

TEACHER GUIDE

7th –8th Grade

Includes Student
Worksheets

Science

-  Includes: Answer Keys
-  Weekly Lesson Schedule
-  Worksheets
-  Quizzes & Tests

Intro to Meteorology & Astronomy



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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 B.S. in Math, M.S. in Physics, M.A. and Ph.D. 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.

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, quizzes, and tests.



Worksheets for each section



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



Designed for grades 7 and 8 in a one-year course to earn ½ science credit

Course Description

This is the suggested course sequence that allows one core area of science to be studied per semester. You can change the sequence of the semesters per the needs or interests of your student; materials for each semester are independent of one another to allow flexibility. In the semester on meteorology, students will learn about God’s design of this complex world and its weather patterns that affect our lives every day. The semester 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. Now take an incredible look at the mysteries and marvels of earth’s weather and the far reaches of space.

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.

Special Note: 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.

Suggested Optional Science Lab

There are a variety of companies that offer science labs that complement our courses. These items are only suggestions, not requirements, and they are not included in the daily schedule. We have tried to find materials that are free of evolutionary teaching, but please review any materials you may purchase. The following items are available from www.HomeTrainingTools.com.

The New Weather Book

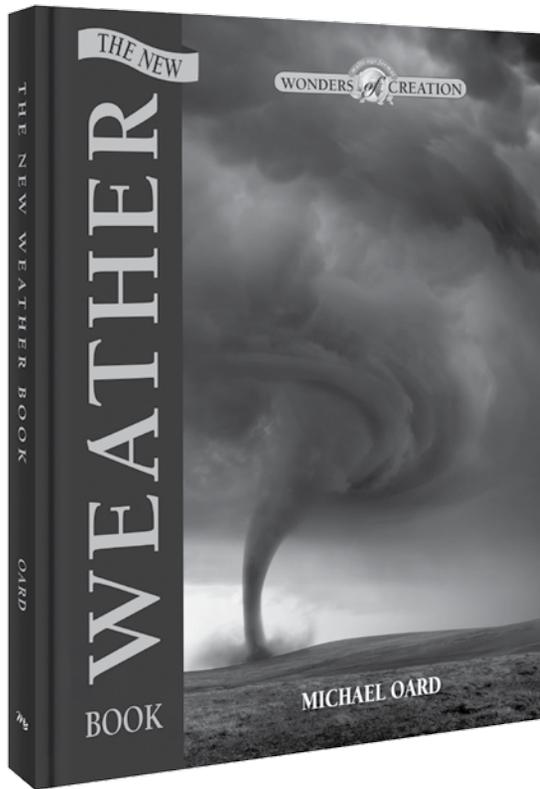
KT-WESTUDY Weather Study Kit

The New Astronomy Book

KT-SPACEXP Space Exploration Kit

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 Ch1 • Pages 4-7 • <i>The Weather Book</i> • (NWB)			
	Day 2				
	Day 3	God Created Weather Ch1: Worksheet 1 • Pages 15-16 • Teacher Guide (TG)			
	Day 4				
	Day 5	Read Ch2 • Pages 8-11 • (NWB)			
Week 2	Day 6	Read Ch2 • Pages 12-19 • (NWB)			
	Day 7				
	Day 8	What Causes Earth's Weather? Weather Ch2: Worksheet 1 • Pages 17-18 • (TG)			
	Day 9				
	Day 10	What Causes Earth's Weather? Weather Ch2: Worksheet 2 • Pages 19-20 • (TG)			
Week 3	Day 11	Read Ch3 • Pages 20-27 • (NWB)			
	Day 12				
	Day 13	Read Ch3 • Pages 28-31 • (NWB)			
	Day 14				
	Day 15	Water in the Atmosphere Weather Ch3: Worksheet 1 • Pages 21-22 • (TG)			
Week 4	Day 16	Water in the Atmosphere Weather Ch3: Worksheet 2 • Page 23 • (TG)			
	Day 17				
	Day 18	Study for Quiz 1			
	Day 19				
	Day 20	Weather Ch1-3: Quiz 1 • Pages 105-106 • (TG)			
Week 5	Day 21	Read Ch4 • Pages 32-36 • (NWB)			
	Day 22				
	Day 23	Read Ch4 • Pages 37-39 • (NWB)			
	Day 24				
	Day 25	Water in the Atmosphere Weather Ch4: Worksheet 1 • Pages 25-26 • (TG)			
Week 6	Day 26	Water in the Atmosphere Weather Ch4: Worksheet 2 • Pages 27-28 • (TG)			
	Day 27				
	Day 28	Read Ch5 • Pages 40-44 • (NWB)			
	Day 29				
	Day 30	Read Ch5 • Pages 45-51 • (NWB)			



