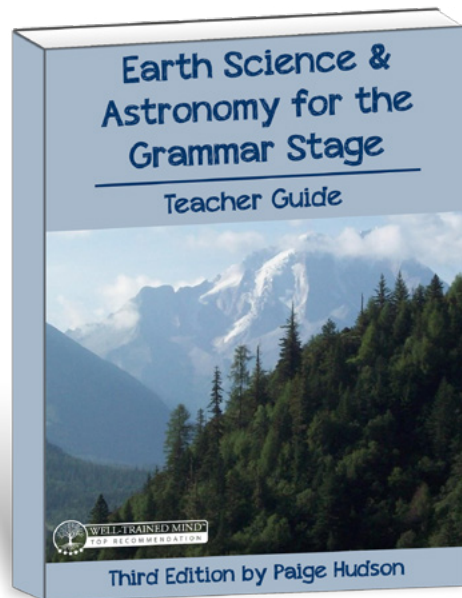
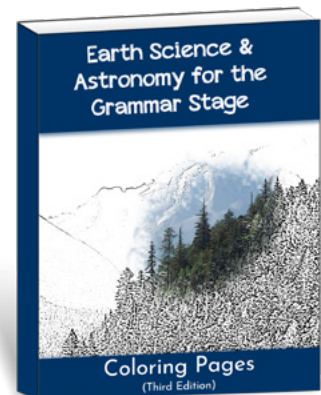
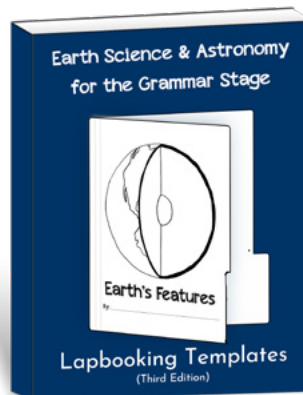
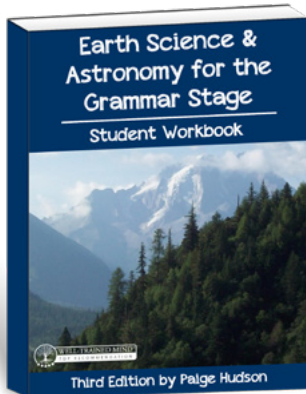


Earth Science and Astronomy for the Grammar Stage Sample Packet



The following sample packet includes the first two weeks from the *Earth Science and Astronomy for the Grammar Stage Teacher Guide* (beginning on p. 7), plus the three student options:

- ✓ The Student Workbook (*beginning on p. 31*)
- ✓ The Lapbooking Templates (*beginning on p. 49*)
- ✓ The Coloring Pages (*beginning on p. 58*)



You do not need all of these materials to complete this program. You do need the teacher guide, plus one of the student options. You can get more information and make your purchase here:

🖱 <https://elementalscience.com/collections/earth-science-astronomy-for-the-grammar-stage>

 **elementalscience.com**

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A Peek Inside the Grammar Stage Teacher Guide

The teacher guide is your go-to resource for creating memorable science lessons!

1. Weekly Topic

Focus on one main idea, with several subtopics, throughout the week. You will learn about these ideas by doing scientific demonstrations, by reading from visually appealing encyclopedias, by recording what the students learned, and by adding other optional activities.

2. Two Scheduling Options

Know what to do when with the two grid-style scheduling options. There are a 2-day-a-week and a 5-day-a-week schedules. These schedules break down the essential work and the optional activities into manageable chunks so that you can proceed with confidence.

3. Reading Assignments

Find two reading options—one for younger students, one for older students—plus discussion questions and optional library books.

4. Memory work

Boost your students' memory of what they have studied with a hallmark of classical education—memory work. These catchy poems share the key facts to remember about the unit's topics.

5. Additional Resources

See options for adding in more information about the weekly topic through children's encyclopedias and library books.

6. Related Scientific Demonstrations

Know what you will need to do a weekly hands-on science activity that coordinates

22

Week 1: Inside Earth Lesson Plans

1

2-Days-a-week Schedule		
	Day 1	Day 2
Read	<input type="checkbox"/> Read "A Look at Earth" <input type="checkbox"/> (Work on memorizing the "The Seven Continents" poem)	<input type="checkbox"/> Read "Our Planet" <input type="checkbox"/> (Choose one or more of the additional resources to read from this week)
Do	<input type="checkbox"/> Do the Scientific Demonstration: Model Earth	<input type="checkbox"/> (Work on the Model Planet Earth Project or Complete the Continents Project)
Write	<input type="checkbox"/> Add information about the inside of the Earth to the students' notebook or lapbook <input type="checkbox"/> Complete the demonstration sheet	<input type="checkbox"/> Add information about the Earth to the students' notebook or lapbook <input type="checkbox"/> Define continent <input type="checkbox"/> (Work on the Earth's Features Weekly Review Sheet 1)

2

5-Days-a-week Schedule					
	Day 1	Day 2	Day 3	Day 4	Day 5
Read	<input type="checkbox"/> Read "Our Planet"	<input type="checkbox"/> Read "A Look at Earth"	<input type="checkbox"/> (Work on memorizing the "The Seven Continents" poem)	<input type="checkbox"/> (Choose one or more of the additional resources to read from this week)	<input type="checkbox"/> (Choose one or more of the additional resources to read from this week)
Do		<input type="checkbox"/> (Complete the Continents Project)	<input type="checkbox"/> Do the Scientific Demonstration: Model Earth	<input type="checkbox"/> (Work on the Model Planet Earth Project)	
Write	<input type="checkbox"/> Add information about the inside of the Earth to the students' notebook or lapbook	<input type="checkbox"/> Add information about the inside of the Earth to the students' notebook or lapbook	<input type="checkbox"/> Complete the demonstration sheet	<input type="checkbox"/> Define continent	<input type="checkbox"/> (Work on the Earth's Features Weekly Review Sheet 1)

(These assignments are optional.)

Earth Science & Astronomy for the Grammar Stage Teacher Guide ~ Earth's Features Unit Week 1

23

Read - Information Gathering

Reading Assignments

- ☐ DK First Earth Encyclopedia pp. 6-7 "Our Planet"
? What does the area around your home look like?
? What did you learn about physical geography?
- ☐ DK First Earth Encyclopedia pp. 8-9 "A Look at Earth"
? What are the four main parts of the Earth?
? What did you find interesting about one of the parts?
? Can you tell me at least three of the seven continents?

4

Optional Memory Work

This week, begin working on memorizing the "The Seven Continents" poem. (SW p. 107)

(Optional) Additional Resources

Encyclopedias

- ☐ DK First Earth Encyclopedia pp. 6-7 "Earth," p. 10 "Core," p. 12 "Mantle," p. 14 "Crust"
- ☐ Usborne Children's Encyclopedia pp. 8-9 "Our Planet"
- ☐ DK Children's Encyclopedia pp. 13 "Earth," p. 135 "Inside Earth"

Library Books

- ☐ Flip the Flap: Planet Earth by Mike Goldsmith and Nicki Palin
- ☐ The Magic School Bus Inside the Earth (Magic School Bus) by Joanna Cole
- ☐ See Inside Planet Earth (Usborne Flip Book) by Katie Daynes and Peter Allen

Do - Demonstration and Activities

Demonstration - Model Earth

You will need the following:

- ✓ Modeling (or air-dry) clay (red, orange, yellow, blue, and green)
- ✓ Ruler

Demonstration Instructions

1. Read the following introduction to the students.

The surface of Earth has seven large continents, or large land masses. Even so, almost $\frac{3}{4}$ of Earth's surface is covered with water. Every day we walk on and see the outer layer of Earth called the crust. This thin layer of rock that covers the whole globe forms the mountains and land we see, plus it forms the bottoms of the oceans. But underneath the crust lies several layers. First is the mantle, which is composed of extremely hot molten rock called magma. This magma can sometimes reach the surface of the Earth in hot spots we call volcanoes, which we will learn about next week. The crust of the Earth basically floats on top of this layer. Under the mantle, we have

Earth Science & Astronomy for the Grammar Stage Teacher Guide ~ Earth's Features Unit Week 1

24

the core of the earth, which has two parts: the outer core, which is made of extremely hot, liquid, molten rock, and the inner core, which is solid iron and is responsible for giving the Earth its magnetic properties. In today's demonstration, you are going to create a clay model of our Earth to help you see the layers!

2. Have the students begin by making a ball about $\frac{1}{2}$ inch across out of the yellow clay. (*This represents the Earth's inner core.*)
3. Then, have the students make a flat circle out of the red clay and wrap it around the ball so that the ball is about 1 inch across. (*This layer represents the Earth's outer core.*)
4. Next, have the students make a flat circle out of the orange clay and wrap it around the ball so that the ball is about 2 inches across. (*This layer represents the Earth's mantle, the thickest layer.*)
5. Finally, have the students make a flat circle out of the blue clay and wrap it around the ball so that the ball is about $2\frac{1}{2}$ inches across. Then, use the green clay to make a few flattened pieces to represent the continents, and layer them over your ball. (*The blue and green clay layers represent the Earth's crust.*)
6. After the students have finished the ball, cut the ball in half and have them observe the layers.
7. Have the students label the layers of the Earth on the image provided on SW p. 11, and write a sentence of what they learned in this demonstration.

Demonstration Explanation

The purpose of this demonstration was for the students to see a representation of the layers of the Earth. As they are finishing their observations, ask the following questions:

- ? Can you see the different layers?
- ? Do you remember what the layers are?

(Optional) Take the Demonstration Further

Make an edible Earth core with the students using Rice Krispie treats and icing. See the following website for directions:

• <http://teachbesideme.com/geography-earth-core-project/>

(Optional) Unit Project

>> **Model Planet Earth** – This project will be completed over 3 weeks. You will need a balloon, some newspaper, 1 cup of flour, $\frac{1}{4}$ cup of water, and 2 tablespoons of salt. Begin by having the students blow up the balloon. Next, have them tear the newspaper into strips. As they are working on the newspaper strips, use the flour, water, and salt to make a thick paste. You can add more or less water to gain the desired consistency. Then, have the students dip the strips into the paste mixture and cover the balloon with one layer. Wait 30 minutes before having them add a second layer. Set the models aside for next week.

Earth Science & Astronomy for the Grammar Stage Teacher Guide ~ Earth's Features Unit, Week 1

with the topic. This section includes the supplies you will need, along with scripted introductions. The easy-to-follow steps and scripted explanations make it a snap to complete the scientific demonstration. And if your kiddos want more, we have you covered with a related idea to take the science-learning fun even further.

7. Coordinated Unit Projects

Add in a bit of fun with these optional project ideas for the whole unit.

8. Optional STEAM Ideas

Get ideas for additional STEAM activities that relate to the week's topic.

9. Notebooking Assignments

Record what your students have learned with either the student workbook or the optional lapbook. The directions for these options are included for your convenience in the guide. Plus, see which coloring pages coordinate with the week's lesson in this section.

10. Relevant Vocabulary

Build your students' science vocabulary with words relevant to the weekly topic.

11. Review Sheets

See which review sheet to assign—these are found at the back of the student workbook—along with the answers. These sheets can be used as review or as quizzes.

(Optional) Projects for This Week

- >> **Continents** – Have the students label and color the continents (North America, South America, Europe, Asia, Africa, Australia, and Antarctica) on a map of the Earth. You can use the map template provided in the appendix p. 183 and the answers are provided here for your reference. After you do that, memorize the continents with the help of the following song:

• "The Continent Song" - <https://www.youtube.com/watch?v=qgCWZ2Zk4>



Write - Notebooking

Writing Assignments

- ☐ **Student Workbook** – Have the students dictate, copy, or write out the four sentences on the Earth and inside the Earth on *Earth Science & Astronomy for the Grammar Stage Student Workbook* (SW) p. 10. You can have older students label the continents or the layers of the Earth as well.
- ☐ **(Optional) Lapbooking Templates** – Have the students complete the Earth tab book on p. 9 of *Earth Science & Astronomy for the Grammar Stage Lapbooking Templates* (LT). Have them cut out the pages and color the cover. Next, have the students tell you what they have learned about planet Earth and write it on the "Planet Earth" page. After that, have the students label the crust, mantle, outer core, and inner core on the "Inside the Earth" page. Then, have the students tell you the seven major continents (see the labeled map with the Earth project) and label them on the "Continents" page. Lastly, have them staple the pages together and glue the Earth booklet into the lapbook.
- ☐ **(Optional) Lapbooking Templates** – Have the students add the "Seven Continents" poem to the lapbook. Have them cut out and color the poem sheet found on LT p. 10. Once they are done, have them glue the sheet into the lapbook.
- ☐ **(Optional) Coloring Pages** – Have the students color the following pages from *Earth Science & Astronomy for the Grammar Stage Coloring Pages* (CP): Earth CP p. 7, Inside the Earth CP p. 8.

10. Vocabulary

Have the students look up and copy the definition for the following word:

→ **Continent** – A large area of land on Earth. (SW p. 95)

(Optional) Weekly Review Sheet

• "Earth's Features Weekly Review Sheet 1" on SW p. 113.

Answers: 1. Crust—the part of the Earth we live on; mantle—contains hot, melted rock; core—the hottest part of the Earth. 3. False (*Planet Earth looks blue from space*). 4. Answers will vary.

Earth Science & Astronomy for the Grammar Stage Teacher Guide ~ Earth's Features Unit, Week 1

A Peek Inside the Grammar Stage Student Materials

The Student Workbook

Harness the benefits of notebooking with the student workbook.

1. Weekly Notebooking Pages

Record what your students found interesting about the weekly subtopics using a hallmark of classical education—narration. Each of these customized notebooking pages has spaces to write and simple black-line illustrations for the students to color.

2. Simple Demonstration Sheets

Document the hands-on scientific demonstrations you do with simple lab sheets. These include sections for your materials, a simple procedure, your outcome, and the students' insights from the demonstration.

3. Glossary of Terms

Find a student glossary of terms following the weekly sheets. The terms are listed alphabetically with pictures to help your students remember their vocabulary.

