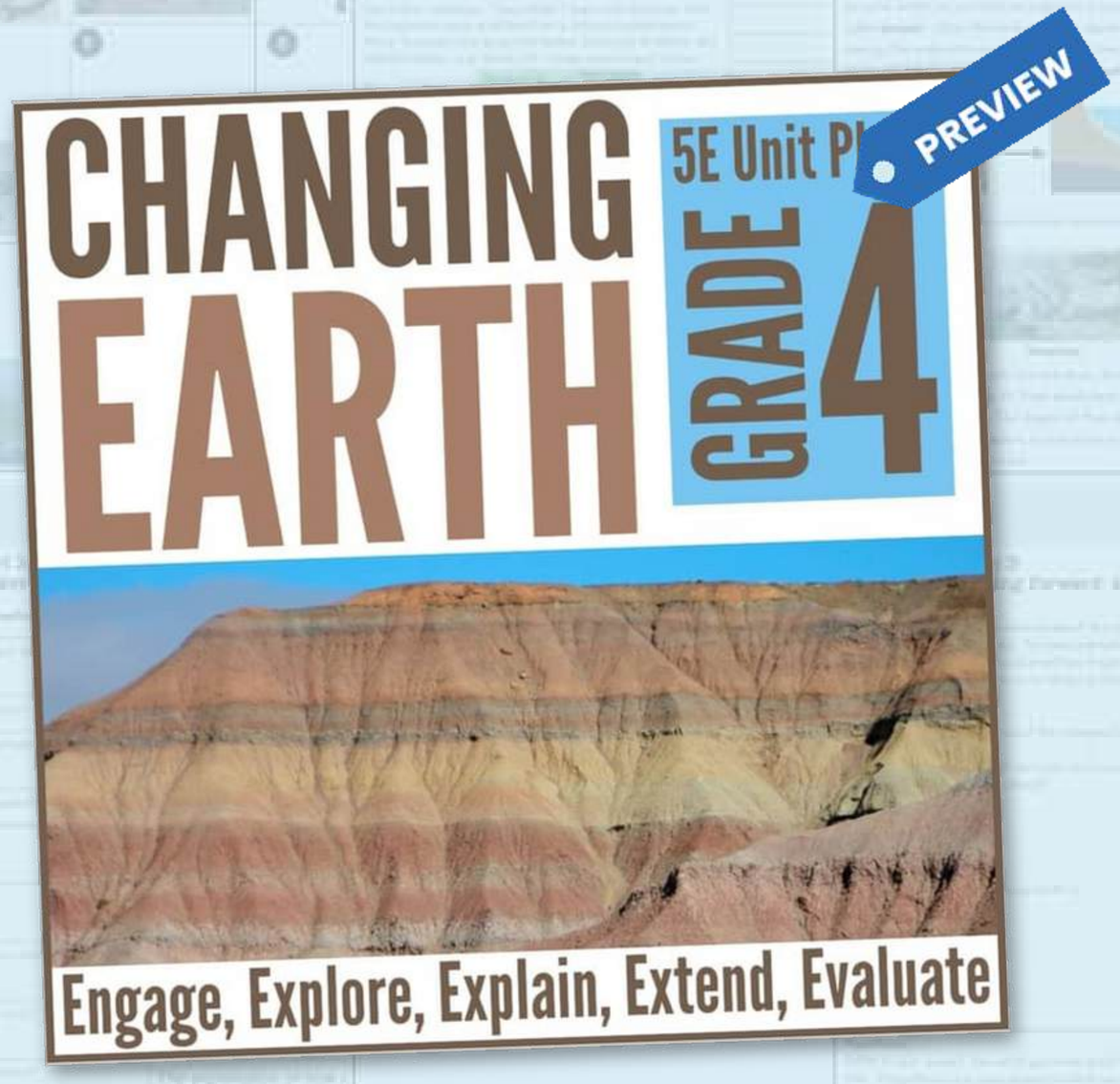


A Complete 5E Science Unit with Lesson Plans

4TH GRADE

CHANGING EARTH

