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Junior
Chemistry and
Physics
Notebooking Journal

for

Exploring Creation with
Chemistry and Physics

by
Jeannie Fulbright

Exploring Creation with Chemistry and Physics Junior Notebooking Journal

Published by Apologia Educational Ministries, Inc.
1106 Meridian Plaza, Suite 220/340
Anderson, IN 46016
www.apologia.com

© 2013 by Jeannie K. Fulbright
ISBN: 978-1-940110-06-6

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Printed in the United States of America
by Courier, Inc., Kendallville, IN
First Printing 2013

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Note from the Author

Welcome to the wonderful learning adventure of notebooking. This notebooking journal correlates with the Apologia textbook, *Exploring Creation with Chemistry and Physics*. It provides a place for students to complete the assignments in the text, as well as many optional activities, and will serve as their individual notebook. You only need to provide scissors, glue, colored pencils, a stapler, and a few brass fasteners.

Notebooking is not new. In fact, keeping notebooks was the primary way the learned men of our past educated themselves, from Leonardo da Vinci and Christopher Columbus to George Washington, John Quincy Adams, and Meriwether Lewis. These men and many others of their time were avid journal keepers or notebookers. They were also comparatively much more advanced in their knowledge—even as teens—than we are today. George Washington was a licensed surveyor during his teenage years, and John Quincy Adams graduated from law school at age seventeen.

It makes sense to emulate the methods of education of these great men rather than to use failing modern methods such as fill-in-the-blank and matching worksheets that do not fully engage students' minds. Studies show that individuals remember only 5 percent of what they hear, 50 percent of what they see and hear, and 90 percent of what they see, hear, and do. When students participate in activities that correspond with learning, retention increases exponentially. This is exactly what the *Chemistry and Physics Notebooking Journal* is designed to do—offer engaging learning activities to increase your students' learning and retention.

In addition to academic achievement, notebooking offers many benefits to students, parents, and teachers. It provides students an opportunity to express themselves uniquely as they learn and becomes a treasured keepsake of everything they have learned about chemistry and physics. For parents and teachers, it becomes a record of the year's studies that can easily be transferred to a portfolio if needed.

This journal will make notebooking easier for both you and your students by supplying an abundance of templates, hands-on craft suggestions, projects, additional experiment ideas, and many activities that will engage students in learning. Remember that *everything in this notebooking journal is optional*. Every child is different, learns differently, and responds differently to the array of activities provided here. Your goal is not to complete every activity but to make learning a joy. Use discernment to decide what activities and assignments will truly enhance your students' learning experience, encourage a love for learning, and build their confidence in science. If something is a drudgery, it will not increase your students' retention; it will only discourage their enjoyment of science and may also result in unmotivated learners. Because this notebooking journal will serve as a student's own unique record, you may customize it by simply tearing out the activity pages that you choose not to use.

It is my hope and prayer that you and your students will benefit from your studies this year, grow closer to God as you learn about His creation, and find joy in the learning process.

Warmly,

A handwritten signature in cursive script, reading "Cassie A. Brough". The signature is written in dark ink and is positioned to the right of the word "Warmly,".

How to Use This Book

Suggested Schedule

This notebooking journal provides a suggested schedule for reading the *Exploring Creation with Chemistry and Physics* text and completing the activities in the text and this journal. Please do not feel the need to assign every activity. Though not everyone will choose to use the schedule, those who do may find it very beneficial. The suggested schedule provides for the course to be completed in twenty-eight weeks, two days per week, but it can be adapted to fit your goals. You can expedite the course by studying science three or four days per week or lengthen it by studying science only one day per week. If you wish to do the extra activities in the “Test It Out” pages (which are not included in the schedule), still another day of science can be added. Use the schedule as a guide in a way that best suits your family.