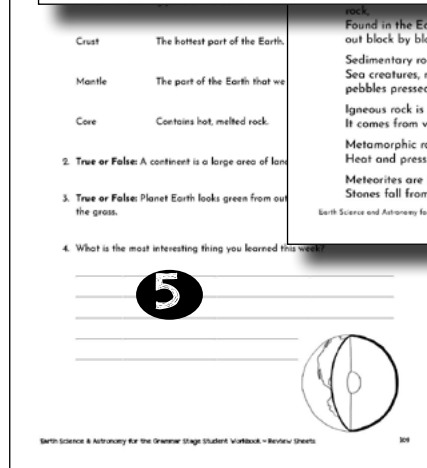
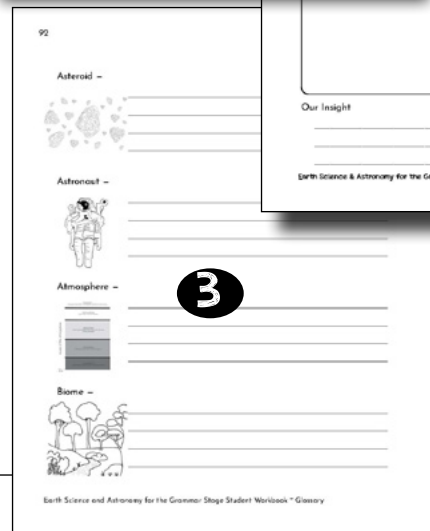
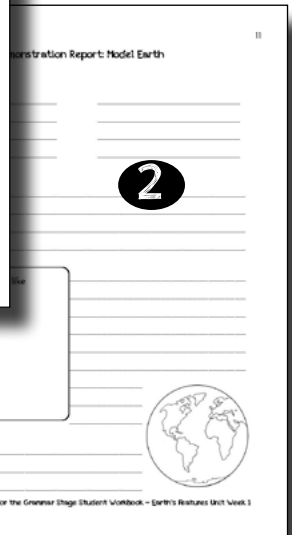
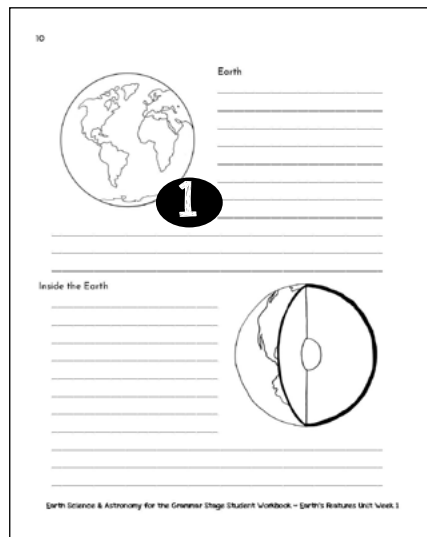
4. Memory Work Posters

Help the students work on their memory work with these poster-style sheets. Each poem is in a large, readable font with illustrations related to the information in the poem.

5. Review Sheets

Review what the students have learned with the review sheets found at the back of the student workbook. These can be used as review or quizzes.

Add in the optional lapbooking templates and coloring pages for more fun!



The Lapbooking Templates

Use the lapbooking templates to review the concepts learned, or you can have the student create each one in lieu of completing the student workbook.

5. Lapbook Overview Sheets

Know where to place the mini-books in the lapbook with these overview sheets. You will also find overall directions for completing the lapbook. The specific directions for completing each mini-book are found in the teacher guide.

6. Lapbook Cover

Find a unique cover for each of the suggested lapbooks.

7. Mini-book Templates

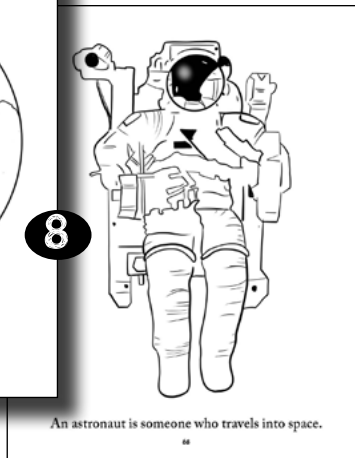
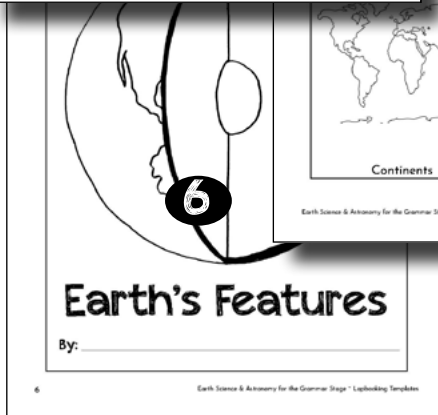
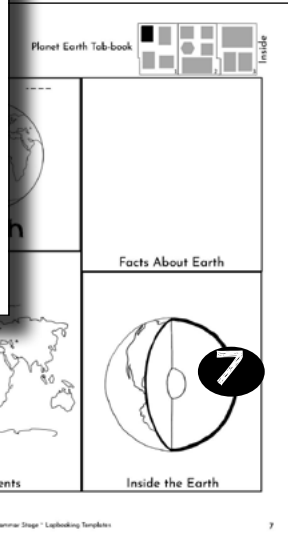
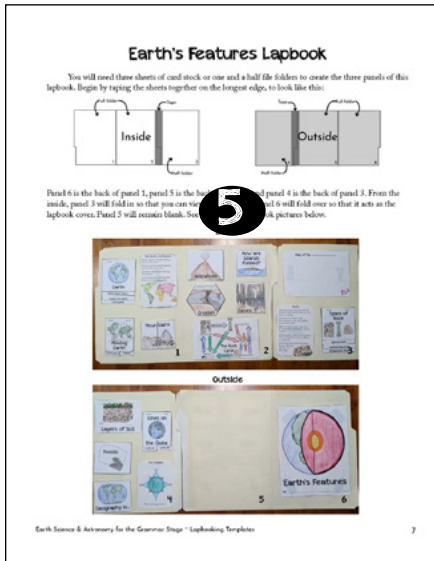
Get all the mini-books you will need to complete the suggested lapbooks, along with an exact placement guide. The templates include black-line illustrations and space for narrations.

The Coloring Pages

Use the coloring pages to add a bit of art to your science plans or to engage younger students.

8. Simple Coloring Pages

Color your way through learning about science with these coloring pages. Each page has a large, black-line illustration along with a key fact sentence for the students to learn about the topic. The specific directions for when to use these coloring pages are found in the teacher guide.



Earth Science & Astronomy for the Grammar Stage

Teacher Guide



Third Edition by Paige Hudson

In a Nutshell

Students will learn about our planet and space in the following ways:

- ✓ Listening to (or reading) **scientific information** from visually appealing encyclopedias.
- ✓ Watching (and doing) **hands-on science** through demonstrations and activities.
- ✓ Dictating (or writing down) what they have learned and seen using **notebooking**.


See p. 10 for a list of the topics explored in this program.


What You Need

In addition to this guide, you will need the following:

1. **The student materials** - You can purchase either the *Earth Science & Astronomy for the Grammar Stage Student Workbook* or the *Earth Science & Astronomy for the Grammar Stage Lapbooking Templates*. (Get a glimpse of these options on pp. 8-9.)

2. **The two spines:**

 *DK First Earth Encyclopedia, 2018 Edition*

 *DK First Space Encyclopedia, 2016 Edition*




You can also purchase the *Who Was Neil Armstrong?* for the scientist biography report in the last week of the Stars and Space Unit, or check a biography out from your local library. Get links to these books here:

 <https://elementalscience.com/blogs/resources/esags>

3. **The demonstration supplies** - See a full list starting on p. 16 or save yourself the time and purchase the *Earth Science & Astronomy for the Grammar Stage Experiment Kit*.

How It Works

Each week you and your early elementary student will do the following

-  **Read** the assigned pages with your students and use the included questions to discuss what was read.
-  **Do** the weekly demonstration with the students using the scripted introduction, directions, and scripted explanation found in this guide.
-  **Write** down what the students have learned and seen in a way that is appropriate for their skills.

You can also add in the optional memory work, library books, and STEAM activities if you want to dig deeper into a topic. For a more detailed explanation of the components in each lesson, we highly recommend checking out the peek inside this program on pp. 6-7 and reading the introduction starting on p. 11. Otherwise, the first lesson begins on p. 22.

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List of Topics Covered in This Program

Earth Science Units

Earth's Features Unit

- ✓ Planet Earth
- ✓ Layers of the Earth
- ✓ Earthquakes
- ✓ Tectonic Plates
- ✓ Volcanoes
- ✓ Mountains
- ✓ Islands
- ✓ Erosion and Weathering
- ✓ Caves
- ✓ Rocks
- ✓ The Rock Cycle
- ✓ Fossils
- ✓ Soil
- ✓ Geography
- ✓ Maps

Living Earth Unit

- ✓ Ecosystems
- ✓ Arctic
- ✓ Tundra
- ✓ Forests
- ✓ Rainforests
- ✓ Grasslands
- ✓ Deserts
- ✓ Wetlands
- ✓ Oceans
- ✓ The Water Cycle
- ✓ Rivers
- ✓ Atmosphere
- ✓ Weather
- ✓ Climate
- ✓ Seasons
- ✓ Earth's Resources

Astronomy Units

Solar System Unit

- ✓ Our Solar System
- ✓ Milky Way
- ✓ The Sun
- ✓ Eclipses
- ✓ Mercury
- ✓ Venus
- ✓ Earth's Moon
- ✓ Day and Night
- ✓ Mars
- ✓ Rockets
- ✓ Asteroids
- ✓ Meteors
- ✓ Jupiter
- ✓ Saturn
- ✓ Uranus
- ✓ Neptune
- ✓ Dwarf Planets
- ✓ Black Holes
- ✓ Comets

Stars and Space Unit

- ✓ Stars
- ✓ Life Cycle of Stars
- ✓ Constellations
- ✓ The Northern Sky
- ✓ The Southern Sky
- ✓ Telescopes
- ✓ Satellites
- ✓ Astronauts
- ✓ Space Shuttles
- ✓ Scientist Biography (Neil Armstrong)

Quick Links

The following page contains quick access to the activity links suggested in this guide along with several helpful downloads:

🔗 <https://elementalscience.com/blogs/resources/esags>

Earth Science & Astronomy for the Grammar Stage Teacher Guide ~ Introduction

Introduction to the Third Edition

It has been more than 10 years since the first edition of *Earth Science & Astronomy for the Grammar Stage* was released. With each edition, the format has been refined, but the method has always been based on the same three keys to teaching science:

1. Read about science.
2. Do, or rather play with, science.
3. Write about science.

If you want to learn more about these keys, check out this free conference session:

🔗 *The 3 Keys to Teaching Science* - <https://elementalscience.com/blogs/news/3-keys>

In this guide are the tools you need to teach science using the Classic Method found in *Success in Science: A Manual for Excellence in Science Education*. This method is loosely based on the ideas for classical science education that are laid out in *The Well-Trained Mind: A Guide to Classical Education at Home* by Jessie Wise and Susan Wise Bauer.

In *Success in Science*, the elementary student is compared to an empty bucket that is waiting to be filled with meaningful information. As such, the goal of this program is to give your elementary student exposure to age-appropriate topics of within the fields of Earth science and astronomy, building a knowledge base for future studies. The tools you are going to use are weekly scientific demonstrations, reading suggestions, notebooking assignments, additional activities, and more.

Let's take a closer look at what you will find in this guide.

Unit Overview Sheets

Each unit will begin with an overview sheet that shows the resources you will need for the unit, the list of topics, the supplies you will need, the memory work you can use, and the vocabulary you will cover. These are meant to give you a snapshot of the unit. Please feel free to swap the units around, but do keep the weeks within the unit in order as you work through this program.

Weekly Lesson Schedules

Each week's lesson will begin with a breakdown of what your week could look like. There are two potential schedules for you to give an idea of how you could schedule each week—one that breaks the assignments over 2 days, and one that breaks these assignments over 5 days. Each of these schedules has three sections to reflect the three keys to teaching science—read, do, and write (more about these in a moment). Optional assignments are in italics so you can easily see what is required and what can be used as gravy on the week's science meal.


You can choose to use these schedules as your guide or create your own using the two schedule templates on pp. 198-199 of the appendix of this guide. You could also create a list schedule or mark the lesson plans with a checkmark or date when you do the assignment.


In other words, you, the teacher, have complete freedom in what you would like to use to present and explore the concepts each week. Please treat the schedules and information in this guide as tools to teach science, not as weekly task masters.

Read - Information Gathering

Reading Assignments

The first things you will see in the “Read” section are the reading assignments. These come from the following two encyclopedias:

 *DK First Earth Encyclopedia, 2018 Edition*


 *DK First Space Encyclopedia, 2016 Edition*

These resources are essential for completing this program. You can use older editions because they are virtually the same on the inside. (**Note -** *At this point, the idea is that you read the assigned pages to your students. Here is a helpful podcast to determine if your students can handle reading science on their own: Should I read science aloud or not? <https://elementalscience.com/blogs/podcast/79>*)

After the assigned pages, you will find questions to ask your students after you have finished the reading selections. Here is an example:

? What is the point of these questions?

The point is to get your students to think about the information that was read to them. This seems like an extra, unnecessary step, but please don't skip these questions as they are designed to help your students get ready for the writing portion. Here is another helpful podcast about discussion times:

 Don't skip that science discussion time: <https://elementalscience.com/blogs/podcast/53>


{Optional} Memory Work


Next up in the “Read” section is the unit's optional memory work. An elementary student is capable of memorizing information and you can use this spongelike ability to have the students memorize basics facts related to Earth science and astronomy through simple poems. Remember that these poems are included as a resource for you to augment students' learning experiences and are not required to use this program successfully.