Engage, Explore, Explain, Extend, Evaluate

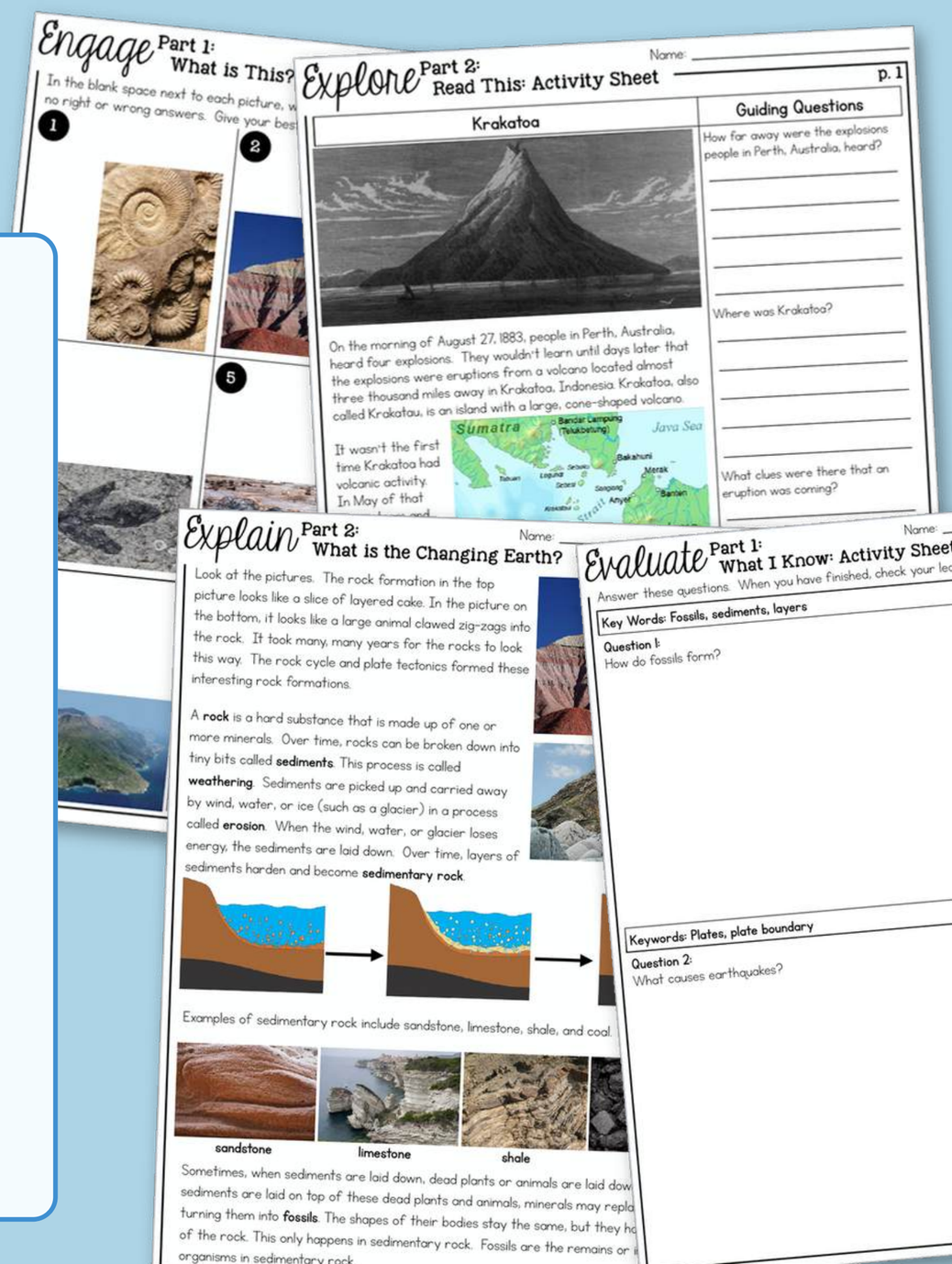
NGSS 4-ESS1-1

KEEP SCROLLING TO SEE WHAT'S INSIDE!