Coloring Pages, Notebooking Assignments, Activities, and Projects

Every lesson in this journal begins with coloring pages. Your students may wish to color these pages while you read the lesson aloud. After each reading session, encourage students to use the boxes and lines on the “Fascinating Facts” pages to record information they found interesting in the reading. They can create illustrations, diagrams, or short narrations of what they learned, which will help them retain the information better. Following this opportunity for creative expression is another template for completing the notebooking assignment from the text. Colored pencils can be used to encourage creative, high-quality work. Vocabulary activities are also provided for each lesson to help students learn important chemistry and physics terms.

Scripture Copywork

Incorporating the Word of God in your science studies through Scripture copywork will provide many benefits to your students. It will encourage stronger faith and memorization of Scripture, as well as better writing, spelling, and grammar skills. Each lesson has a corresponding verse for students to copy; they may print or write in cursive.

Cut-and-Fold Miniature Books

At the back of this journal, you will find optional cut-and-fold miniature book craft activities to review the concepts learned in each lesson. Paste pages throughout the journal provide a place for students to preserve and display their minibooks.

Test It Out

The “Test It Out” suggestions are designed to give students additional ideas and activities that might enhance their studies, such as experiments, hands-on activities, recommended research and living books, and audio and video resources. Please be aware that some books may contain evolutionary content. Be sure to provide adult supervision for all “Test It Out” activities, projects, and experiments.

Project Pages

Many of the projects and experiments in *Exploring Creation with Chemistry and Physics* are hands-on and therefore cannot be preserved in a notebook. Each lesson in this notebooking journal provides project pages where students can write about what they did and learned from the various projects and experiments. Be sure to take pictures of the finished products and glue them onto the project pages. Students will enjoy looking back and remembering the fun they had learning chemistry and physics!

Field Trip Sheets

Your family may wish to further enhance your studies by visiting a science museum. Field trip sheets are provided at the back of this notebooking journal to record your visits. You can make a pocket on the back of these sheets to hold any brochures or additional information you receive. Simply glue three edges (sides and bottom) of a half-sheet of construction paper to the bottom of the field trip sheet.

Daily Schedule

Week	Day 1	Day 2
1	<p style="text-align: center;">Lesson 1 Chemistry and Physics Matter</p> <p>Read text pp. 15–17 & narrate Begin working on Coloring Pages, NJ pp. 11–12 Begin working on Fascinating Facts about Chemistry and Physics, NJ pp. 13–14 Try This! text p. 17 Read text pp. 18–20 & narrate Try This! text p. 19</p>	<p>Read text pp. 20–23 & narrate Try This! text pp. 20, 22, 23 Read text pp. 24–27 & narrate Try This! text pp. 25, 26, 27</p>
2	<p style="text-align: center;">Lesson 1 Chemistry and Physics Matter</p> <p>Notebooking Activity: Archimedes Play, text p. 28, NJ p. 15 Vocabulary Crossword, NJ p. 16</p>	<p>Scripture Copywork, NJ pp. 17–18 Creation Confirmation Minibook, NJ p. A1, Extra Miniature Books, NJ p. A5, Matter Flap Book, NJ p. A7 Project: Lava Lamps, text p. 29, NJ pp. 21–23</p>
3	<p style="text-align: center;">Lesson 2 Moving Matter</p> <p>Read text pp. 30–32 & narrate Begin working on Coloring Pages, NJ pp. 24–25 Begin working on Fascinating Facts about Moving Matter, NJ pp. 26–27 Try This! text p. 32 Read text pp. 33–35 & narrate Try This! text pp. 33, 34, 35</p>	<p>Read text pp. 36–37 & narrate Try This! text p. 37 Read text pp. 38–41 & narrate Try This! text pp. 38, 41</p>
4	<p style="text-align: center;">Lesson 2 Moving Matter</p> <p>Notebooking Activity: Matter Pockets, text p. 41, NJ pp. 28–30 Vocabulary Lift-the-Flap, NJ pp. 31–33</p>	<p>Scripture Copywork, NJ pp. 35–36 States of Matter Wheel, NJ p. A9 Experiment: Earth’s Water Cycle, text p. 42, NJ pp. 39–40</p>
5	[REDACTED]	[REDACTED]
6	[REDACTED]	[REDACTED]
7	[REDACTED]	[REDACTED]

Page numbers for the text are indicated by *text*. Page numbers for the notebooking journal are indicated by *NJ*.



