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

My Father’s World®
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)
# Test and Experiment Scores

*Exploring Creation with Physics*

By Dr. Jay L. Wile

Name ______________________________

<table>
<thead>
<tr>
<th>Module</th>
<th>Date</th>
<th>Score</th>
<th>Parent Initial</th>
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<tbody>
<tr>
<td><strong>Module #1</strong></td>
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<td>Experiment 1.1</td>
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<td>Experiment 1.2</td>
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<td><strong>Module #2</strong></td>
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<td>Experiment 2.1</td>
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<td>Experiment 2.2</td>
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<td>Experiment 2.3</td>
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<tr>
<td>Test</td>
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<tr>
<td><strong>Quarterly Test #1</strong></td>
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[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.