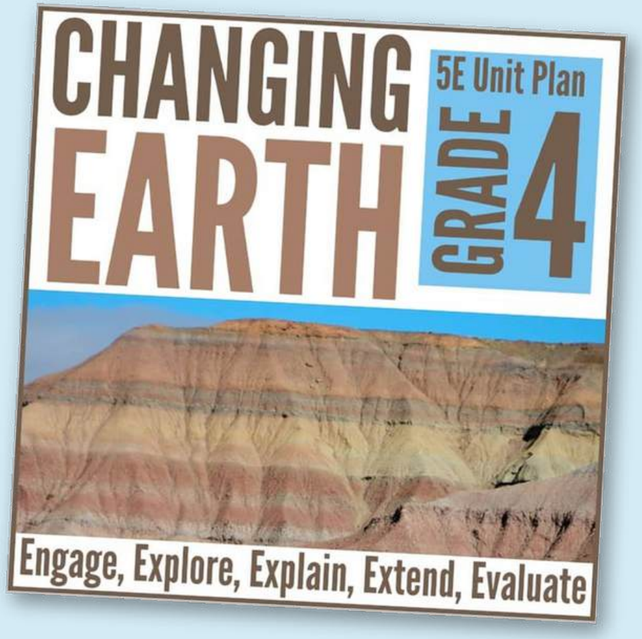
WHAT'S INCLUDED

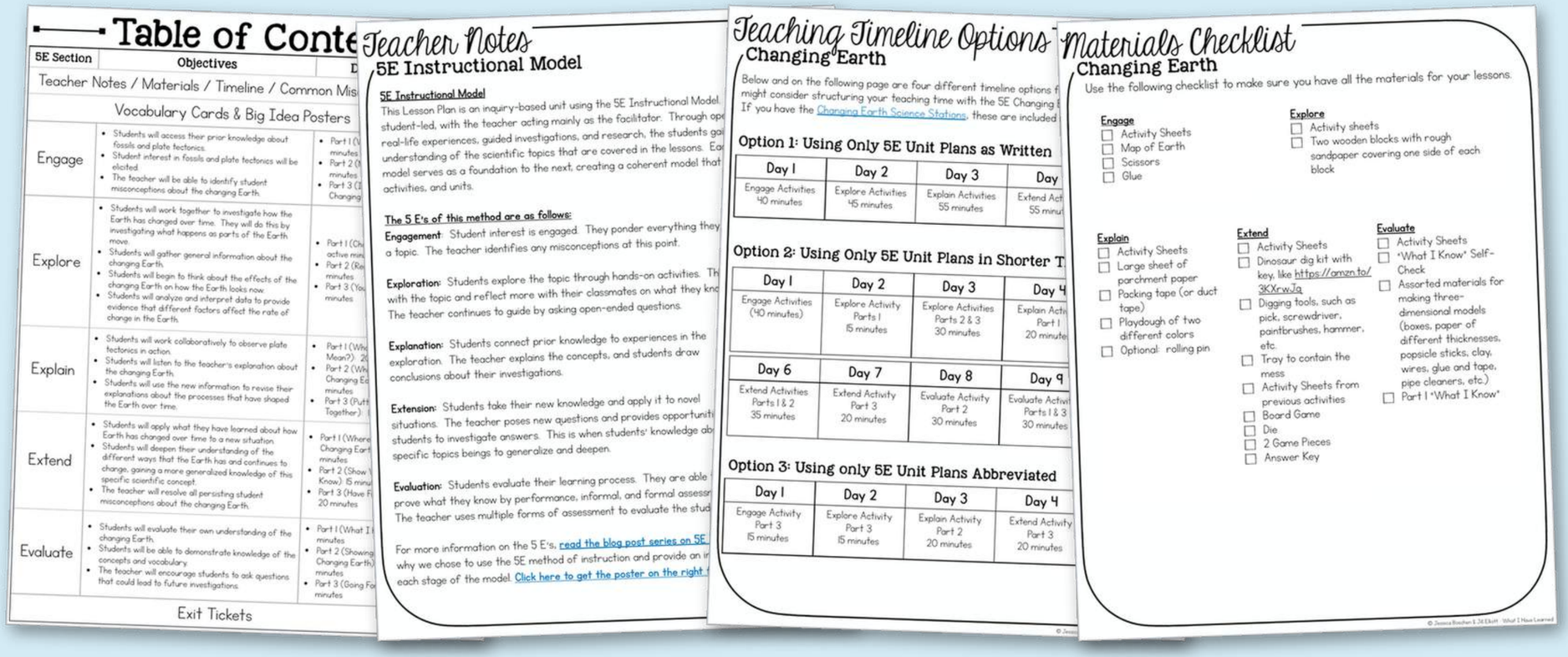
5E CHANGING EARTH UNIT

- 220+ Page 5E Unit Plan
- Lesson Plans for All 5 Phases
- Teacher Notes and Misconceptions
- Materials Checklist and 4 Timelines
- Hands-On Plate Tectonics Investigations
- Reading Passages on Krakatoa and Earth's History
- Vocabulary Cards and Big Idea Posters
- Exit Tickets in 3 Formats
- Performance Assessment and Model
- Answer Keys for Student Pages
- Google Slides and Google Forms Versions



UNIT AT A GLANCE





- Students move continents, investigate plate boundaries, study fossils, and model the rock cycle.
- Teacher background, lesson plans, and student pages in every phase.
- Aligned to NGSS 4-ESS1-1.

Table of Contents **Teacher Notes** **Timeline Options** **Materials Checklist**

ENGAGE



Teacher background, lesson plans, student pages, and answer key

E E E E E

Spark curiosity about Earth's past

1 What Is This?

Students study pictures connected to Earth's history and write their best guesses about what they show.