It is I who made the earth and created mankind on it. My own hands stretched out the heavens; I marshaled their starry hosts.

Isaiah 45:12



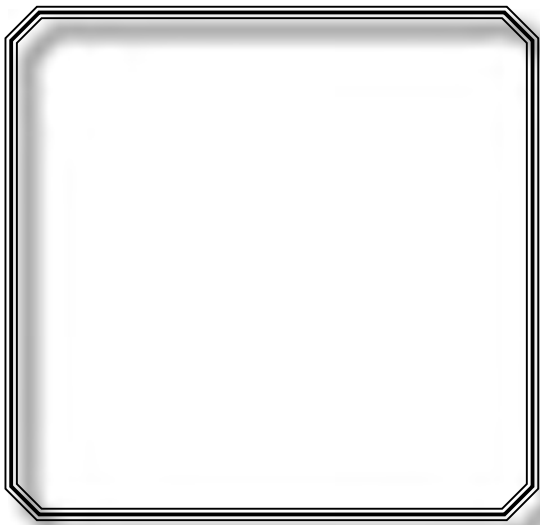
The fear of the LORD is pure, enduring forever. The decrees of the LORD are firm, and all of them are righteous. They are more precious than gold, than much pure gold; they are sweeter than honey, than honey from the honeycomb.

Psalm 19:9-10

Fascinating Facts



about
Matter
Lesson 1



Handwriting practice lines consisting of a solid top line, a dashed middle line, and a solid bottom line.

Handwriting practice lines consisting of a solid top line, a dashed middle line, and a solid bottom line.



Handwriting practice lines consisting of a solid top line, a dashed middle line, and a solid bottom line.

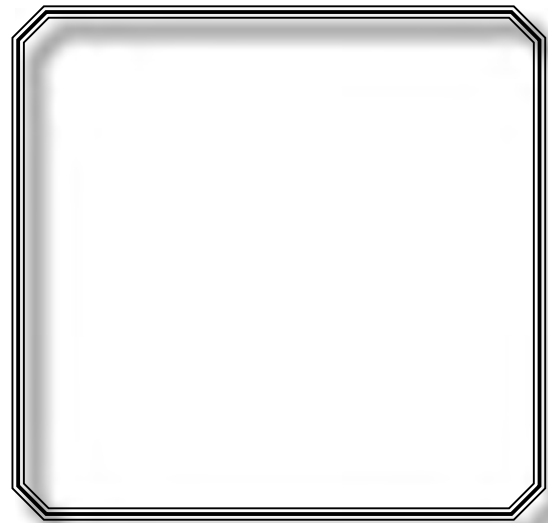
Fascinating Facts



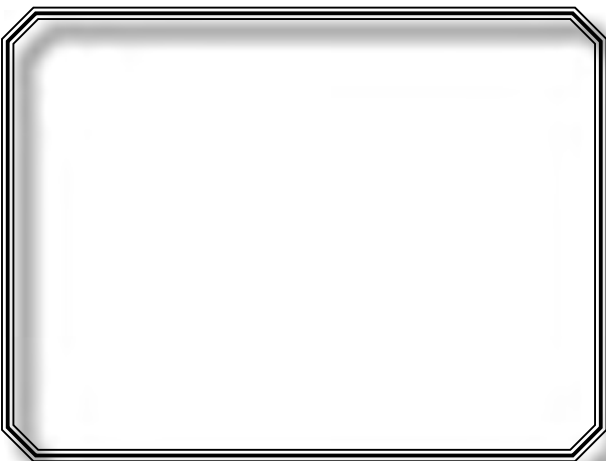
about
Matter
Lesson 1



Handwriting practice lines consisting of a solid top line, a dashed middle line, and a solid bottom line.



Handwriting practice lines consisting of a solid top line, a dashed middle line, and a solid bottom line.



Handwriting practice lines consisting of a solid top line, a dashed middle line, and a solid bottom line.