{Optional} Additional Resources

The final item in the “Read” section is a list of optional additional resources. First are several alternative encyclopedias, in case your student has a hard time (or an easy time) with the one from the reading assignments. Here is a list of all of the *optional* encyclopedias that are scheduled:

 *Basher Science Planet Earth (scheduled in the two Earth science units)*

 *Basher Science Astronomy (scheduled in the two astronomy units)*

 *Usborne Children's Encyclopedia (scheduled in all the units)*

 *DK Children's Encyclopedia (scheduled in all the units)*

You *do not* need to purchase these encyclopedias to complete this program. They are there as options to explore the topics deeper or to use as alternatives.

Finally, you will see a list of potential library books. These books are meant to be checked out from the library in case you decide that you would like to dig a little deeper into the topics. They are not necessary to the success of this program. Because every library is different, the books listed may not be available in your area. If that is the case, simply look up the topic in your local library's system. A complete list of all the suggested books can be found in the appendix pp. 209-215.

Do - Demonstration and Activities

Scientific Demonstrations

The bulk of the items in the “Do” section have to relate to the week’s scientific demonstration. These generally use easy-to-find materials and tie into what is being studied. At this age, you will be the driving force behind these demonstrations, meaning that you will be the one in control, and the students will be watching and participating when necessary. **(Note - If you want to read more about the differences between demonstrations and experiments, check out the following article: <https://elementalscience.com/blogs/news/89905795-scientific-demonstrations-or-experiments>)**

You will find several sections for the scientific demonstration:

- ☐ The Demonstration Title and Supplies
- ☐ The Instructions (*including a scripted introduction and detailed instructions*)
- ☐ The Explanation (*including the expected results and a scripted explanation*)

All scripted text, introductions, and explanations will look be in this font.

- ☐ Ideas to Take the Demonstration Further

These demonstrations are designed to provide a beginner’s look at the scientific method and how scientific tests work. Even so, it is not necessary to ask the students to predict the outcome of the demonstration because they have no knowledge base to determine what the answer should be. However, if your students enjoy predicting or they are able to tell you what will happen, please feel free to let them do so.

{Optional} Unit Projects and Weekly Activities

The final two items in the “Do” section are packed with STEAM activities that coordinate with each lesson. These are definitely optional, but they can be used to add in fun and deepen understanding. Here is a podcast to help you decide if you should use these activities:

- 🎧 Do you need to bother with the “extras” for science? <https://elementalscience.com/blogs/podcast/22>

The pages and pictures needed for the unit projects are included in the student workbook, whereas the directions for creating the projects are found in this guide. The weekly activities include

crafts and other activities that can enhance the students' learning time. There are no sheets to record these additional activities in the student workbook. However, I have included a project record sheet template, p. 197 of the appendix of this guide.

Write - Notebooking

Writing Assignments

In the first part of the “Write” section, you will be asking the students to narrate and record what they have learned from the reading assignments in a student workbook. (**Note** - *We have put together a complete workbook for your students to record what they did—the Earth Science & Astronomy for the Grammar Stage Student Workbook, which you can peek inside on p. 8 of this guide. It contains all the pages you will need to complete the narrations, demonstration reports, and multi-week projects, along with memory work posters, alphabetical sheets for the student glossary, and review sheets. The student workbook gives the students the ability to create a lasting memory of their first journey through Earth science and astronomy.*)

For younger students, you can have them dictate what they have learned to you, and then you write this into the student workbook. You can also have the students copy their narration into the workbook. You should expect only one to two sentences from a 1st- or 2nd-grade student. Here is a sample of what the students could write for week one of the Earth's Features unit:

*Physical geography talks about the Earth.
Around my home there is a lot of sand and no hills.*

OR

*The crust of the Earth is the part we live on.
The inside of Earth is melted rock.*

When you are done writing, you can have the students color the provided picture on the narration page.

Here are a podcast and a video that will help you understand a bit more about how this process works:

- 🔊 How do we narrate and what to expect - <https://elementalscience.com/blogs/podcast/78>
- 🔊 Writing in Science: The Elementary Years - <https://youtu.be/BrunFyeHh1Q>

We also offer two other consumable options for the students—lapbooking templates and coloring pages. These are optional, but they can be used as review or in place of the student workbook.

- 🔖 *Earth Science & Astronomy for the Grammar Stage Lapbooking Templates*
- 🔖 *Earth Science & Astronomy for the Grammar Stage Coloring Pages*

Both of these are also scheduled in under the “Writing Assignments” section. You can peek inside these two resources on pp. 9-10 of this guide.

Demonstration Reports

The demonstration reports are assigned in the “Do” section, but because they include writing, the explanation for how to use them is here. Each one of the scientific demonstrations has a corresponding report in the student workbook.

These demonstration reports include four sections:

1. The “Our Tools” section is for the materials that were used during the demonstration.
2. The “Our Method” section is for a brief description of what was done during the scientific demonstration. This should be in the students’ words.
3. The “Our Outcome” section is for what the students observed during the demonstration.
4. The “Our Insight” section is for what the students learned from the scientific demonstration.

Any time you see a box for a picture on the lab report, you can have the students draw what happened, or you can take a picture of the demonstration and glue it in the box. For younger students, you can do the writing for them on the demonstration reports.

Vocabulary

Next in the “Write” section, you will find the week’s vocabulary. You can go over these words orally or have the students copy the definitions into the glossary at the rear of the student workbook. If you want to have the students practice looking up the definitions, you can use the included glossary of the terms on pp. 203-205 of this guide.

{Optional} Review Sheets

The last part of the “Write” section assigns a weekly review sheet. These sheets are found at the back of the student workbook. Although these review sheets are not essential, they are helpful in assessing how much the students are retaining. You can also use these review sheets as quizzes. The correct answers for the review sheets are found at the end of the lesson’s materials.

Final Thoughts

Our goal at Elemental Science is to provide you with the information you need to be successful in your quest to educate your students in the sciences at home, which is why I encourage you to contact us with any questions or problems that you might have concerning this program at support@elementalscience.com. I, or a member of our team, will be more than happy to answer them as soon as we are able. I hope that you enjoy this year with *Earth Science & Astronomy for the Grammar Stage*!

- Paige Hudson

Supplies Needed by Week

Earth Science Units

Earth's Features Unit

Week	Supplies Needed
1	Modeling (or air dry) clay (red, orange, yellow, blue, and green), Ruler
2	Aluminum pan, Play sand or dirt, Small play houses and people
3	Aluminum pan, Empty soda bottle with a small opening, Air-dry clay or salt dough, Baking soda, Liquid dish soap, Red and yellow food coloring, White vinegar
4	A tube a toothpaste, Small yogurt container or plastic cup, Scissors or a knife, Air-dry clay or hot glue, Water
5	2 Small cups, Sand (enough to fill the cup), Water, Eyedropper, Shallow dish or pan
6	Six different colors of crayon, Old grater, Aluminum foil, Bowl, Hot water
7	Clay, Fern frond (or other kind of leaf), Rolling pin
8	Paper, Colored pencils
9	Dice, Rock Slides and Arrows (free printable game from Elemental Science)

Living Earth Unit

Week	Supplies Needed
1	Magnifying glass
2	Small paper cup, Water
3	Plastic bottle, Cotton balls, Gravel, Dirt, Crushed, old leaves, Duct tape, Water
4	Dark construction paper (black or brown will work best), Water, Salt, Eyedropper
5	Water, Cup, Ice, Bowl, Blue food coloring
6	Plastic baggie, Water, Tape
7	Clear glass, Shaving cream, Blue food coloring, Warm water
8	Flashlight, Pen, Cardstock or Cardboard, Table
9	Dice, Atlas Run (free printable game from Elemental Science)

Supplies Needed by Week

Astronomy Units

Solar System Unit

Week	Supplies Needed
1	2-11" x 17" sheets of black construction paper (or 3-8½" x 11" sheets), Colored pencils, Scissors, Glue, Scaled pictures of the planets (<i>appendix pp. 190-191</i>), String, Ruler
2	Large marshmallows, Chocolate squares, Graham crackers, Foil, Cardboard shoebox, Plastic wrap
3	Marble, Smooth pie plate or cake pan
4	2 Thermometers, Cutting board, Clear, glass bowl
5	Globe (or large ball), Desk lamp (or flashlight), Post-it tab (or another type of removable marker)
6	Straw, String (5 feet), Scissors, Large balloon, 2 Chairs, Tape
7	2 Marbles, Aluminum pan, Cornstarch, Cocoa powder, Tape measurer
8	Bowl, Milk, Food coloring, Liquid soap, Toothpick
9	Small pebbles, Water, Ice cube tray or small cup, String
10	Hot water, Glass jar with lid, Crushed ice, Match
11	Bingo markers (discs or beads), Planetary Bingo (free printable game from Elemental Science)
12	Bottle with large mouth, Hard-boiled egg, peeled, Warm water, Access to a freezer

Stars and Space Unit

Week	Supplies Needed
1	Black construction paper, Toothpick, Tape, Flashlight, Large clear bowl, Water
2	Foil, Toilet paper tube, Pin, Small flashlight, Constellation pictures (<i>appendix p. 194</i>), Rubber band, Sharpie marker
3	Flashlight planetarium (<i>from previous week</i>), Flashlight, Foil, Pin, Constellation pictures (<i>appendix p. 195</i>), Sharpie marker
4	Glass bowl, Cooking oil, Piece of paper with words on it, Magnifying glass

Stars and Space Unit Continued

Week	Supplies needed
5	Thick rubber gloves or work gloves, LEGO bricks, Several bolts, washers, and nuts that fit each other
6	<i>No supplies needed this week.</i>


Earth Science & Astronomy for the Grammar Stage

Earth's Features Unit


Earth's Features Unit Overview


(9 weeks)


Books Scheduled

 *DK First Earth Encyclopedia*

{Optional Encyclopedias}










 *Basher Science Planet Earth*

 *Usborne Children's Encyclopedia*

 *DK Children's Encyclopedia*



Sequence for Study

-  **Week 1:** Inside Earth
-  **Week 2:** Earthquakes
-  **Week 3:** Volcanoes and Mountains
-  **Week 4:** Islands
-  **Week 5:** Erosion and Caves
-  **Week 6:** Rocks and the Rock Cycle
-  **Week 7:** Fossils and Soil
-  **Week 8:** Geography
-  **Week 9:** Types of Maps

Planet Earth Poems to Memorize

The Seven Continents *(Author unknown, from the At Youth Safety website)*

North America, South America joined in the west.

Europe and Asia meet together, and on Africa they rest.

Australia stands alone, floating down below.

And Antarctica is the loneliest because no one wants to go.

Rocks

Minerals form each type of rock,

Found in the Earth's crust, cut out block by block.

Sedimentary rock is sand,

Sea creatures, mud, and pebbles pressed into land.

Igneous rock is made from fire;

It comes from volcanoes—sure to inspire.

Metamorphic rock is hard pressed;

Heat and pressure form a slab as you guessed.

Compass Rose Mnemonic - Never Eat Soggy Worms

Supplies Needed for the Unit

Week	Supplies Needed
1	Modeling (or air dry) clay (red, orange, yellow, blue, and green), Ruler
2	Aluminum pan, Play sand or dirt, Small play houses and people
3	Aluminum pan, Empty soda bottle with a small opening, Air-dry clay or salt dough, Baking soda, Liquid dish soap, Red and yellow food coloring, White vinegar
4	A tube a toothpaste, Small yogurt container or plastic cup, Scissors or a knife, Air-dry clay or hot glue, Water
5	2 Small cups, Sand (enough to fill the cup), Water, Eyedropper, Shallow dish or pan
6	Six different colors of crayon, Old grater, Aluminum foil, Bowl, Hot water
7	Clay, Fern frond (or other kind of leaf), Rolling pin
8	Paper, Colored pencils
9	Dice, Rock Slides and Arrows (free printable game from Elemental Science)

Unit Vocabulary

1. **Continent** – A large area of land on Earth.
2. **Earthquake** – The shaking and vibration at the surface of Earth caused by underground movements.
3. **Plate Boundary** – The place at which two tectonic plates from the Earth's crust meet.
4. **Lava** – Molten rock found on the Earth's surface.
5. **Magma** – Molten rock found under Earth's surface.
6. **Archipelago** – A group of islands.
7. **Island** – A section of land that is surrounded on all sides by water.
8. **Cave** – An underground room with walls made of rock.
9. **Mineral** – A natural substance found in Earth's crust that forms rocks.
10. **Sediment** – Tiny, broken-down pieces of rock.
11. **Fossil** – A trace of a plant or animal that lived in the past.
12. **Geography** – The study of Earth's landscapes, peoples, places, and environments.
13. **Equator** – The most important line of latitude, which divides the Earth in half.

Week 1: Inside Earth Lesson Plans

2-Days-a-week Schedule		
	Day 1	Day 2
Read	<input type="checkbox"/> Read “A Look at Earth” <input type="checkbox"/> {Work on memorizing the “The Seven Continents” poem}	<input type="checkbox"/> Read “Our Planet” <input type="checkbox"/> {Choose one or more of the additional resources to read from this week}
Do	<input type="checkbox"/> Do the Scientific Demonstration: Model Earth	<input type="checkbox"/> {Work on the Model Planet Earth Project or Complete the Continents Project}
Write	<input type="checkbox"/> Add information about the inside of the Earth to the students’ notebook or lapbook <input type="checkbox"/> Complete the demonstration sheet	<input type="checkbox"/> Add information about the Earth to the students’ notebook or lapbook <input type="checkbox"/> Define continent <input type="checkbox"/> {Work on the Earth’s Features Weekly Review Sheet 1}

5-Days-a-week Schedule					
	Day 1	Day 2	Day 3	Day 4	Day 5
Read	<input type="checkbox"/> Read “Our Planet”	<input type="checkbox"/> Read “A look at earth”	<input type="checkbox"/> {Work on memorizing the “The Seven Continents” poem}	<input type="checkbox"/> {Choose one or more of the additional resources to read from this week}	<input type="checkbox"/> {Choose one or more of the additional resources to read from this week}
Do		<input type="checkbox"/> {Complete the Continents Project}	<input type="checkbox"/> Do the Scientific Demonstration: Model Earth	<input type="checkbox"/> {Work on the Model Planet Earth Project}	
Write	<input type="checkbox"/> Add information about the inside of the Earth to the students’ notebook or lapbook	<input type="checkbox"/> Add information about the inside of the Earth to the students’ notebook or lapbook	<input type="checkbox"/> Complete the demonstration sheet	<input type="checkbox"/> Define continent	<input type="checkbox"/> {Work on the Earth’s Features Weekly Review Sheet 1}

{These assignments are optional.}

Read – Information Gathering

Reading Assignments

- ❑ *DK First Earth Encyclopedia* pp. 6-7 “Our Planet”
 - ? What does the area around your home look like?
 - ? What did you learn about physical geography?
- ❑ *DK First Earth Encyclopedia* pp. 8-9 “A Look at Earth”
 - ? What are the four main parts of the Earth?
 - ? What did you find interesting about one of the parts?
 - ? Can you tell me at least three of the seven continents?