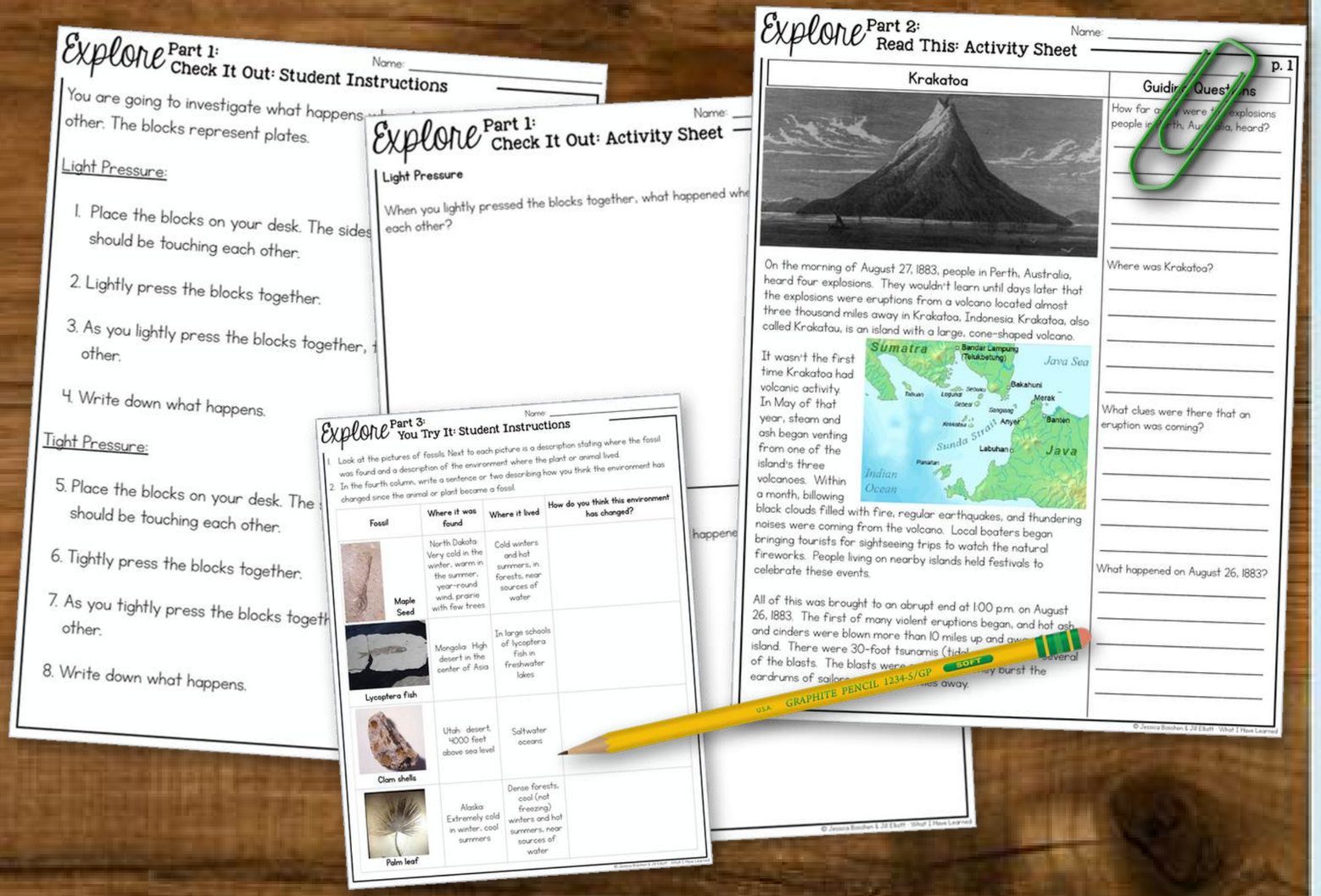
2 My Experiences

Students write what they already know about how Earth has changed over time.

3 Introducing Changing Earth

Students cut out continents and experiment with different ways to place them on a map of Earth.

EXPLORE



Teacher background, lesson plans, student pages, and answer key

E E E E E

Investigate moving plates and fossils

1 Check It Out

Students use rough-sided blocks to model what happens when two plates move past each other.

2 Read This

Students read about the Krakatoa eruption, earthquakes, and tsunamis and answer guiding questions.

3 You Try It

Students compare fossils and the environments where they were found to investigate evidence of Earth's changes.

EXPLAIN

E E E E E

Build explanations from rock and plate evidence

1 What Does It Mean?

Students model what happens when two landmasses move and record the changes they observe.