Archimedes Play

Lesson 1



VOCABULARY CROSSWORD

LESSON 1

matter

volume

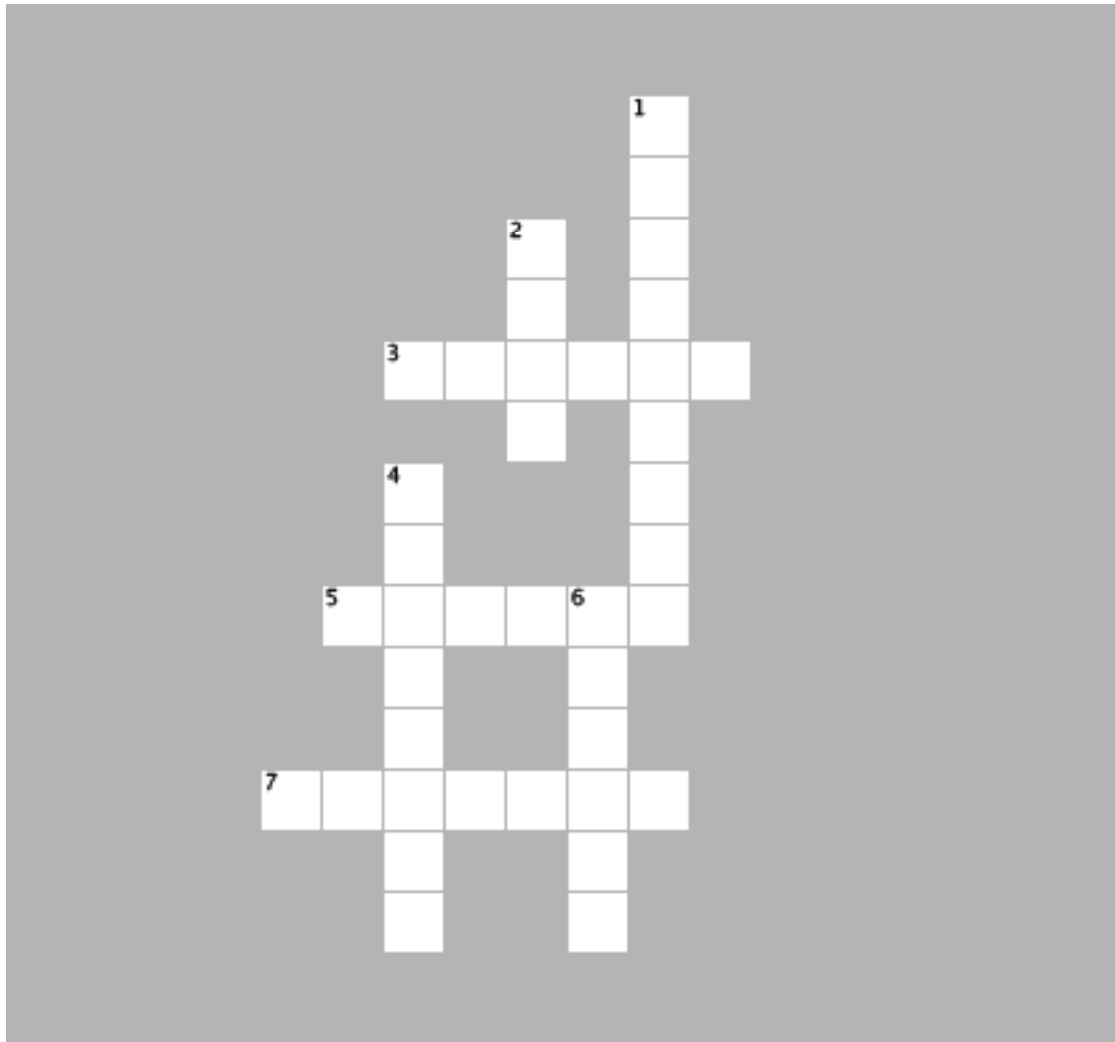
mass

density

buoyancy

luster

malleable



Across

3. The amount of shine something has
5. The amount of space something takes up
7. How much mass is in a certain volume of matter

Down

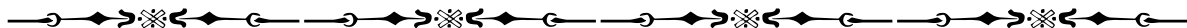
1. What we call something that's bendable
2. Tells us how much matter is inside something
4. The ability of something to float
6. Anything that has volume and mass

Copywork

He is before all things, and in him
all things hold together.

