

Daily Lesson Plans
for
Exploring Creation with
Physics
(Second Edition)

My Father's World[®]

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Exploring Creation with Physics, Second Edition

Apologia has earned the reputation of being the premier science course for college-bound students. The text is written in a friendly, conversational style and is easy to understand, even for parents with minimal science background. The simple experiments, user-friendly format, and personal approach set it apart from standard textbooks. The program is written from a Christian worldview and takes a balanced approach toward controversial subjects, examining all viewpoints while explaining the scientific facts behind differing theories.

Apologia science courses appeal to both parents/teachers and students because they are easy to understand, practical, and organized. They also encourage critical thinking skills in an interesting format. We are so confident in this science course that it is the only one we carry for 7th grade through high school.

Dr. Jay L. Wile holds a Ph.D. in nuclear chemistry and a B.S. in chemistry from the University of Rochester. A former university professor, he has won several awards for excellence in teaching and has presented numerous lectures on the topics of nuclear chemistry, Christian apologetics, homeschooling, and creation vs. evolution. In addition, he has published thirty articles on these subjects in nationally recognized journals.

This is a college-prep physics course. **In order to be able to understand this text, the student needs to have completed Algebra I and Geometry. In addition, an introduction to the basic trigonometry functions of sine, cosine, and tangent is essential.** The course introduces the student to general physics and its concepts and methods. Upon completion, the student should have a strong background in *one-dimensional* and *two-dimensional motion*, *Newton's laws*, *gravity*, *work and energy*, *momentum*, *periodic motion*, *waves*, *optics*, *electrostatics*, *electrodynamics*, *electrical circuits*, and *magnetism*. *Exploring Creation with Physics* is ideal preparation for a university-level physics course.

How to Use These Plans

Before beginning this course, parents need to read thoroughly the **TEACHER'S NOTES** at the beginning of *Solutions and Tests for Exploring Creation with Physics*. Students need to read thoroughly the **STUDENT NOTES** at the beginning of the textbook.

Schedule science four days a week. Monday through Thursday works best, with Friday free or used for catch-up, review, or tests as needed. If you find that a lesson is too lengthy, simply end the lesson and resume the following day. By Friday you should catch up with the week's lessons.

Plan to spend about two weeks on each module. This gives you 32 weeks for science (or 34 if you use the quarterly tests) – thus allowing a few weeks for review or catch-up if needed.

For record-keeping purposes, use the line to the left of “Day 1,” “Day 2,” etc., to write the date the student completes each lesson.

A “Test and Experiment Scores” chart is provided so that all weekly test and experiment scores can be recorded in one place for a permanent record. This course also features *quarterly* cumulative tests. Though these exams are optional, the author recommends them for college-bound students. (See the paragraph on page iv in *Solutions and Tests for Exploring Creation with Physics* regarding *cumulative tests*). Quarterly tests, therefore, have been built into these lesson plans. If you choose to use the cumulative tests, plan to add an additional day for review, and another for the quarterly

test. These extra days are included in the day count in the lesson plans for Modules 4, 8, 12, and 16, but are optional.

CD-ROM Multimedia Companion

The CD provides additional visual instruction, especially valuable for students who are more visually oriented, for students wanting a richer science course, and for parents who want extra help in presenting information. The components of the optional CD-ROM Multimedia Companion are scheduled within these lesson plans. **Each CD item is marked with an asterisk (*).** Key vocabulary words are listed at the *beginning* of the lesson plans for each module; the pronunciations are found on the CD. The other items marked with an asterisk (*) are multimedia instruction, examples, figures, and experiments. **The CD enhancements of the experiments are to be viewed *following* the experiments.**

Lab Supplies

This course includes experiments for you to perform as part of your laboratory component. The experiments are strongly recommended for anyone needing lab credits for college admission (see author's comments on page iii). Before beginning, you may want to purchase a laboratory kit designed for the Apologia course. You can order this kit from:

[My Father's World provides the ordering information in the Lesson Plans]

You also have the option of gathering these experiment supplies yourself. The equipment is simple, not scientific. Most people find that they already have several of these items on hand. For your convenience, we have compiled a master list of all experiment materials needed for the entire year. (See "MFW Master List: Lab Supplies to Purchase for the Year" in these lesson plans.) The master list includes a list of the items found in the laboratory kit (in **bold**), and the items you will need to purchase at a store. We have even broken down the "shopping list" into convenient categories. We recommend that you gather as many of these supplies as possible before beginning the school year, so that they will be on hand.

Experiment supplies for each module are also listed at the beginning of each module lesson plan, if you prefer to gather supplies as you go. (They are identical to the lists found in Appendix C in your textbook.) The lab supply list for each module shows every item you need for *that* module, including those items commonly found at home (thread, for instance). We recommend that you look ahead to the *following* module each time, as some supplies can be reused.