{Optional} Memory Work

- 🔔 This week, begin working on memorizing the “The Seven Continents” poem. (SW p. 107)

{Optional} Additional Resources

Encyclopedias

- 📖 *Basher Science Planet Earth* p. 7 “Earth,” p. 10 “Core,” p. 12 “Mantle,” p. 14 “Crust”
- 📖 *Usborne Children’s Encyclopedia* pp. 8-9 “Our Planet”
- 📖 *DK Children’s Encyclopedia* p. 83 “Earth,” p. 135 “Inside Earth”

Library Books

- 📖 *Flip The Flaps: Planet Earth* by Mike Goldsmith and Nicki Palin
- 📖 *The Magic School Bus Inside the Earth (Magic School Bus)* by Joanna Cole
- 📖 *See Inside Planet Earth (Usborne Flap Book)* by Katie Daynes and Peter Allen

Do – Demonstration and Activities

Demonstration – Model Earth

You will need the following:

- ✓ Modeling (or air dry) clay (red, orange, yellow, blue, and green)
- ✓ Ruler

Demonstration Instructions

1. Read the following introduction to the students.

The surface of Earth has seven large continents, or large land masses. Even so, almost $\frac{3}{4}$ of Earth’s surface is covered with water. Every day we walk on and see the outer layer of Earth called the crust. This thin layer of rock that covers the whole globe forms the mountains and land we see, plus it forms the bottoms of the oceans. But underneath the crust lies several layers. First is the mantle, which is composed of extremely hot molten rock called magma. This magma can sometimes reach the surface of the Earth in hot spots we call volcanoes, which we will learn about next week. The crust of the Earth basically floats on top of this layer. Under the mantle, we have

the core of the earth, which has two parts: the outer core, which is made of extremely hot, liquid, molten rock, and the inner core, which is solid iron and is responsible for giving the Earth its magnetic properties. In today's demonstration, you are going to create a clay model of our Earth to help you see the layers!

2. Have the students begin by making a ball about $\frac{1}{2}$ inch in diameter out of the yellow clay. (*This represents the Earth's inner core.*)
3. Then, have the students make a flat circle out of the red clay and wrap it around the ball so that the ball is about 1 inch across. (*This layer represents the Earth's outer core.*)
4. Next, have the students make a flat circle out of the orange clay and wrap it around the ball so that the ball is about 2 inches across. (*This layer represents the Earth's mantle, the thickest layer.*)
5. Finally, have the students make a flat circle out of the blue clay and wrap it around the ball so that the ball is about 2 $\frac{1}{2}$ inches across. Then, use the green clay to make a few flattened pieces to represent the continents, and layer them over your ball. (*The blue and green clay layers represent the Earth's crust.*)
6. After the students have finished the ball, cut the ball in half and have them observe the layers.
7. Have the students label the layers of the Earth on the image provided on SW p. 11, and write a sentence of what they learned in this demonstration.

Demonstration Explanation

The purpose of this demonstration was for the students to see a representation of the layers of the Earth. As they are finishing their observations, ask the following questions:

? Can you see the different layers?

? Do you remember what the layers are?

{Optional} Take the Demonstration Further

Make an edible Earth core with the students using Rice Krispie treats and icing. See the following website for directions:

🔗 <http://teachbesideme.com/geography-earths-core-project/>

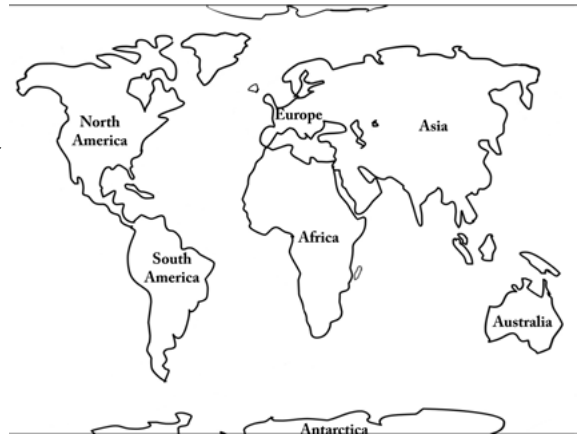
{Optional} Unit Project

- ✂ **Model Planet Earth** – This project will be completed over 3 weeks. You will need a balloon, some newspaper, 1 cup of flour, $\frac{1}{2}$ cup of water, and 2 tablespoons of salt. Begin by having the students blow up the balloon. Next, have them tear the newspaper into strips. As they are working on the newspaper strips, use the flour, water, and salt to make a thick paste. You can add more or less water to gain the desired consistency. Then, have the students dip the strips into the paste mixture and cover the balloon with one layer. Wait 30 minutes before having them add a second layer. Set the models aside for next week.

{Optional} Projects for This Week

✂ **Continents** – Have the students label and color the continents (*North America, South American, Europe, Asia, Africa, Australia, and Antarctica*) on a map of the Earth. You can use the map template provided in the appendix p. 183 and the answers are provided here for your reference. After you do that, memorize the continents with the help of the following song:

📱 “The Continent Song” – <https://www.youtube.com/watch?v=fqsCWZtZlk4>



Write - Notebooking

Writing Assignments

- ☐ **Student Workbook** – Have the students dictate, copy, or write one to four sentences on the Earth and inside the Earth on *Earth Science & Astronomy for the Grammar Stage Student Workbook* (SW) p. 10. You can have older students label the oceans and continents or the layers of the Earth as well.
- ☐ **{Optional} Lapbooking Templates** – Have the students complete the Earth tab book on p. 9 of *Earth Science & Astronomy for the Grammar Stage Lapbooking Templates* (LT). Have them cut out the pages and color the cover. Next, have the students tell you what they have learned about planet Earth and write it on the “Planet Earth” page. After that, have the students label the crust, mantle, outer core, and inner core on the “Inside the Earth” page. Then, have the students tell you the seven major continents (*see the labeled map with the Earth project*) and label them on the “Continents” page. Lastly, have them staple the pages together and glue the Earth booklet into the lapbook.
- ☐ **{Optional} Lapbooking Templates** – Have the students add the “Seven Continents” poem to the lapbook. Have them cut out and color the poem sheet found on LT p. 10. Once they are done, have them glue the sheet into the lapbook.
- ☐ **{Optional} Coloring Pages** – Have the students color the following pages from *Earth Science & Astronomy for the Grammar Stage Coloring Pages* (CP): Earth CP p. 7, Inside the Earth CP p. 8.

Vocabulary

Have the students look up and copy the definition for the following word:

📖 **Continent** – A large area of land on Earth. (SW p. 95)

{Optional} Weekly Review Sheet

- 📌 “Earth’s Features Weekly Review Sheet 1” on SW p. 113.

Answers: 1. Crust—the part of the Earth that we live on; mantle—contains hot, melted rock; core—the hottest part of the Earth; 2. True; 3. False (*Planet Earth looks blue from space.*); 4. Answers will vary

Week 2: Earthquakes Lesson Plans

2-Days-a-week Schedule		
	Day 1	Day 2
Read	<input type="checkbox"/> Read “On the Move” <input type="checkbox"/> {Work on memorizing the “The Seven Continents” poem}	<input type="checkbox"/> Read “Earthquake!” <input type="checkbox"/> {Choose one or more of the additional resources to read from this week}
Do	<input type="checkbox"/> {Work on the Model Planet Earth Project or Complete the Tectonic Plates Project}	<input type="checkbox"/> Do the Scientific Demonstration: Quaking
Write	<input type="checkbox"/> Add information about the tectonic plates to the students’ notebook or lapbook <input type="checkbox"/> Define earthquake and plate boundary	<input type="checkbox"/> Add information about earthquakes to the students’ notebook or lapbook <input type="checkbox"/> Complete the demonstration sheet <input type="checkbox"/> {Work on the Earth’s Features Weekly Review Sheet 2}

5-Days-a-week Schedule					
	Day 1	Day 2	Day 3	Day 4	Day 5
Read	<input type="checkbox"/> Read “On the Move”	<input type="checkbox"/> Read “Earthquake!”	<input type="checkbox"/> {Work on memorizing the “The Seven Continents” poem}	<input type="checkbox"/> {Choose one or more of the additional resources to read from this week}	<input type="checkbox"/> {Choose one or more of the additional resources to read from this week}
Do	<input type="checkbox"/> {Complete the Tectonic Plates Project}	<input type="checkbox"/> {Complete the Tsunami Project}	<input type="checkbox"/> Do the Scientific Demonstration: Quaking	<input type="checkbox"/> {Work on the Model Planet Earth Project}	
Write	<input type="checkbox"/> Add information about the tectonic plates to the students’ notebook or lapbook	<input type="checkbox"/> Add information about earthquakes to the students’ notebook or lapbook	<input type="checkbox"/> Complete the demonstration sheet	<input type="checkbox"/> Define earthquake and plate boundary	<input type="checkbox"/> {Work on the Earth’s Features Weekly Review Sheet 2}

Read – Information Gathering

Reading Assignments

- ❑ *DK First Earth Encyclopedia* pp. 10-11 “On the Move”
 - ? What did you find interesting about the plates on the Earth’s crust?
 - ? Do you remember one way that the plates move against each other?
- ❑ *DK First Earth Encyclopedia* pp. 18-19 “Earthquake!”
 - ? What are two things you learned about earthquakes?
 - ? What is one thing you learned about tsunamis?
 - ? Do you remember what the “ring of fire” is?

{Optional} Memory Work

- 🔊 This week, continue working on memorizing the “The Seven Continents” poem. (SW p. 107)

{Optional} Additional Resources

Encyclopedias

- 📖 *Basher Science Planet Earth* p. 16 “Plates,” p. 20 “Earthquake”
- 📖 *Usborne Children’s Encyclopedia* pp. 20-21 “Earthquake”
- 📖 *DK Children’s Encyclopedia* p. 84 “Earth’s Surface,” p. 85 Earthquakes”

Library Books

- 📖 *Earthquakes (Let’s-Read-and-Find Out Science 2)* by Franklyn M. Branley
- 📖 *Jump into Science: Earthquakes* by Ellen J. Prager and Susan Greenstein

Do – Demonstration and Activities

Demonstration – Quaking

You will need the following:

- ✓ Aluminum pan
- ✓ Play sand or dirt
- ✓ Small play houses and people

Demonstration Instructions

1. Read the following introduction to the students.

Last week, we learned that the crust is the outer layer of the Earth and this rests on top of a molten layer called the mantle. Well, the crust is broken into pieces, called plates, that float on the molten layer of rock. Sometimes these plates can shift and bump into each other or slide past each other, resulting in a vibration that is felt on the crust. This vibration, or shaking is called an earthquake. In today’s demonstration, you are going to see what happens to people and buildings on the Earth’s surface during an earthquake!

2. Have the students fill their pan halfway with sand and dirt.
3. Then, have them place the houses and people in different places in the sand.
4. Now, with the pan on a solid surface (i.e., table or counter), shake the pan slightly. Ask the students:

? What happened to the buildings and people when you shook the pan?

5. Take a picture and record their observations on the demonstration sheet on SW p. 13.
6. If anything has fallen, put it back up, and then repeat steps 4 and 5, only this time shake the pan moderately.
7. Again, if anything has fallen, put it back up, and then repeat steps 4 and 5, only this time shake the pan harder.
8. Read the demonstration explanation to the students, and have them complete the demonstration sheet.

Demonstration Explanation

The purpose of this demonstration was for the students to see how an earthquake affects people and buildings. The students should see that the more movement they created, the more “damage” was done to their figurines. Read the following to the students:

The more we shook the pan, the more the buildings and people in our pan were affected. The same is true during an earthquake. Remember that an earthquake is caused by movement deep within the Earth’s crust. Generally, the more the plates in the crust shift and move, the greater the strength of the earthquake felt on the surface.

{Optional} Take the Demonstration Further

Have the students repeat the experiment, only this time have them wet down the sand or dirt to see if their results are different. (*The students should see that the water minimizes the damage to the buildings, but it does make their surface more prone to form cracks.*)

{Optional} Unit Project

✂ **Model Planet Earth** – This week, you will need the model from last week, more newspaper, 1 cup of flour, ½ cup of water, 2 tablespoons of salt, and a globe. Once again, have the students tear the newspaper into strips. As they are working on the newspaper strips, use the flour, water, and salt to make a thick paste. You can add more or less water to gain the desired consistency. Then, have the students dip the strips into the paste mixture and use the strips to create any topographical features (i.e., mountains) to their model Earth. Have them use the globe as a guide. Finally, set the paper mache models in a warm, moisture-less location to dry out in preparation for next week.