Colossians 1:17

Handwriting practice lines consisting of multiple rows of solid top and bottom lines with a dashed midline.

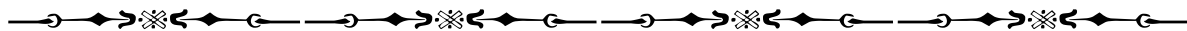


Copywork

He is before all things, and in
him all things hold together.

Colossians 1:17

Handwriting practice lines consisting of multiple sets of solid top and bottom lines with a dashed midline for ascenders.



Matter Flap Book

Lesson 1

Paste your Matter Flap Book
onto this page.





Test It Out

Lesson 1



Coke Float

We talked a lot about density. Which do you think is more dense: Coke or Diet Coke? For this activity, you'll need an adult's supervision and a can of each type of soda. Fill an aquarium, a large bucket, or even the kitchen sink with water. Now place both cans in the water. What happens? Why do you think that is?

Overflow Beans

Here's an activity on water displacement. You'll need an adult's supervision, a bowl of water, a small cup, a tablespoon, and some beans. Using a tablespoon, count how many tablespoons of water it takes to fill the cup. Now remove several tablespoons of water to make room for some beans. How many beans do you think you can place in the cup before the water overflows? Make a guess! Now put the beans in the water to see if you are correct. You have just estimated water displacement based on volume!

Boating Basics

Let's experiment with buoyancy. You'll need an adult's supervision, a piece of clay, a sink, and water. Fill your sink with water. Now split a piece of clay into two equal-sized pieces. Shape one piece into a ball and the other into a boat. Place the clay pieces into the water. See if you can explain what happens. (If the area of the object that makes contact with the water is large enough, the object floats. The object must make room for its own volume by pushing aside, or displacing, an equivalent volume of liquid.)

A Gallon a Day

This experiment will help you appreciate how much water you use everyday and understand how vital water is to your daily existence. Fill a 1-gallon container with water and try to get through the entire day using water only from the container. Use the water for hand washing, tooth brushing, face washing, dish rinsing, and drinking. Remember to use the water sparingly. See if you can make it last the whole day! Hint: Some of the water you can recycle, and some you can't. You wouldn't want to drink the water you used to wash your hands (or anything else, for that matter) or brush your teeth. But you could wash your hands with the water you used to wash your face.

Book Suggestions

What's the Matter in Mr. Whiskers' Room? by Michael Elsohn Ross. Mr. Whiskers encourages his students to use all their senses to discover matter. K–3rd.

How to Think Like a Scientist: Answering Questions by the Scientific Method by Stephen P. Kramer. Humorous and appealing pictures help teach students to use the scientific method and think like a scientist. 3rd–6th.

What's Chemistry All About? by Alex Frith and Lisa Gillespie. This book's conversational style explains chemistry in a fun and informative way. Comic strips, fact boxes, "nerdy notes," and fun experiments teach kids complicated topics. 3rd–6th.

Physics: Why Matter Matters! by Dan Green. Wacky characters invite you into the world of physics using visual interpretations to teach complex concepts. 3rd–6th.

