Review of Curriculum: God's Design for Heaven and Earth by Wayne Spencer

Books of the series reviewed:
Our Weather and Water
Our Planet Earth
Our Universe

written by Debbie and Richard Lawrence, published by Answers in Genesis, 2003.

Statement from copyright information page describing the curriculum:

"God's Design for Heaven & Earth is a complete earth science curriculum for elementary aged children. The books in this series are designed for use in the Christian homeschool, and provide easy to use lessons that will encourage children to see God's hand in everything around them."

I. General plan of each book in the series
   A. Each book is written primarily to the teaching parent. However, many parts of it could be read to kids but kids may have difficulty understanding some of it without additional explanation. Some of the vocabulary is above what the children/students would understand.
   B. Each book begins with several pages explaining for the teacher some general concepts about teaching Earth Science, teaching science, and teaching about creation and evolution.
   C. Each book includes 5 to 7 subject units including several lessons and a quiz. An Appendix in the back of the book has answers to the quizes. There is also a test over all the material in that book and answers to the test questions in the Appendix as well.
   D. Each book takes a clear young-age Biblical creation position and uses Scripture to explain and support this view. Parents who want their kids to have a Christian perspective on science will like this.
   E. Though the books have color covers, they are not color inside and pictures and graphics are grayscale.
   F. Each lesson has some kind of hands-on activity to do that illustrates the concepts and allows the student to try something related for themself.
   G. Each lesson has a short section called "Taking it Further." This seems to be intended to extend the concepts and tie science concepts together, often in some practical application or to understand some event in Earth history. These sections are good and could sometimes be good jumping off points for students to do library research, though that is not mentioned in the books.
   H. There are sometimes short sections at the end of the lessons called "Fun Facts." These just give some interesting facts related to the topic. Sometimes these sections add a lot of interest to the topic, such as the one on Tornados.

I. Each book has an Appendix B which is a Resource Guide. This lists other sources recommended on that book's topics for additional reading, some from creation sources and some not.

II. Comments on book, Our Weather and Water

A. Lesson 2 summarizes a Biblical view of history based on the early chapters of Genesis, focusing primarily on Noah's Flood. This is a summary for the adult or teacher and it is not illustrated. There are many creation books and videos that might provide some valuable visual aids and illustrations of some of these concepts, but they are usually aimed at a somewhat older age group.

B. The activity in this lesson is called "Flood in a Jar" which says to put a variety of materials like sand, dirt, pebbles, sticks, etc. into a jar, put water in the jar, then place the lid on it, shake it and set the jar on a level surface a wait. This is intended to show the difference in density of the materials and that materials of different densities sort themselves out in layers. How well this works for a demo like this depends greatly on what kind of materials are used. Though the procedures in the book are fine, I'd recommend the following variation on it as an easier way to demo the same idea. Prepare in a bowl a mixture of three solids, salt, pepper, and chili powder. This particular mixture has materials that vary significantly in density and they are easy to obtain and use in a demo. Moving water sorts sedimentary material into layers better than still water. But, if you have a tall glass or a clear pitcher or a large jar, you can put water in the jar, then pour the mixed up salt, pepper, and chili powder into the water and you'll see some sorting into layers. It sorts into layers even better if you pour the mixture into mineral oil. The more the water you have (the taller the water column) the more effective the sorting into layers is.

C. Sometimes the books very much need more illustrations. Lesson 4 has an activity on "Making Air Currents." It describes how to cut a circular piece of paper into a special spiral that will turn when held over the heat from a lamp. The activity may be fine but it really needs an illustration on how to properly cut the paper and explaining how to do it effectively.

D. Lesson 24 on Ocean Currents has a particularly interesting activity and the Fun Facts section has a short paragraph about Matthew Maury. Maury was a Christian who applied Psalm 8:8 to his study of the oceans. He got the idea of there being predictable ocean currents from this verse. He discovered a number of major ocean currents, which was important for the science of oceanography.