{Optional} Projects for This Week

✂ **Tectonic Plates** – You will need marshmallow creme (or whipping cream), graham crackers, a plate, and a bowl with about an inch of water for the project. Begin by heating the plate up for 10 seconds for the students, so that the fluff is a bit warm. Then, have the students break

a graham cracker in half and quickly dip both cracked edges into the bowl of water. Have the students place both crackers on the marshmallow creme with the dipped ends next to each other. Next, have them gently push the two ends of the cracker toward each other. What happens? *(The students should see a ridge of buckled-up cracker created along the edges where the two crackers met. As the plates move extremely slowly over the mantle, they interact with each other along the borders. Heat and pressure soften the rock and allow changes to the Earth's crust. This demonstration was an example of convergent plate movements. In this type of crustal movement, the two plates collide, which causes the plates to buckle or forces one plate to bend under the other. The results of this type of plate movement typically create mountain ranges and volcanoes or the destruction of the crust that has been bent under the plate it met.)*

- ✂ **Tsunami in a Bottle** – Have the students create their own tsunami waves in a bottle. They will need a water bottle, water, oil, blue food coloring, and tape. Have them fill the water bottle a little more than halfway with water and add a few drops of blue food coloring to the water. Now, have them slowly fill the rest of the bottle with oil. Have them screw on the top and wrap it with tape to prevent leaks. Then, have the students set the bottle on its side and shake it back and forth to create waves.

Write - Notebooking

Writing Assignments

- ☐ **Student Workbook** – Have the students dictate, copy, or write one to four sentences on the tectonic plates and earthquakes on SW p. 12.
- ☐ **{Optional} Lapbooking Templates** – Have the students complete the Moving Earth mini tab book on LT p. 11. Have them cut out the pages and color the cover. Next, have the students tell you what they have learned about the tectonic plates and earthquakes and write it on the respective pages. Then, have them staple the pages together and glue the booklet into the lapbook.
- ☐ **{Optional} Coloring Pages** – Have the students color the following pages: Tectonic Plates CP p. 9, Earthquakes CP p. 10.

Vocabulary

Have the students look up and copy the definition for the following words:

- ✍ **Earthquake** – The shaking and vibration at the surface of Earth caused by underground movements. (SW p. 96)
- ✍ **Plate Boundary** – The place at which two tectonic plates from the Earth's crust meet. (SW p. 97)

{Optional} Weekly Review Sheet

- 1 “Earth's Features Weekly Review Sheet 2” on SW p. 114.

Answers: 1. False (*Earthquakes occur at the edges where the plates meet.*); 2. True; 3. Pacific; 4. Answers will vary

Earth Science & Astronomy for the Grammar Stage

Student Workbook



WELL-TRAINED MIND™
TOP RECOMMENDATION

Third Edition by Paige Hudson




Classical SCIENCE

A Quick Welcome from the Author

Dear Student,

Welcome to Earth science and astronomy! This workbook will serve as a scrapbook of sorts for you to share what you learned about our planet and about space. You will be learning about volcanoes, maps, oceans, weather, the planets, the stars, and so much more.

Each week you and your teacher will do the following:

-  **Read** the assigned pages together. Your teacher will then ask you a few questions as you discuss what was read. Be sure to share what you found interesting.
-  **Do** the weekly demonstration with your teacher. This is the super fun part of science, plus you get to exercise your observation muscles. Be sure to pay close attention and help out when your teachers ask you to do so.
-  **Write** down what you have learned and seen. Your teacher may help you with the actual writing, but be sure to record the facts that you want to remember.

Your teacher has the tools to add in more each week, things like memory work, library books, and extra activities. Be sure to let them know if you want to dig deeper into a topic.

And, if you have a question or want to share your work with me, please have your teacher send us an email (support@elementalscience.com) or by tagging us (@elementalscience) in a photo you share online. I would love to see what you have learned this year!

I hope that you enjoy learning about Earth science and astronomy this year!

Paige Hudson

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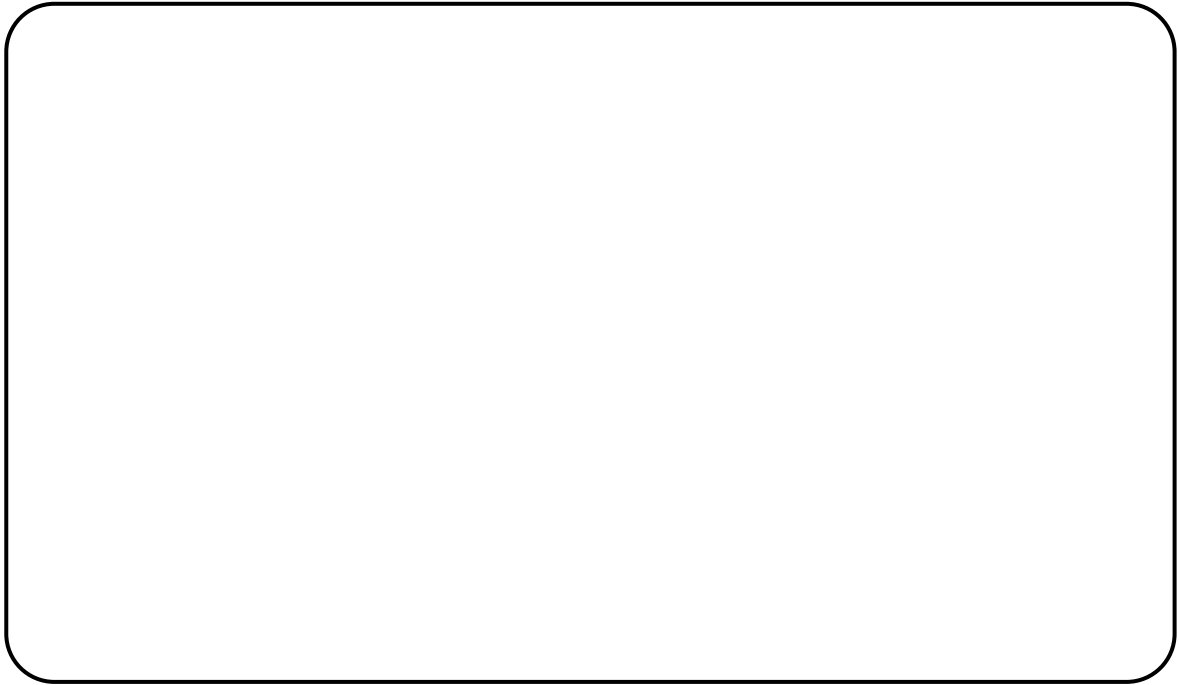
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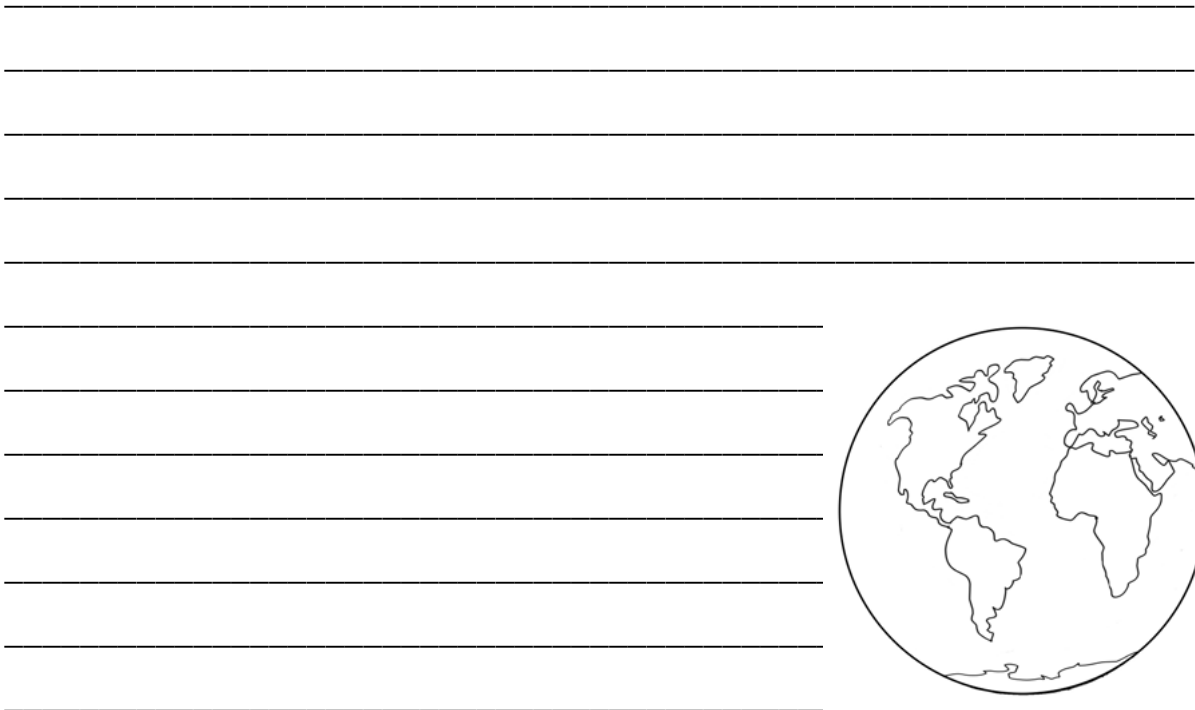
Earth Science & Astronomy for the Grammar Stage

Earth's Features Unit

Model of Planet Earth



What I Learned



Rock Collection

Rocks I have found

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

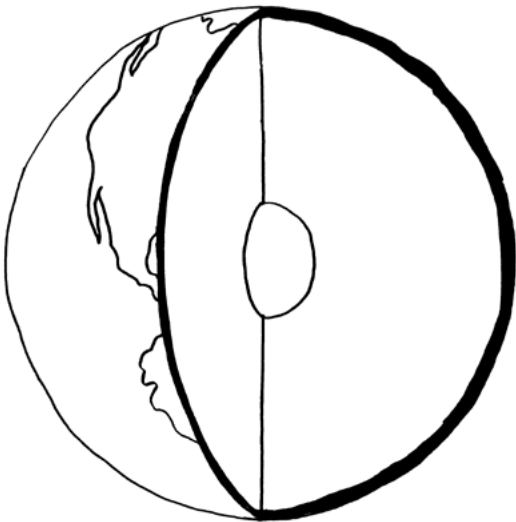
9. _____

10. _____



Earth

Inside the Earth



Demonstration Report: Model Earth

Our Tools

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<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>

Our Method

Our Outcome

What it looked like

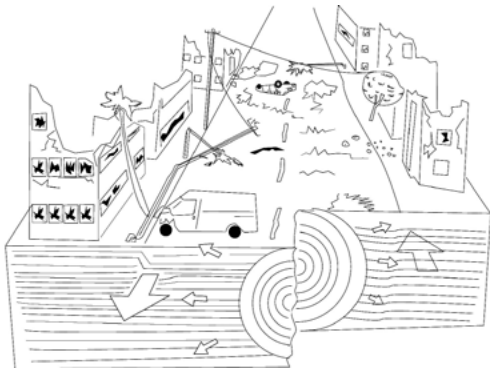
Our Insight





Tectonic Plates

Earthquakes



Demonstration Report: Earthquake

Our Tools

Our Method

Our Outcome

After light shaking

After moderate shaking

After lots of shaking



Our Insight

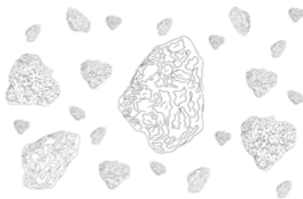
Earth Science and Astronomy for the Grammar Stage

Glossary

Archipelago –



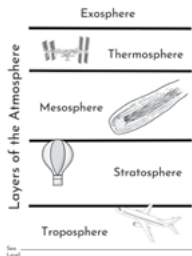
Asteroid –



Astronaut –



Atmosphere –



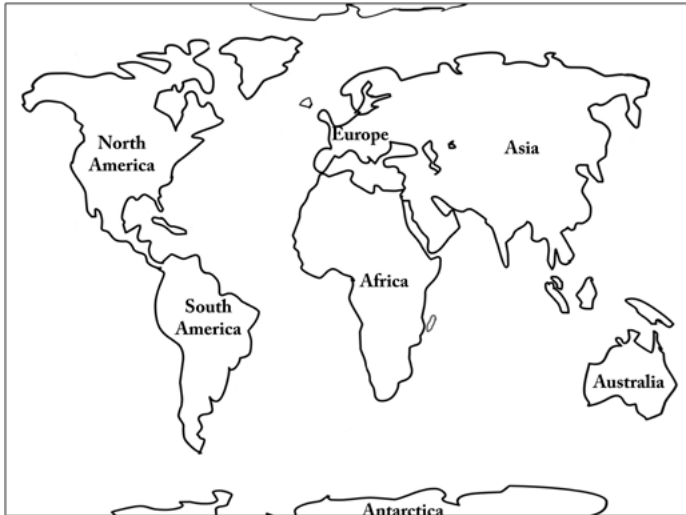
Earth Science and Astronomy for the Grammar Stage

Memory Work

Earth's Features Unit

The Seven Continents

(Author unknown, from the At Youth Safety website)



North America, South America
joined in the west.

Europe and Asia meet
together, and on Africa they
rest.

Australia stands alone,
floating down below.

And Antarctica is the loneliest
because no one wants to go.

Rocks

Minerals form each type of
rock,
Found in the Earth's crust, cut
out block by block.

Sedimentary rock is sand,
Sea creatures, mud, and
pebbles pressed into land.

Igneous rock is made from fire;
It comes from volcanoes—sure to inspire.

Metamorphic rock is hard pressed;
Heat and pressure form a slab as you guessed.

Meteorites are rocks from space,
Stones fall from the sky in a fiery race.



Earth Science and Astronomy for the Grammar Stage

Review Sheets

Earth's Features Weekly Review Sheet 1

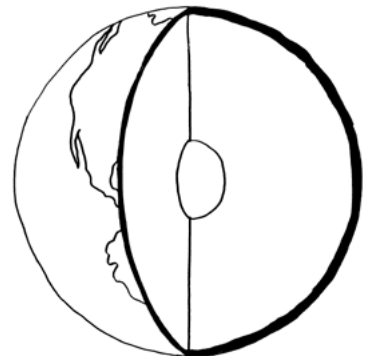
1. Match the following parts of the Earth with its description.