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

Questions

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.

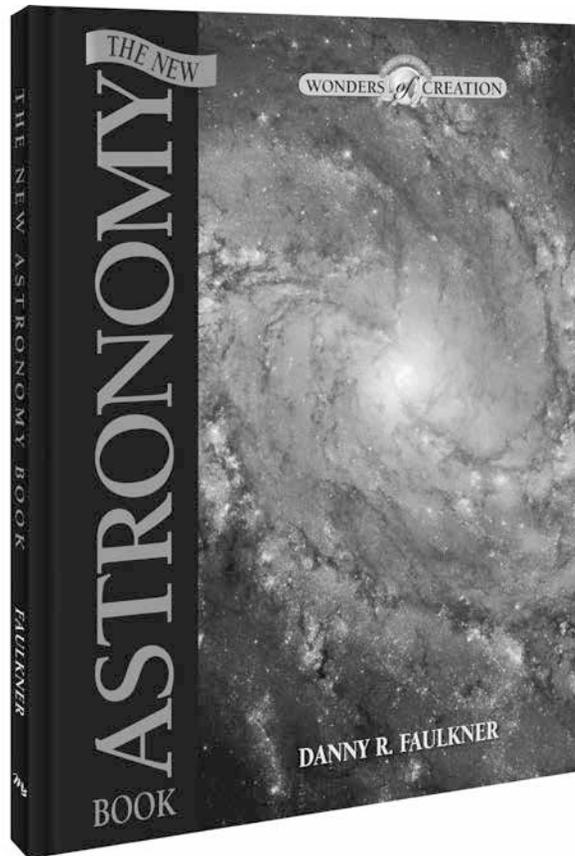
4. Explain the anthropic principle in relation to the following terms:

a. Tides:

b. Seasons:

c. Temperature:

d. Atmosphere:



Astronomy Worksheets
for Use with
The New Astronomy Book

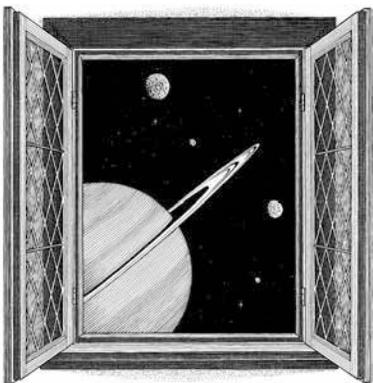
Special Course Activity Options

(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.



Final term paper: You may assign a final term paper for the student over an aspect of the course materials. The subject can be of your choosing based on each student's interests or abilities, or you can do one of these suggested topics:

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 distance 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?

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 to help identify constellations.





Words to Know

constellations

axis

celestial

circumpolar

revolution

pagan

retrograde motion

Questions

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 rotation of the sun? How long is the rotation 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.

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.

Quizzes & Tests Section

Answer Keys

The Weather Book — Worksheet Answer Keys

Weather Chapter 1: God Created

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

Weather Chapter 2: – What Causes Weather 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. cloud conditions; g. air quality

The New Astronomy Book — Worksheet Answer Keys

Introduction to New Astronomy Book: What is Astronomy? – Worksheet 1

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

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

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

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

spectroscopy – the study of spectra

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

New Astronomy Chapter 1: The Night Sky – 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 – circular motion around another body

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. Mercury, Venus, Mars, Jupiter, and Saturn
10. Uranus and Neptune