Master List: Lab Supplies to Purchase for the Year

Items in boldfaced type are found in the laboratory kit that is available separately. If you do not purchase the kit, you will need to locate these items yourself. All the supplies are alphabetically arranged by categories of where they are most likely to be found. The category called "Other" lists unusual items. It also calls your attention *now* to specific locations required for some of the experiments. Whenever the item called for is very specific (length, width, etc.), we have indicated the module number for further clarification.

Note: The Master List does not include perishable items that should not be purchased far in advance, such as eggs, or items that you certainly already have, such as water.

[*My Father's World* has reorganized the Apologia supply lists to show an organized master list ordered by the store type most likely to carry the items. Following is an abbreviated sample of the lists.]

Grocery

- aluminum foil**
- cardboard tube** (from a roll of paper towels)
- 2 Styrofoam[®] plates**
- ... (plus 3 other items not included in this sample)

Office Supplies

- black construction paper** or thin cardboard
- pen** (that can be disassembled)
- plain 8.5- x 11-in. sheet of paper
- protractor**
- ... (plus 7 other items not included in this sample)

Hardware

- block of wood**
- board that is at least a meter long and at least 6 in. wide
- electrical tape
- sand**, kitty litter, or fine gravel
- ... (plus 20 other items not included in this sample)

Drugstore

- 3 balloons** (simple, round kind is best)
- marble** or golf ball
- ... (plus 3 other items not included in this sample)

Household

- bicycle
- liquid soap (dish detergent or body wash will also work)
- 5 spoons
- washcloth
- ... (plus 19 other items not included in this sample)

Other

- beanbag** (the kind you toss) or any object that does not bounce when dropped
- 4 ping pong balls**
- sidewalk, driveway, or long, flat yard
- ... (plus 3 other items not included in this sample)

SAMPLE

Test and Experiment Scores
Exploring Creation with Physics
By Dr. Jay L. Wile

Name _____

	Date	Score	Parent Initial
MODULE #1			
Experiment 1.1	_____	_____	_____
Experiment 1.2	_____	_____	_____
Test	_____	_____	_____
MODULE #2			
Experiment 2.1	_____	_____	_____
Experiment 2.2	_____	_____	_____
Experiment 2.3	_____	_____	_____
Test	_____	_____	_____
MODULE #3			
Experiment 3.1	_____	_____	_____
Experiment 3.2	_____	_____	_____
Test	_____	_____	_____
MODULE #4			
Experiment 4.1	_____	_____	_____
Experiment 4.2	_____	_____	_____
Test	_____	_____	_____
Quarterly Test #1	_____	_____	_____

[All modules are listed in *My Father's World Lesson Plans*]

Module #16: Magnetism

- Look at the lab list for Module #16, making sure that all your experiment supplies are gathered or purchased.

Experiment Supplies for Module #16

- **compass**
- **insulated wire** like you used in the experiments from the previous module (Both experiments in this module use this item.)
- **1.5-volt battery** (Any size cell will do. Just make certain it is a 1.5-volt battery. A battery of higher voltage *could make the experiment dangerous.*)
- electrical or **masking tape**
- 2 iron nails (one should be large)
- **metal paper clip**
- **toothpick** or wooden match stick
- a tabletop to which you can tape things without damaging the surface

_____ Day 127 pages 523-527

- Introduction
- Permanent Magnets
- Magnetic Fields
*See a demonstration with real “magnetism” on the CD.
- Work ON YOUR OWN 16.1 at top of page 527.

_____ Day 128 pages 527-530

- How Magnets Become Magnetic
- Oersted’s EXPERIMENT 16.1
- Learn about *dia/para/ferromagnetic* substances by reading to bottom of page 530.

_____ Day 129 pages 530b-534

- How Magnets Become Magnetic (continued)
- Begin with EXPERIMENT 16.2.
- The Earth’s Magnetic Field
- Follow discussion to middle of page 534.

_____ Day 130 pages 534b-537

- The Magnetic Field of a Current-Carrying Wire
- Study Figures and Example, reading to top of page 537.
- ON YOUR OWN 16.2

_____ Day 131 pages 537-539

- Faraday’s Law of Electromagnetic Induction
- Note FIGURE 16.9 on Christian physicist Michael Faraday.
- ON YOUR OWN 16.3, 16.4

_____ Day 132 pages 540-543

- Using Faraday's Law of Electromagnetic Induction
- Alternating Current
- Some Final Thoughts on *Exploring Creation with Physics*

_____ Day 133 pages 545-546

- REVIEW QUESTIONS FOR MODULE #16
- *There are no PRACTICE PROBLEMS* for MODULE #16

_____ Day 134 TEST FOR MODULE #16
Enter test score on Test and Experiment Scores form.

_____ Day 135 Review for Quarterly Test #4.
Review Modules 13-16 on your own. There is no review written in the textbook. Make sure you can answer the review questions and practice problems for each week. In addition, you may want to use the "Extra Practice Problems" found in Appendix B.

_____ Day 136 Quarterly Test #4
Enter test score on Test and Experiment Scores form.