2 What Is the Changing Earth?

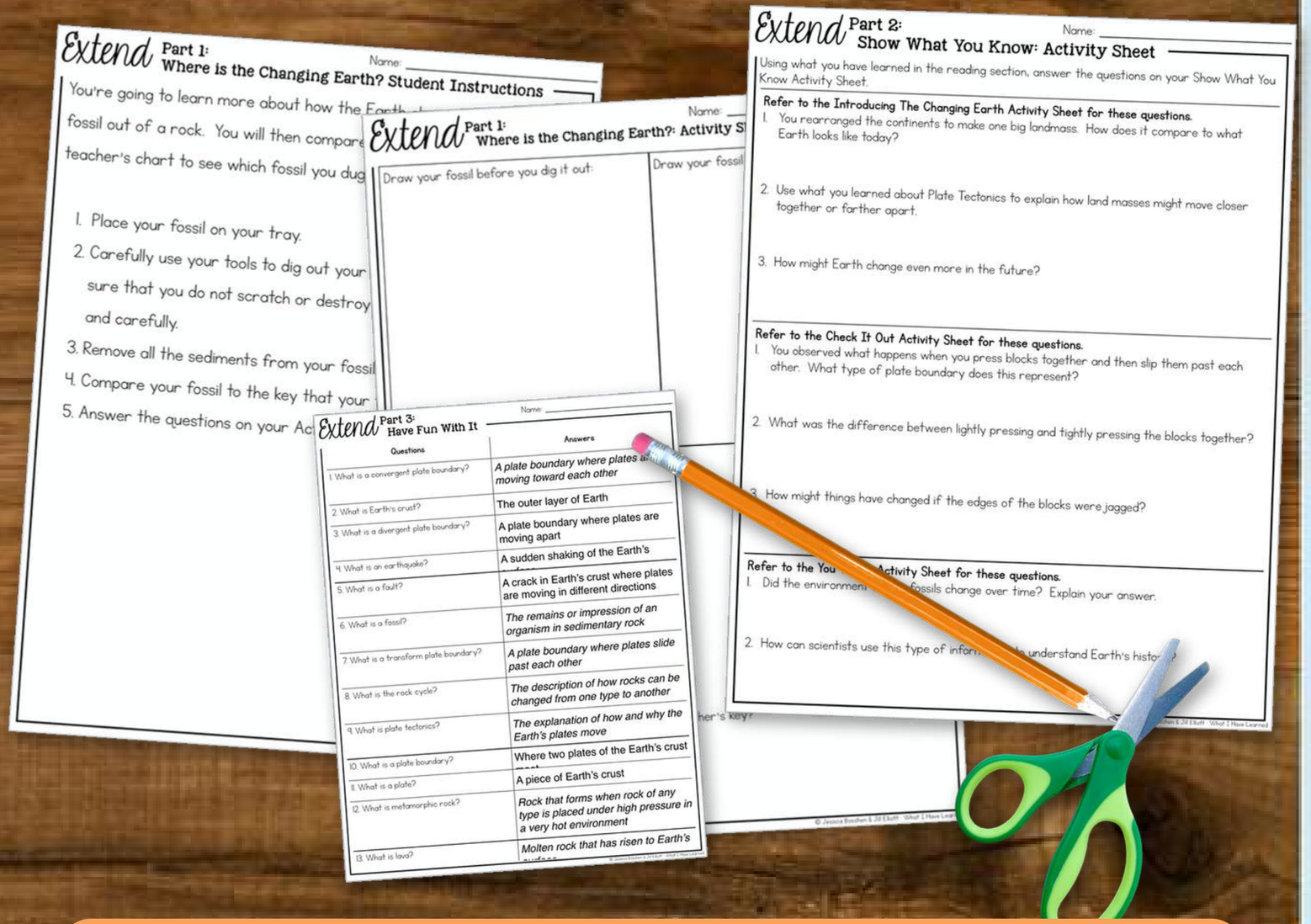
Students read about rocks, fossils, Earth's layers, plate tectonics, and plate boundaries.

3 Putting It All Together

Students create diagrams that show the rock cycle and the three types of plate boundaries.

Teacher background, lesson plans, student pages, and answer key

EXTEND



Teacher background, lesson plans, student pages, and answer key

E E E E E

Apply Earth's changes to new situations

1 Where Is the Changing Earth?

Students dig for a model fossil and describe what they find and how they found it.