Crust The hottest part of the Earth.

Mantle The part of the Earth that we live on.

Core Contains hot, melted rock.

2. **True or False:** A continent is a large area of land found on the Earth.
3. **True or False:** Planet Earth looks green from outer space because of all of the grass.
4. What is the most interesting thing you learned this week?



Earth's Features Weekly Review Sheet 2

1. True or False: Earthquakes occur at the center of a plate, not at the edges where the plates meet.

2. True or False: The plates of the Earth's crust float on the mantle.

3. More than 70% of the earthquakes in the world occur in the ring of fire,

which is a ring around the _____ Ocean.

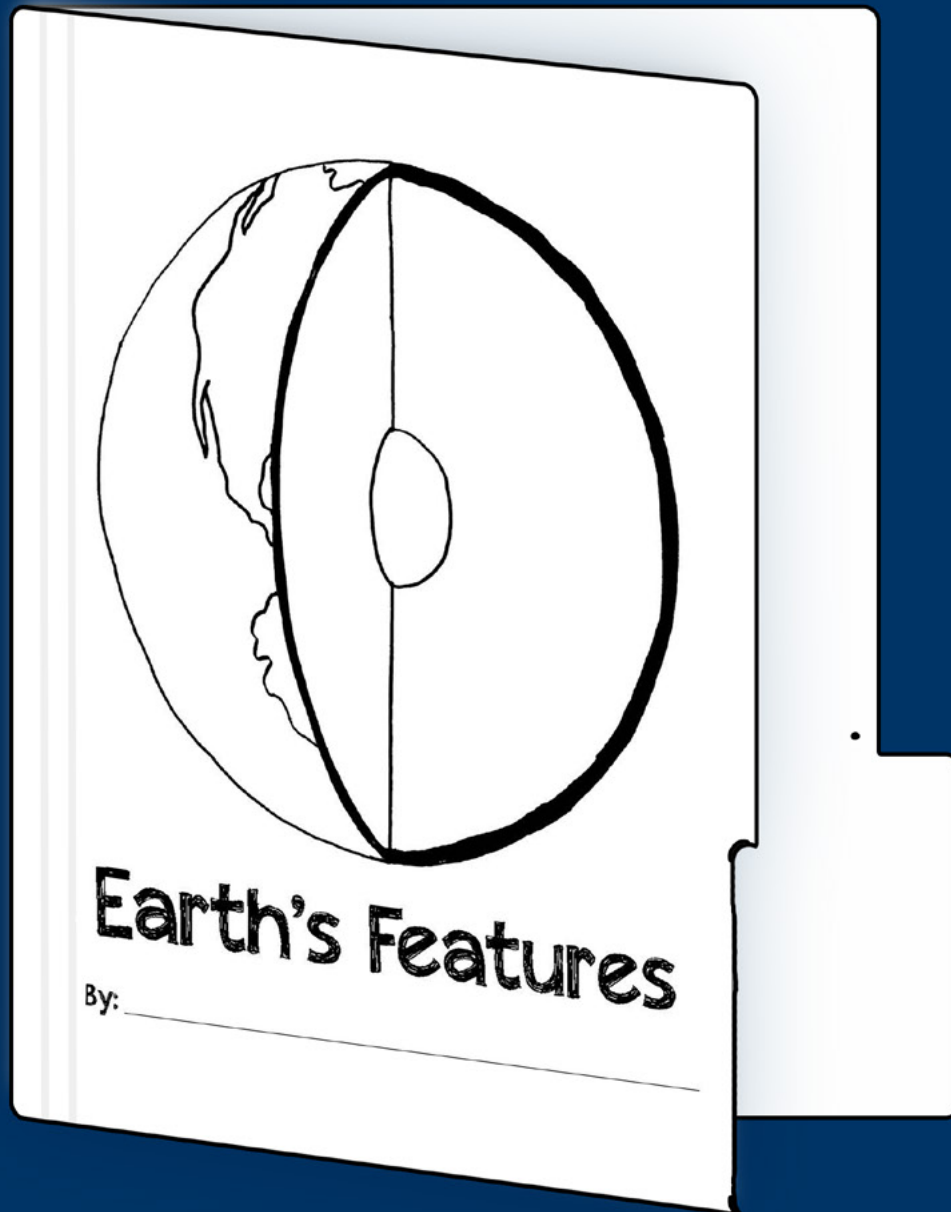
Indian

Pacific

Atlantic

4. What is the most interesting thing you learned this week?

Earth Science & Astronomy for the Grammar Stage



Lapbooking Templates

(Third Edition)

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Introduction

The lapbooking templates provided in this eBook are meant to coordinate with *Earth Science & Astronomy for the Grammar Stage*. They are *not* designed to be used independently because you need the coordinating teacher guide to know how to complete each mini-book. See more about the features of these templates on p. 3.

What is Included

There are templates for four lapbooks contained in this eBook:

1. Earth's Features (begins on p. 7)
2. Living Earth (begins on p. 26)
3. The Solar System (begins on p. 42)
4. Stars and Space (begins on p. 61)

You can have your students create four separate lapbooks or combine them to create two larger lapbooks, one on Earth science and one on astronomy. (**Note** - *If you decide to create the larger complete lapbooks, we have included two different cover pages for you to use on pp. 70-71.*)

The directions for assembling the overall lapbook are found on the overview page. However, the directions for completing each of the mini-books in this document are included in the *Earth Science & Astronomy for the Grammar Stage Teacher Guide*.

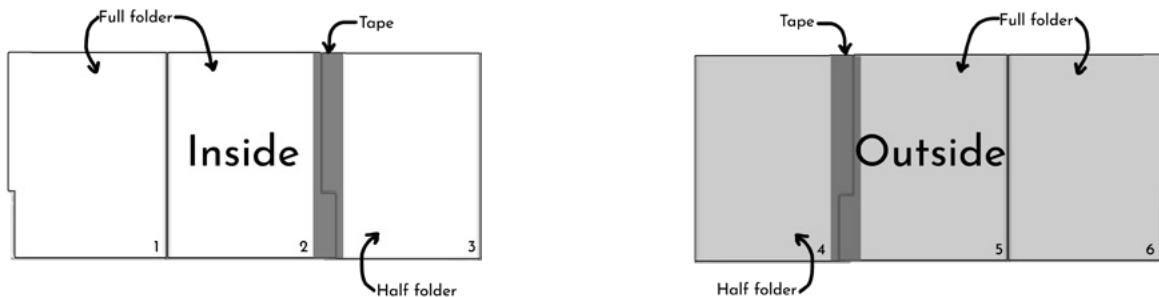
How to Use the Lapbooking Templates

You can use the lapbook templates to review the concepts learned. Alternatively, you can have the student create a lapbook for each unit in lieu of completing the *Earth Science & Astronomy for the Grammar Stage Student Workbook*.

However you choose to use these lapbooking templates, please let us know if you have questions or would like to share feedback at by emailing support@elementalscience.com.

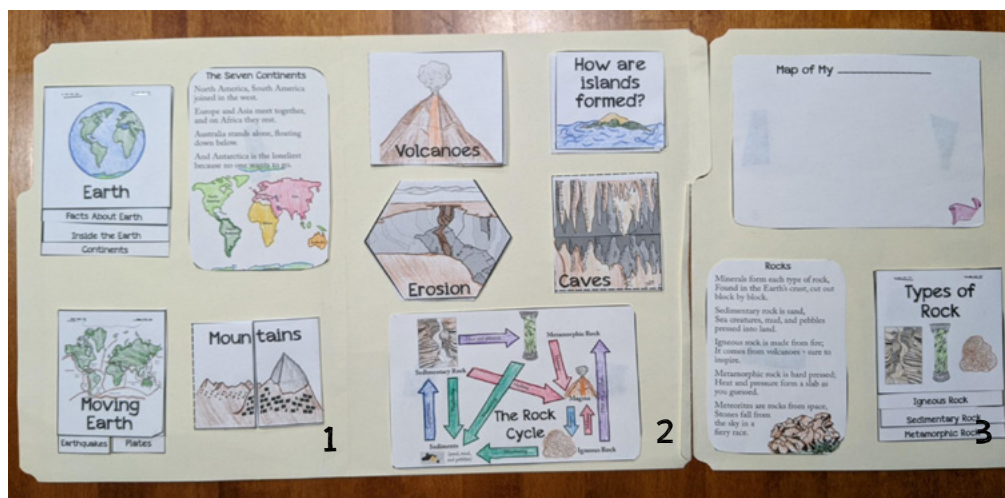
Earth's Features Lapbook

You will need three sheets of card stock or one and a half file folders to create the three panels of this lapbook. Begin by taping the sheets together on the longest edge, to look like this:

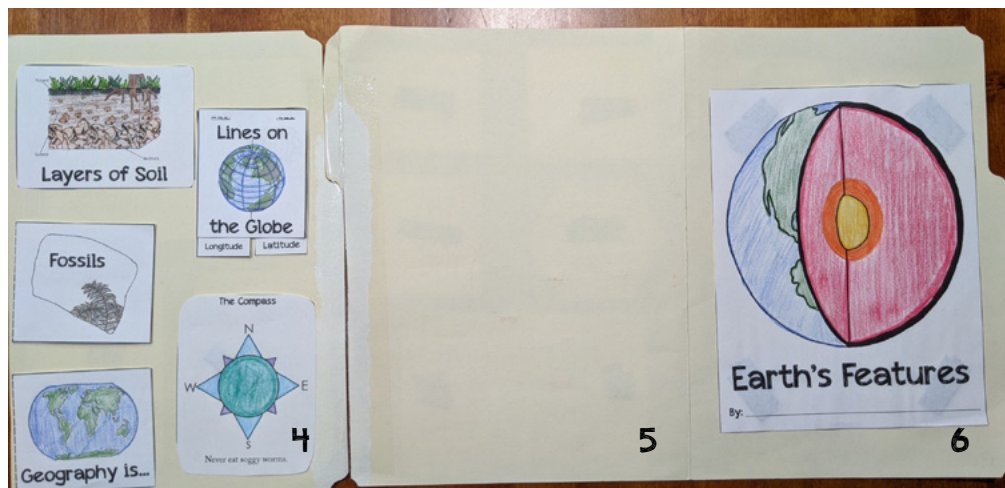


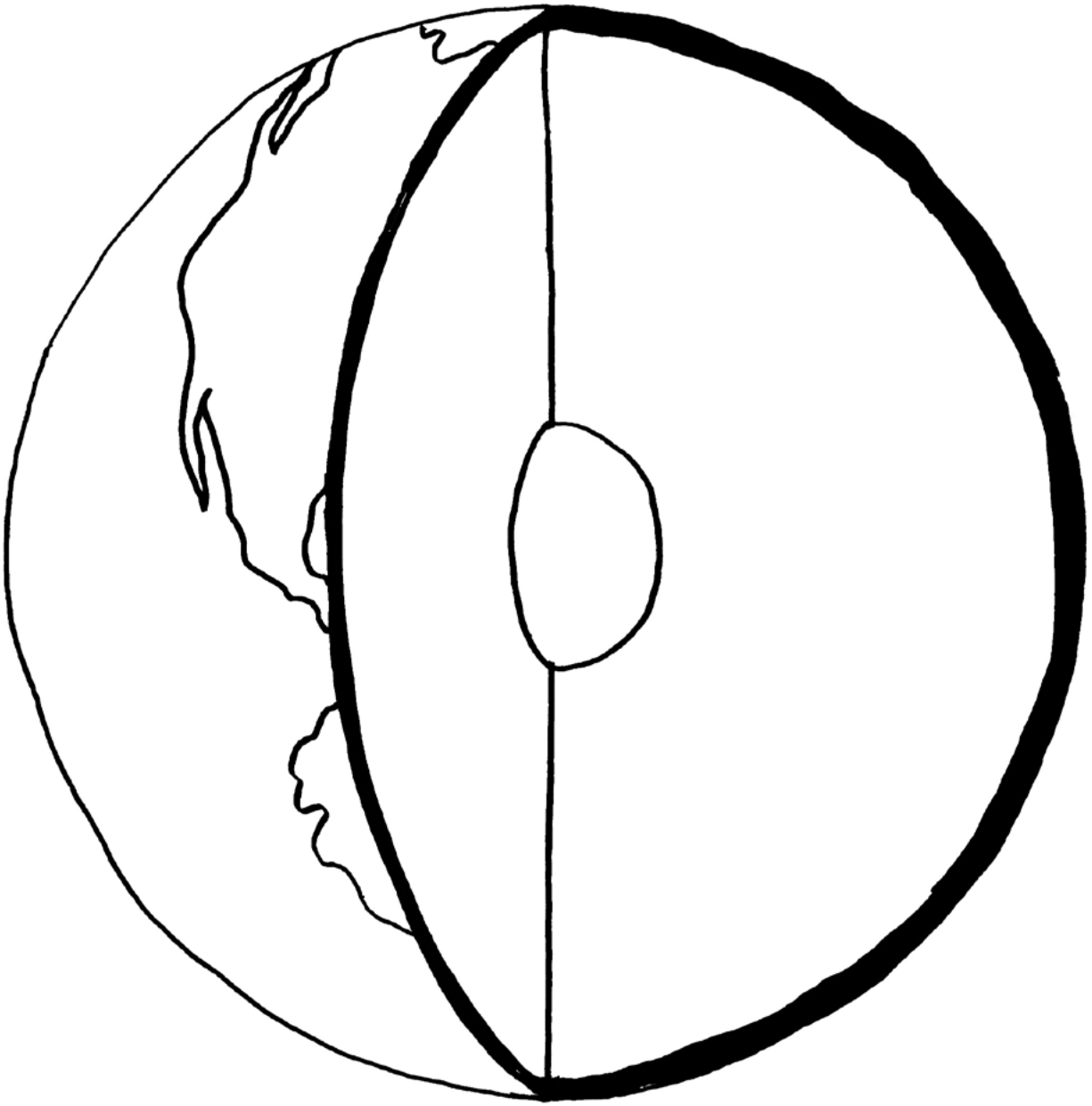
Panel 6 is the back of panel 1, panel 5 is the back of panel 2, and panel 4 is the back of panel 3. From the inside, panel 3 will fold in so that you can view panel 4. Then, panel 6 will fold over so that it acts as the lapbook cover. Panel 5 will remain blank. See the complete lapbook pictures below.