E. There is generally a lot of good practical science related to wind and weather in Our Weather and Water.

III. Comments on the book, "Our Planet Earth"

A. This book has four "Special Feature" sections in addition to the lessons. The first of these in this book is on "Dating Methods." This is a two page article summarizing problems with geologic dating techniques, namely radioisotope dating and the use of index fossils. This article is a good summary of a lot of information. Many creationist books and articles would be available that gives more explanation of these topics. I found no problems with this article other than that it does not mention any of the important new findings from the RATE research project. This research was still very new at the time of the publication of this book. For more information on the new RATE research findings, I would recommend the articles on radioactive dating in the Creation Answers newsletter, from June 2004 to March 2005. I would say that in general this books series does a good job of summarizing creationist thinking.

B. Lesson 5 is on "The Great Ice Age." This lesson rightly points out the difference between an evolutionary veiw of Earth history and the creationist view. The creation view believes there is one ice age (rather than many throughout history). There is one concept in this section that causes me concern. There is the following statement about the creationist understanding of what caused a post-Flood ice age. This is an incorrect understanding of what creationists have said.

"Prior to the Flood, the weather on the Earth was much more uniform and warmer than today. This caused the seas to be much warmer than they are today. After the Flood, conditions were just right for an ice age."

The quoted portion above gives an incorrect understanding or impression to the reader about what caused the post-Flood Ice Age according to young age creationists. It is the combination of having a cold climate and warm oceans after the Flood that caused the Ice Age. I think the authors understand this point. But what this book doesn't make clear is that it was the Flood itself that caused the ocean to be especially warm, not that the Earth was created with a very warm ocean. Conditions in the preflood world were more uniformly near tropical worldwide. Furthermore the conditions of the preflood world were stable, making a virtually ideal environment. This may have made the ocean warmer perhaps in some areas, but not everywhere necessarily. The geological activity during the Flood such as volcanism on the ocean floor and various Earth movements would have warmed the ocean very significantly. This would have caused more precipitation in the post-Flood period.

C. Lesson 9 - "Rocks." This lesson summarizes some simple ideas about rocks. It explains very simply the three major rock types of sedimentary, igneous, and metamorphic. There are some things in this lesson I think

would be confusing and hard for young people to understand. First, there is a brief explanation of the formation of metamorphic rocks, saying that other rocks are exposed to heat and pressure and over time they become metamorphic rocks. This type of statement without qualification tends to make kids misunderstand. Rocks require some time to form but they do not require millions of years. Creationist geology is making good progress explaining how rocks can form in relatively short times. The formation of rocks is actually important evidence for Noah's Flood and for the literal historical accuracy of the Bible. This point is not made in this section. Also, the worksheet in this lesson is for teaching about the rock cycle. But because there are aspects of the diagrams on the worksheet that are not explained in the lesson, I suspect it would be very confusing to kids. I suspect even many parents reading this lesson would not understand the worksheet. The worksheet actually shows more than the rock cycle explained in the lesson but this is not made clear.

D. Lessons 12 and 13 - "Fossils" and "Fossil Fuels." The lesson on fossils is well done and well written. It does make the point that the formation of fossils does not require long periods of time, but rather rapid burial. Lesson 13 on fossil fuels is also good overall but I have one concern. The lessons treatment of the formation of rocks and fossil fuels should really mention that these are chemical processes. Heat and pressure are mentioned but heat and pressure are not all that's necessary. Chemical catalysts and the presence of certain minerals are probably the key to the formation of coal and oil (and to the time required to form them). Also, Lesson 13 says that oil is "the liquid fuel formed from the remains of sea creatures and plants, such as fish and algae." This is such an oversimplification it is misleading. Oil is a mixture of many chemicals and it can theoretically form in a number of ways, one of which may be what this is saying. Oil may not come from the remains of living things at all in some cases. Geologists know a lot more about how to find oil than they do about how it forms. Furthermore, where oil is found really doesn't tell you much about how it formed.

E. Other lessons. In general, there is much very good material in this book. Some lessons have more material than others. Young people could do more than one lesson a day sometimes. Sometimes there are other creationist books and resources that show pictures related to some of the topics. It would be helpful to supplement this material with some visuals from other creation sources when possible. A good example would be the lesson on Mt. St. Helens. There are videos available from creation organizations that explain this with valuable pictures.

IV. Comments on the book, "Our Universe"

A. Lesson 2 contains a good introduction to the Ptolemaic and Copernican views of the universe. This lesson also introduces gravity. There is also a special section on the life of Nicolaus Copernicus that is quite good.