My Matter Projects

Lesson 1

What I did:

What I learned:

What I did:

What I learned:

My Matter Projects

Lesson 1

What I did:

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What I learned:

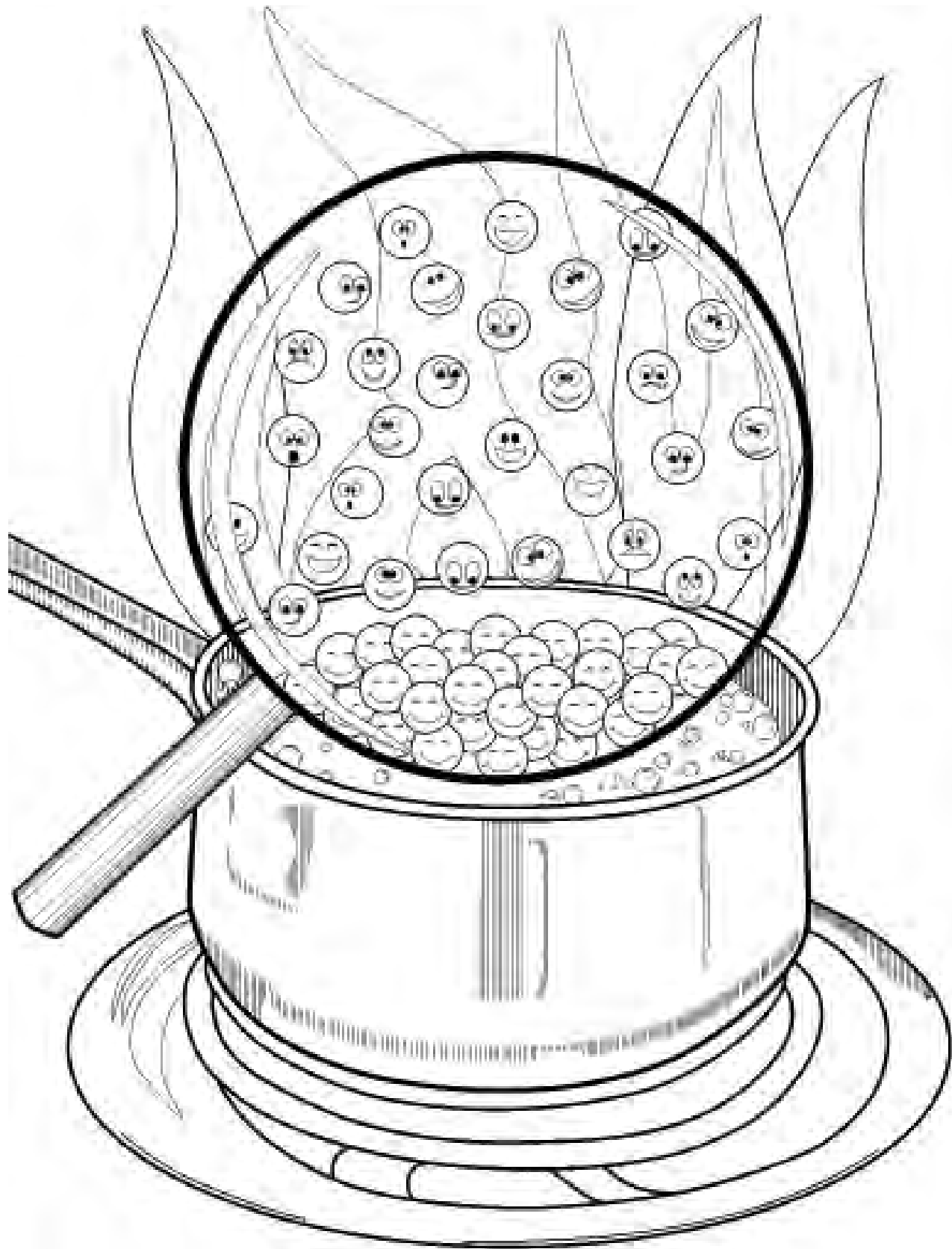
Handwriting practice lines for the left column, consisting of solid top and bottom lines with a dashed midline. There are 10 sets of these lines.

What I did:

Handwriting practice lines for the right column, consisting of solid top and bottom lines with a dashed midline. There are 10 sets of these lines.