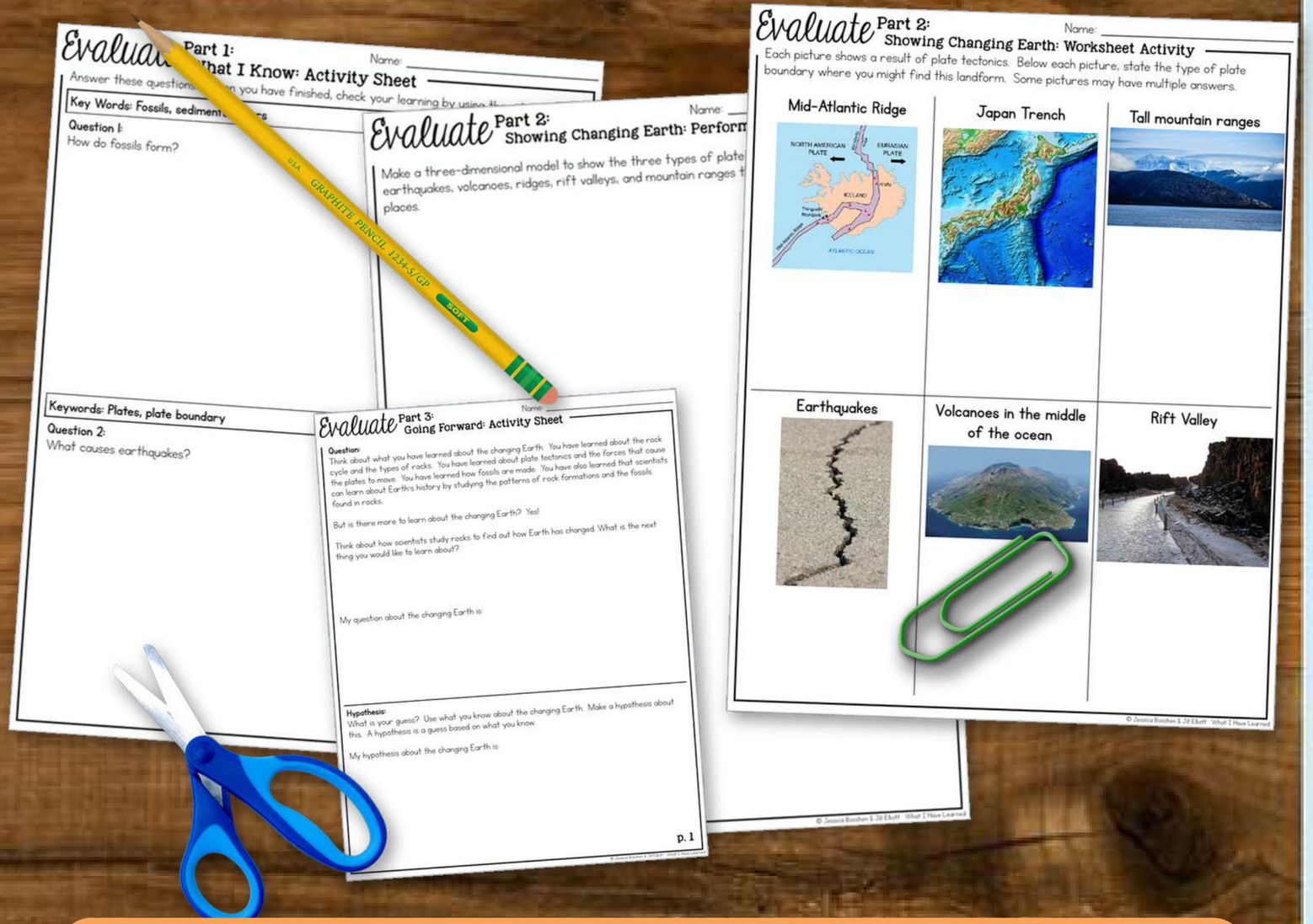
2 Show What You Know

Students answer questions that connect their investigations to rocks, fossils, and plate movement.

3 Have Fun With It

Students play a review game about Earth's layers, rocks, fossils, and plate boundaries.

EVALUATE



Teacher background, lesson plans, student pages, and answer key

E E E E E

Show understanding with Earth evidence

1 What I Know

Students answer questions about fossils and plate boundaries and use a rubric to assess their understanding.