B. Lesson 7 is called "Heavenly Bodies: More than just stars." This lesson explains briefly what various objects are such as black holes, nebulae, neutron stars, pulsars, and others. It is good the way certain controversial things are handled, such as when it explains what quasars are. It points out that there is not general agreement among astronomers about how far away quasars are. This is true though astronomy news reports may be dogmatic about some ideas about quasars. I think this is handling the issue honestly.

C. There is a brief one page article explaining the difference between astronomy and astrology, with some quotes from Scripture. This is a good addition that is likely to answer a common question young people have.

D. There are some instances where these books are not completely current in their treatment of a creationist view of science. An example is in Lesson 10, about Meteors. This lesson makes an argument that has sometimes been made in creationist literature which is not valid in my opinion. It says that if the Earth is only a few thousand years old and most fossils are a result of Noah's Flood, we would not expect to find many meteorites in fossil rock layers. This is not correct; actually meteorites and other forms of evidence of material from space have been found in a variety of rock layers. There are well over a 100 sites around the world where impact craters or remnants of craters are found in all types of rock strata that must have formed in Noah's Flood. The inescapable conclusion is that impacts from space and meteorites were part of the Flood. However, finding craters in rock layers doesn't necessarily mean there would be a lot of meteorites because there are processes that could destroy meteorites. Meteorites that are not near the surface would be very hard to find. I have published technical papers arguing the case for impacts during the Flood and this general idea has now been accepted by a number of creationists in the sciences. I believe this does not conflict with the Biblical account of the Flood in Genesis. This section also makes a similar argument using dust from space. That is also not correct. There is evidence of dust from space in ocean sediments, along with tektites from impacts and other tektites from volcanic eruptions. There are also numerous meteorites and much dust from space found trapped in Antarctic ice. The authors apparently are not aware of some of the recent research on this subject.

E. The Our Universe book does not use the new definitions of planet and other solar system objects. Asteroids are referred to with the old term of "Minor Planet" rather than the new term "Small Solar System Bodies." This series of books were published in 2003, before the International Astronomical Union redefined planet so that Pluto is no longer considered a planet. Pluto would now be considered a "Dwarf Planet."

F. In Lesson 11, which gives a good summary of our Solar System, it also makes brief mention of a possible planet being discovered around another star in 1997. There is now evidence of a number of planets orbiting other stars. I have published papers on this subject as well. The differences between these extrasolar planets and our solar system suggests how God has intelligently designed our own solar system to be a safe environment for us. This is not mentioned in this lesson however.

G. There are good lessons in this book about the Moon, Venus, and Earth. The lesson on the Moon has a good activity with two tops that show the unlikelyhood of a naturalistic origin of the Moon from a collision of an object with Earth. Lesson 21 on the Earth has one statement that is unfortunate. It asks the question, "Why is a larger Moon important to people?" This refers to the fact that compared to many other moons in the solar system, our Moon is relatively large compared to the planet it orbits. The answer given is that a large Moon reflects more light on the Earth. This is of course true but this completely misses some important benefits to life on Earth. The large Moon makes the tides more pronounced. This stirs the ocean and has positive effects in the ocean that benefit ocean life and mankind. There is also a stabilizing effect the Moon has on Earth's orbit. It would a good addition if Lesson 21 mentioned Isaiah 45:18 regarding God's design of the Earth for life. God's design of the Earth for life is mentioned in multiple lessons.

H. The Our Universe book has several particularly good biographies of scientists and astronauts. These include Isaac Newton and two space shuttle astronauts who died in shuttle accidents. The space shuttle astronauts mentioned are Rick Husband and Sally Ride. Rick Husband was the commander of the shuttle that burned up during reentry in February 2003. It says Mr. Husband did video Bible studies for his family even from orbit and that he was involved in home schooling his kids.

Summary

The series ***God's Design For Heaven and Earth*** by Debbie and Richard Lawrence has much to be commended for and is recommended for Christian parents and teachers. There are a few points where the science may not be as good as it could be but these are not major issues. Parents would need to find other sources to provide some visual aids and pictures related to the topics.