. Because of this, the wave topples, creating surf.

gyre — Large oceanic currents found in each of the major oceans. Their movement is determined by flow of warm surface water toward the poles, the Coriolis force, and global winds.

quadrature — When the sun, earth and moon form a 90-degree angle.

syzygy — When the sun and the moon line up with the earth in a straight line.

centripetal acceleration — The force on a moving object that pulls it in toward the center.

crest — The highest part of a wave.

equatorial — Pertaining to areas near or on the equator.

The New Weather Book — Unit Quiz Answer Key

Unit One Quiz, Chapters 1-3

1. **climate** — the weather conditions that are particular to a certain area, such as wind, precipitation, and temperature
2. **nitrogen** — a naturally occurring element that is responsible for around four-fifths of the earth's atmosphere
3. **oxygen** — a colorless, odorless gas that is 21 percent of our atmosphere; essential for plant and animal respiration
4. **precipitation** — falling moisture in the form of rain, sleet, snow, hail, or drizzle
5. **cirrus clouds** — a high altitude cloud made of ice crystals that appears thin, white, and feathery
6. **cold front** — a boundary of cold air, usually moving from the north or west, which is displacing the warm air
7. **evaporation** — to change into a vapor such as the evaporation of water by the warming of the sun
8. **stratus clouds** — low-altitude gray clouds with a flat base
9. **warm front** — a boundary of warm air that is pushing out cold air in the atmosphere
10. **water vapor** — invisible water distributed throughout the atmosphere
1. When Adam and Eve disobeyed God's commands, they allowed evil to enter the world. Bad weather is a result of the presence of sin in the world.
2. God created the world with a perfect design and order, which allows us to predict hours of daylight, seasons, and weather.
3. The sun is responsible for differences in heating around the earth. At night, infrared radiation cools the earth, and the sunrise warms the earth during the day.
4. Cold front: line with triangles. Warm front: line with semicircles. Stationary front: line with triangles on top and semicircles on the bottom. Occluded front: line with alternating triangles and semicircles on top.
5. Meteorologists can only interpret weather maps created by computers, which are not perfect. Despite all the tools they have, meteorologists do not have a complete understanding of the earth and its atmosphere.
6. The general circulation is the average flow of air in various locations. The earth has six average circulations, which determines the climate in different areas.
7. Rain falls from clouds in the sky and runoff goes into bodies of water that eventually go to the oceans. Water in the ocean evaporates into the atmosphere, where it turns into precipitation. Some water soaks deep into the ground, creating the water table.
8. Stratus and cumulus
9. Both are low-pressure systems, but warm fronts replace cold air with warm air, while cold fronts replace warm air with cold air. Cold fronts move faster than warm fronts. Both fronts bring precipitation.
10. Most commonly, fog forms on clear nights when the temperature drops and the relative humidity rises to 100 percent, or the dew point. The air's water vapor condenses into liquid drops, forming fog.

Unit Two Quiz, Chapters 4-6

1. **electrons** — a subatomic particle with a negative electrical charge
2. **static electricity** — a build-up of electricity charge on an insulated body
3. **latent heat** — the energy released or absorbed at constant temperature during a change in phase
4. **supercell** — a severe, well-organized thunderstorm with warm, moist air spiraling upwards
5. **tornado** — a funnel-shaped column of air rotating up to 300 mph touching the ground
6. **supercooled drops** — drops of water that remain liquid below freezing

The New Ocean Book —● Test Answer Key

1. c.
2. a.
3. g.
4. b.
5. e.
6. h.
7. d.
8. f.
1. Along with the atmosphere, the oceans help to regulate the climate and weather of the world.
2. “You alone are the Lord; You have made heaven, The heaven of heavens, with all their host, The earth and everything on it, The seas and all that is in them, And You preserve them all. The host of heaven worships You.” — Nehemiah 9:6
3. Pacific Ocean, Atlantic Ocean, Indian Ocean, Southern Ocean, and Arctic Ocean
4. The Gulf Stream
5. El Niño
6. The Coriolis effect
7. wind
8. Echolocation, a type of underwater radar
9. The Great Barrier Reef
10. “And the waters prevailed exceedingly upon the earth; and all the high hills, that were under the whole heaven, were covered.” Genesis 7:19
11. Practically all of them
12. Over 4,500 years ago