Inside



Outside

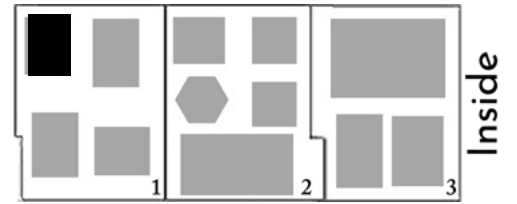




Earth's Features

By: _____

Instructions: Cut out along the solid lines.

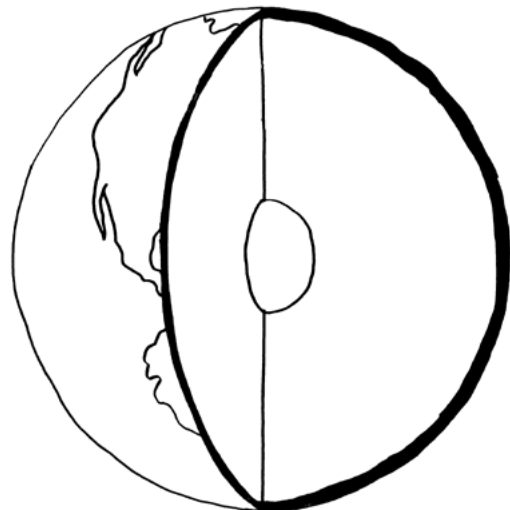


Earth

Facts About Earth



Continents



Inside the Earth

Instructions: Cut out along the solid lines, stack the pages so the labels are visible, and staple together on the dashed lines.

The Seven Continents Poem

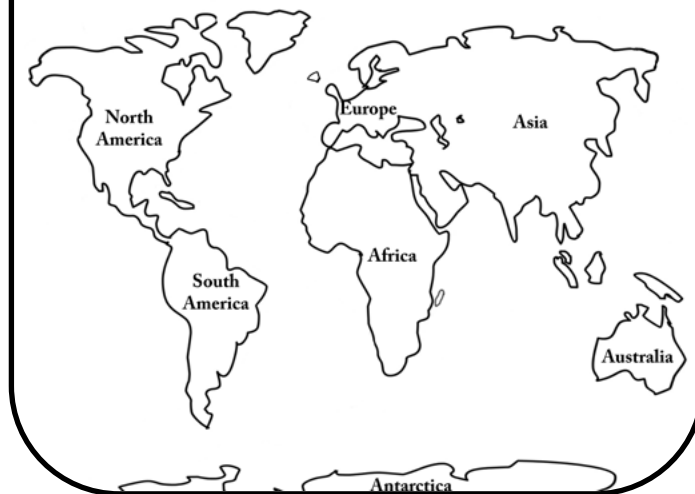
The Seven Continents

North America, South America
joined in the west.

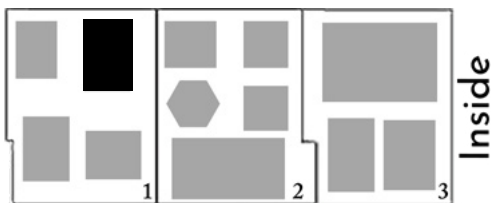
Europe and Asia meet together,
and on Africa they rest.

Australia stands alone, floating
down below.

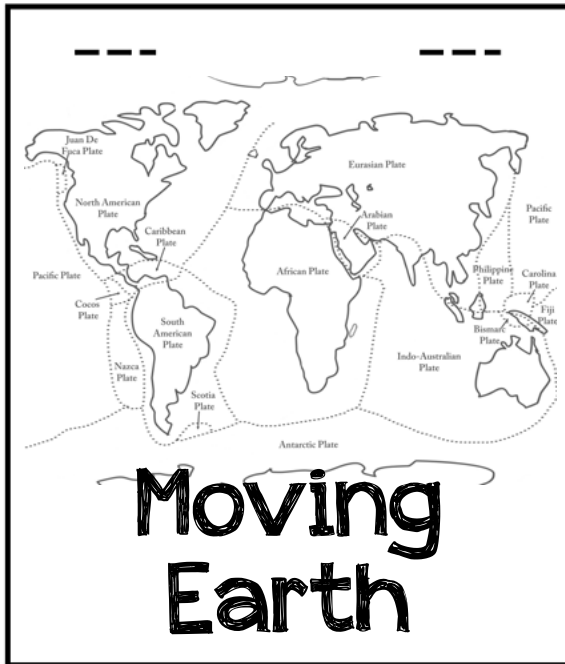
And Antarctica is the loneliest
because no one wants to go.



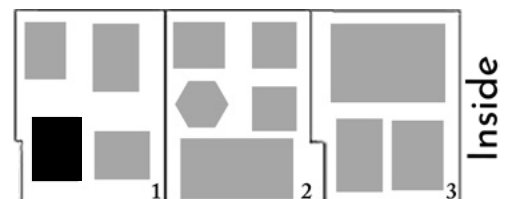
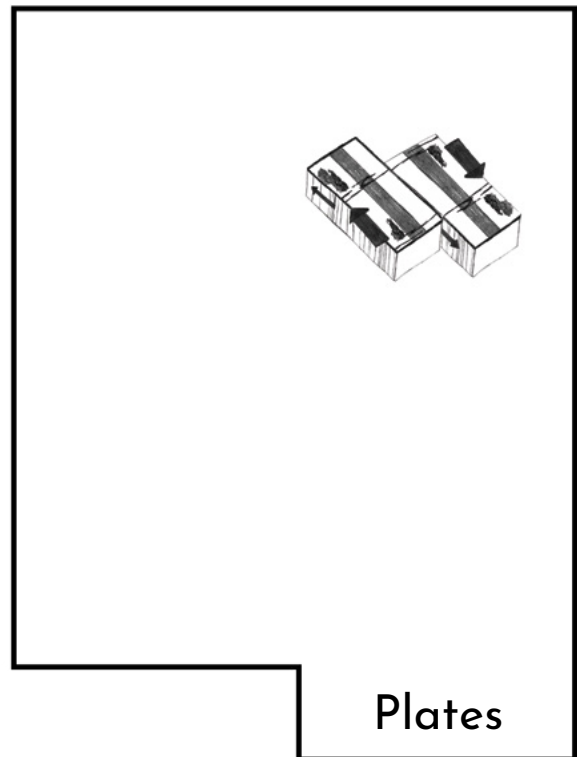
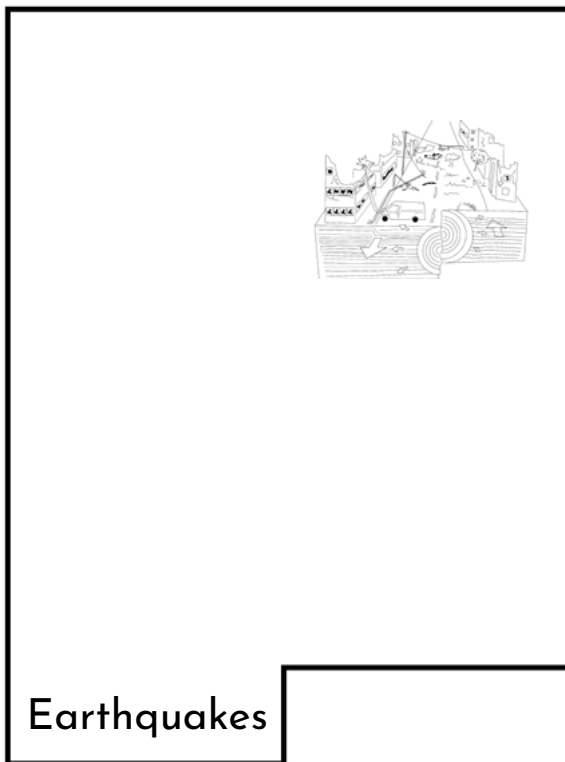
Instructions: Cut out along the solid lines.



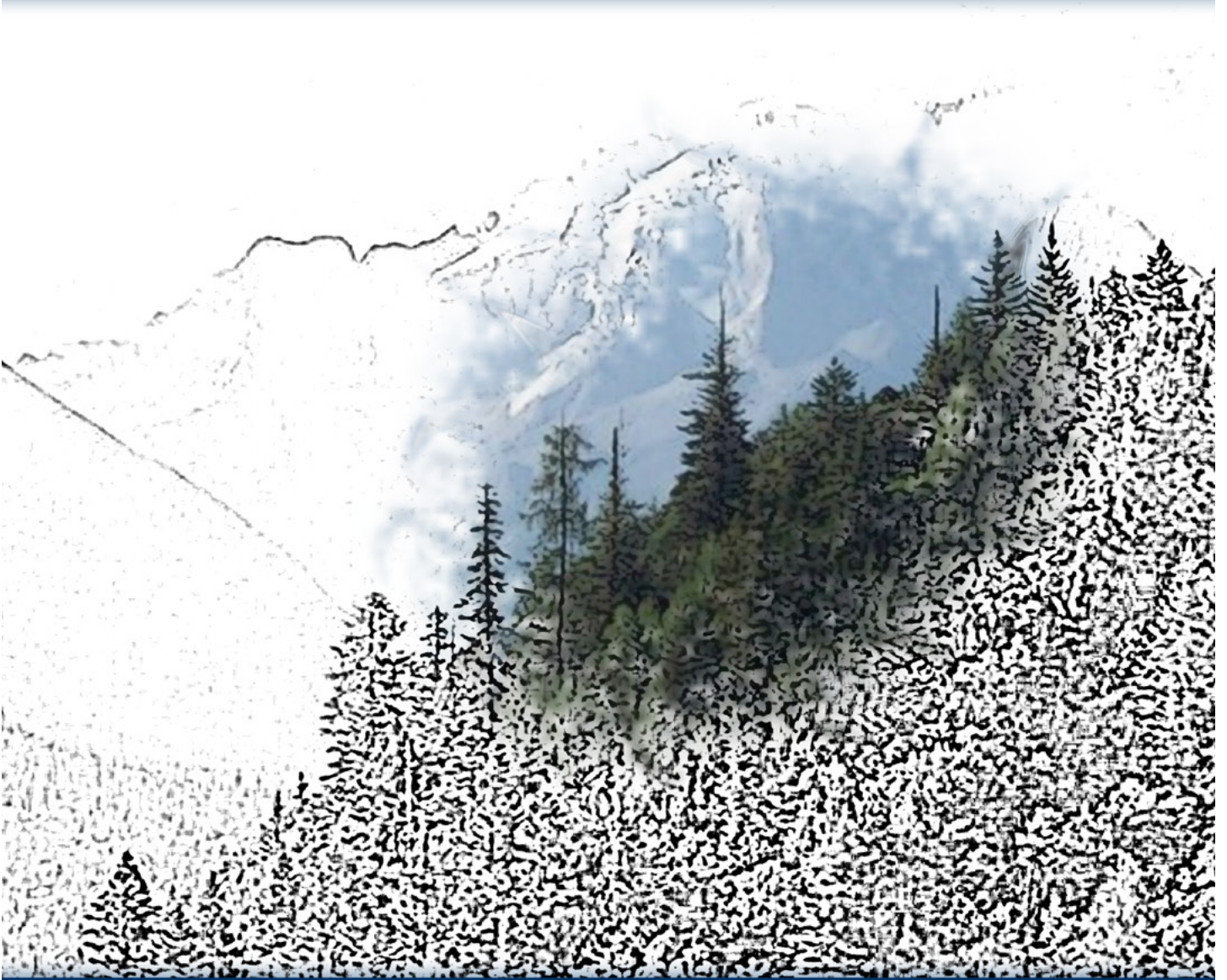
Moving Earth Mini tab-book



Instructions: Cut out along the solid lines, stack the pages so the tabs are visible, and staple together on the dashed lines.



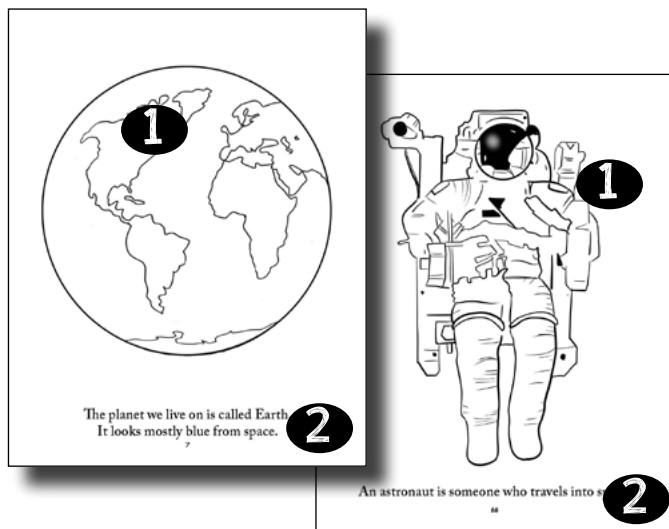
Earth Science & Astronomy for the Grammar Stage



Coloring Pages

(Third Edition)

Earth Science & Astronomy for the Grammar Stage Coloring Pages



Use the coloring pages to add a bit of art to your science plans or to engage younger students.

Simple Coloring Pages

Color your way through learning about science with these coloring pages. Each page has a large, black-line illustration (1) along with a key fact sentence (2) for the students to learn about the topic. The specific directions for when to use these coloring pages are found in the teacher guide.

Introduction

The coloring pages provided in this eBook are meant to coordinate with *Earth Science & Astronomy for the Grammar Stage*. There is one coloring page for almost every narration topic assigned in the program.