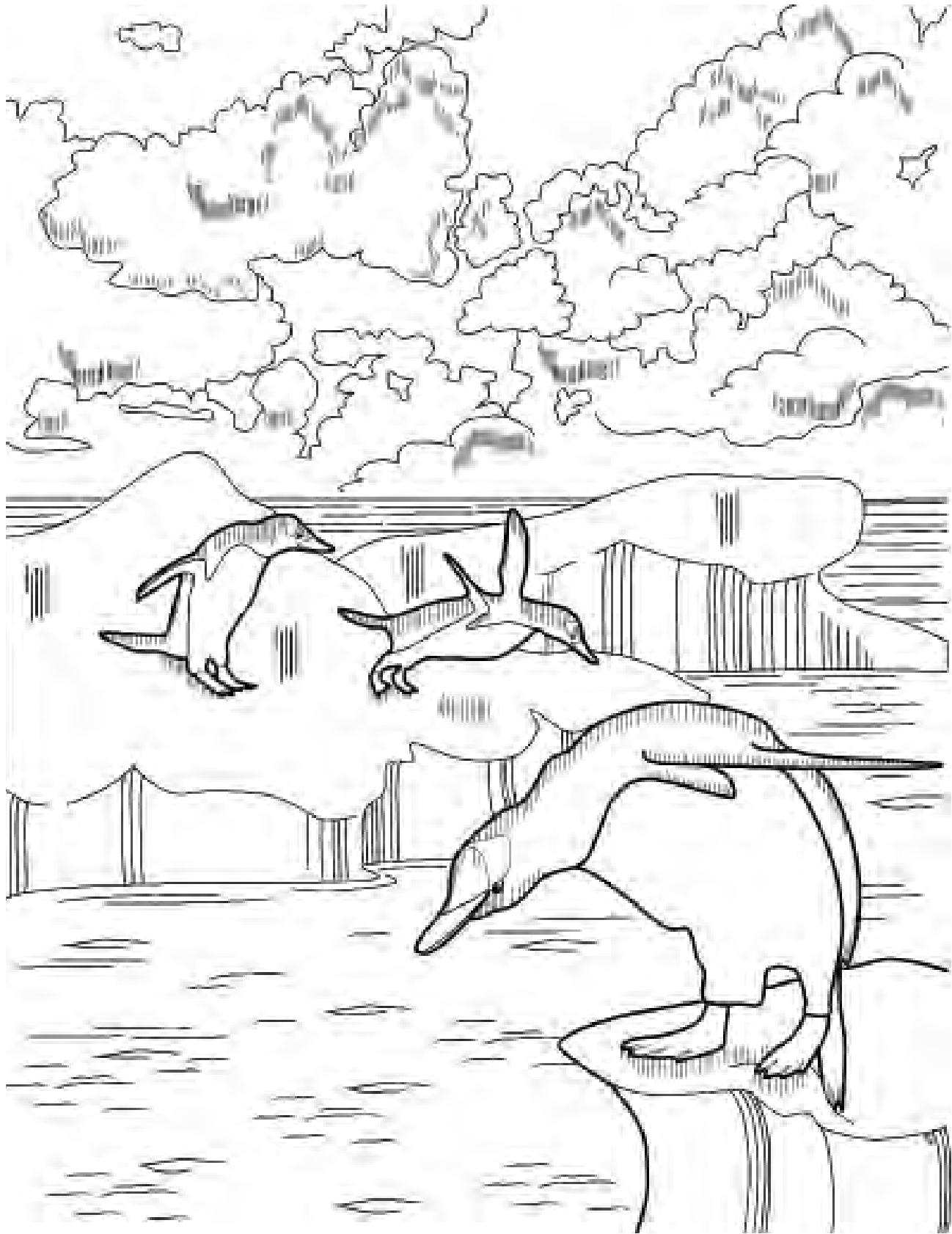
What I learned:

Handwriting practice lines for the right column, consisting of solid top and bottom lines with a dashed midline. There are 10 sets of these lines.



“But whoever drinks the water I give them will never thirst. Indeed, the water I give them will become in them a spring of water welling up to eternal life.”

John 4:14



And God said, "Let the water under the sky be gathered to one place, and let dry ground appear." And it was so.

Genesis 1:9