Each page has a large, black line illustration along a key fact sentence for the students to learn about the topic. Simply have the students color the picture as they desire using crayons, colored pencils, or watercolor paints. As they work, you can read the fact out loud several times.

You can use these pages with your younger “follow-along” students, with students who love to color, or with reluctant writers. We have scheduled these pages under the “Writing Assignments” section in the *Earth Science & Astronomy for the Grammar Stage Teacher Guide*.

Our goal at Elemental Science is to provide you with the information you need to be successful in your quest to educate your students in the sciences at home, which is why I encourage you to contact us with any questions or problems that you might have concerning this program at support@elementalscience.com. I, or a member of our team, will be more than happy to answer them as soon as we are able. I hope that you enjoy these coloring pages!

- Paige Hudson

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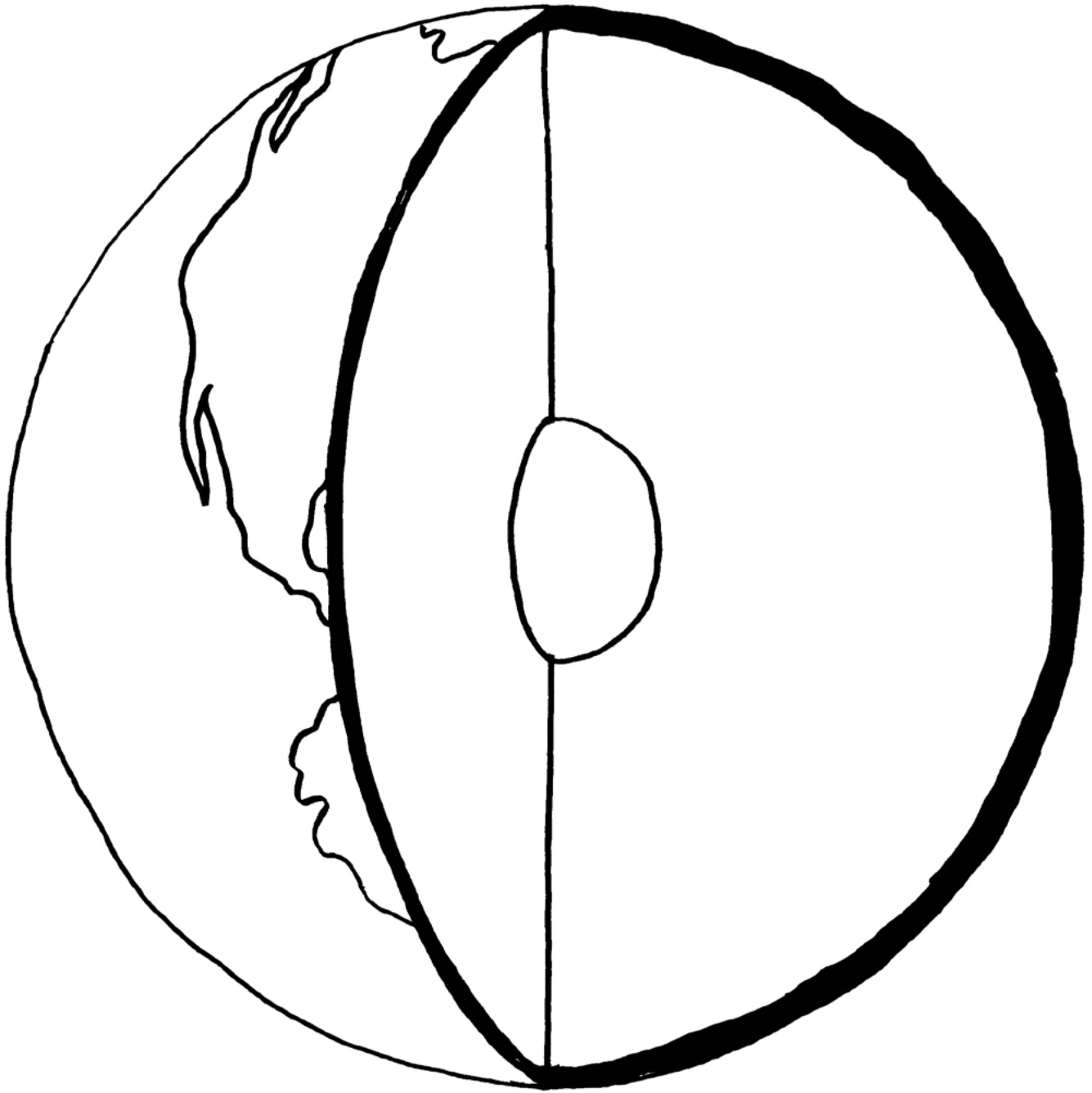
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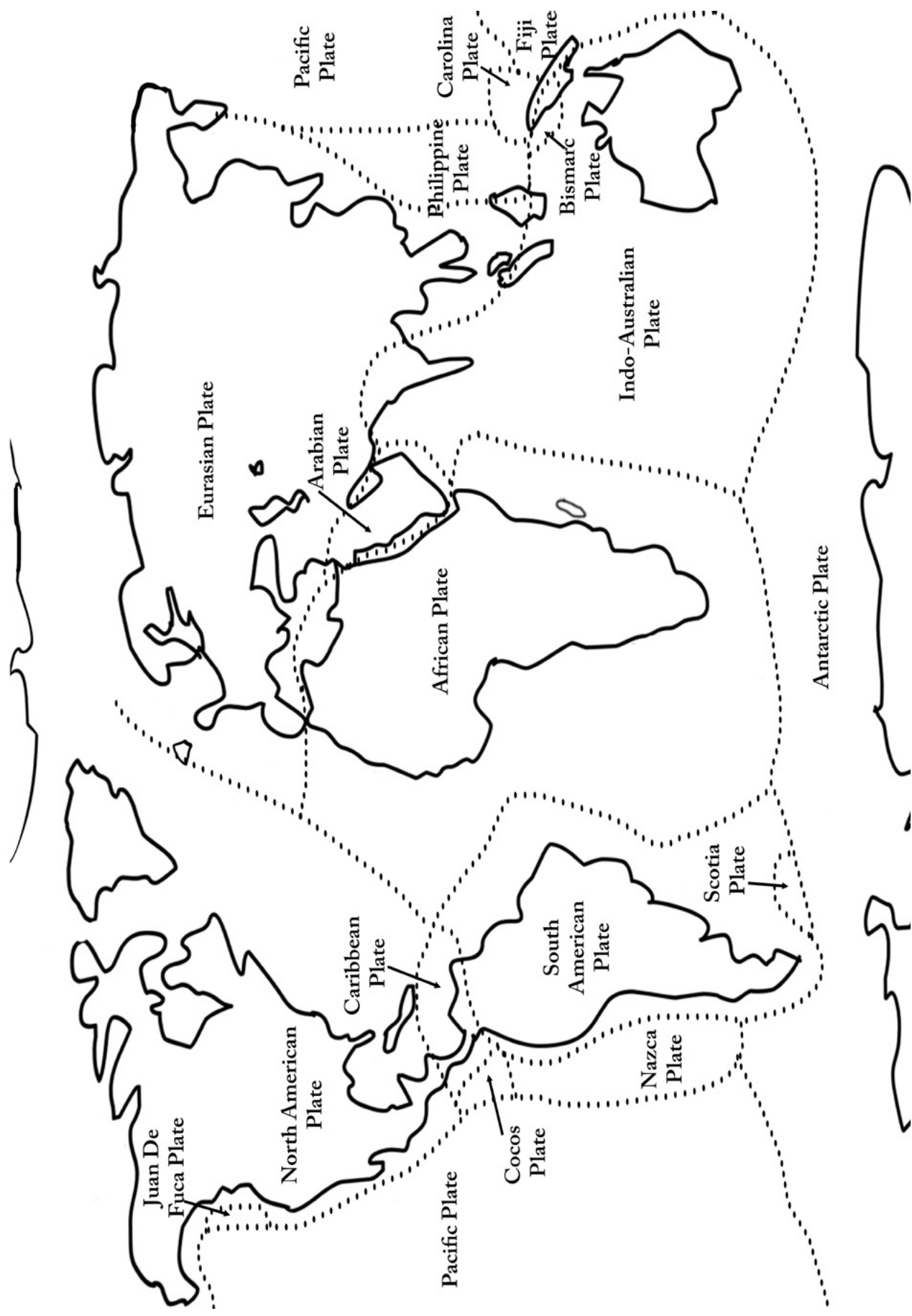
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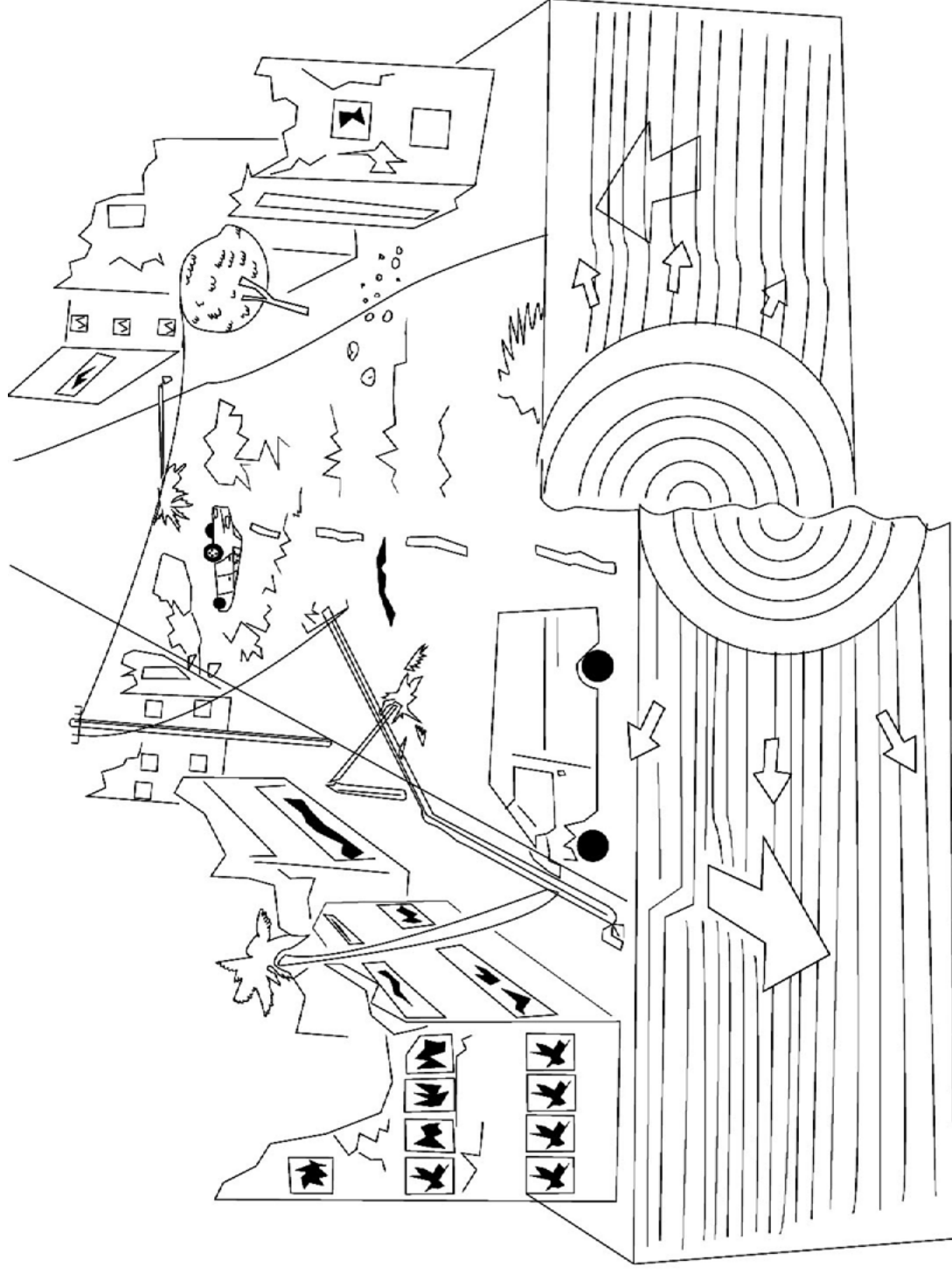
The planet we live on is called Earth.
It looks mostly blue from space.



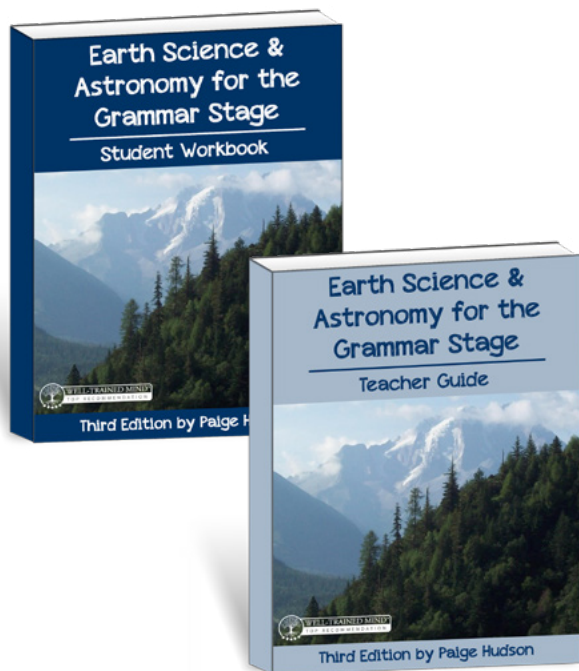
The layers of the Earth are the crust,
the mantle, and the inner core.



The Earth's crust is made of plates that float on the Earth's mantle.



An earthquake is the shaking and vibration at the surface of Earth caused by underground movements.



Are you ready to start?

Learn about the weather, planet earth, space, and more by purchasing *Earth Science and Astronomy for the Grammar Stage* here:

🔗 <https://elementalscience.com/collections/earth-science-astronomy-for-the-grammar-stage>



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