2 Showing the Changing Earth

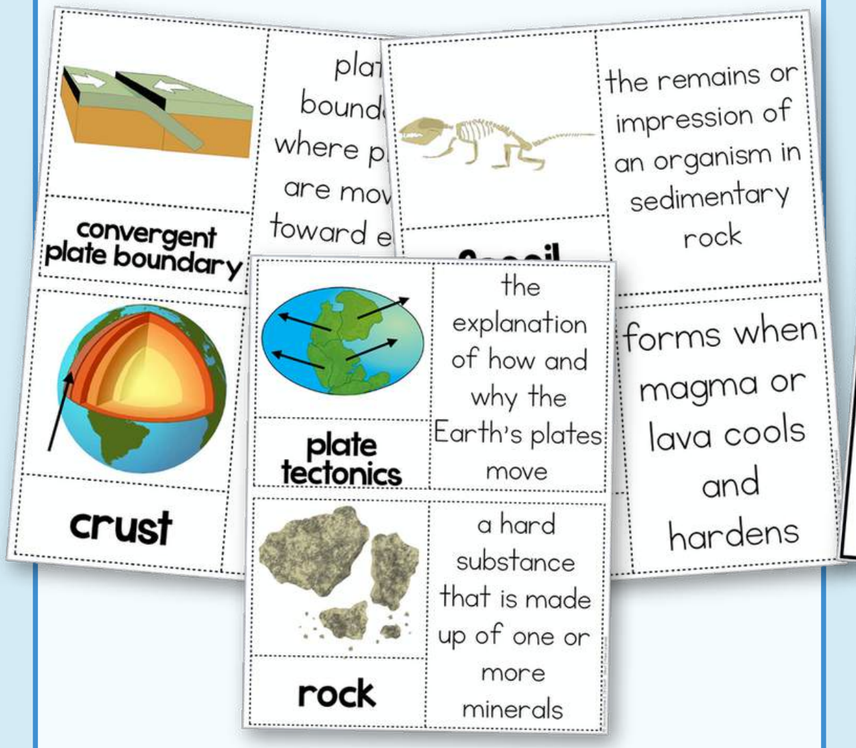
Students build a three-dimensional model that shows the three types of plate boundaries.

3 Going Forward

Students write a question and hypothesis about the rock cycle or Earth's changes, then plan an investigation.

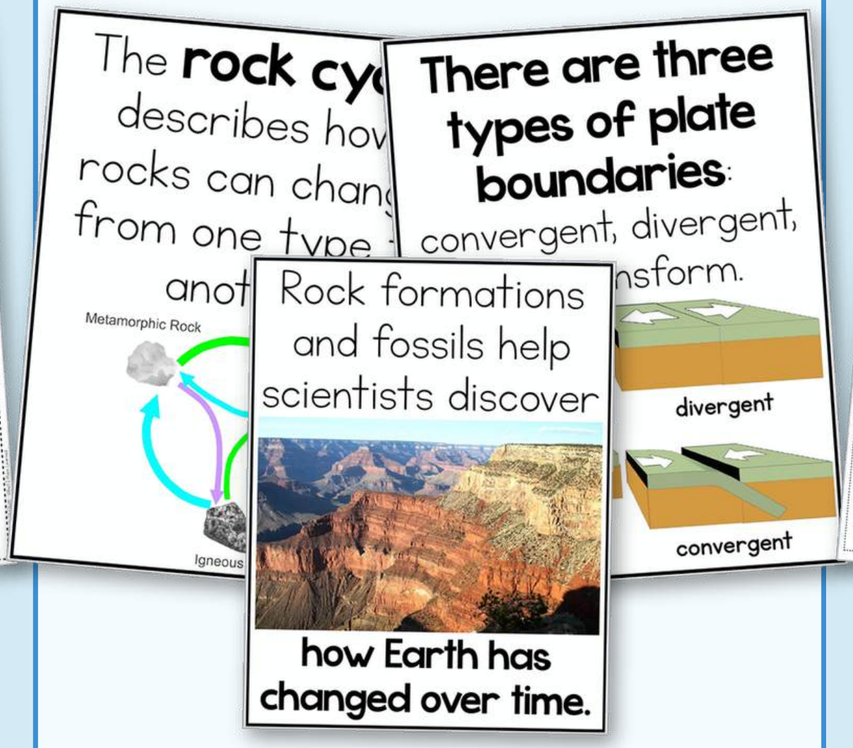
VOCABULARY, POSTERS & EXIT TICKETS

VOCABULARY CARDS



Picture cards and word cards for plate boundaries, fossils, rocks, Earth's layers, and more.

BIG IDEA POSTERS



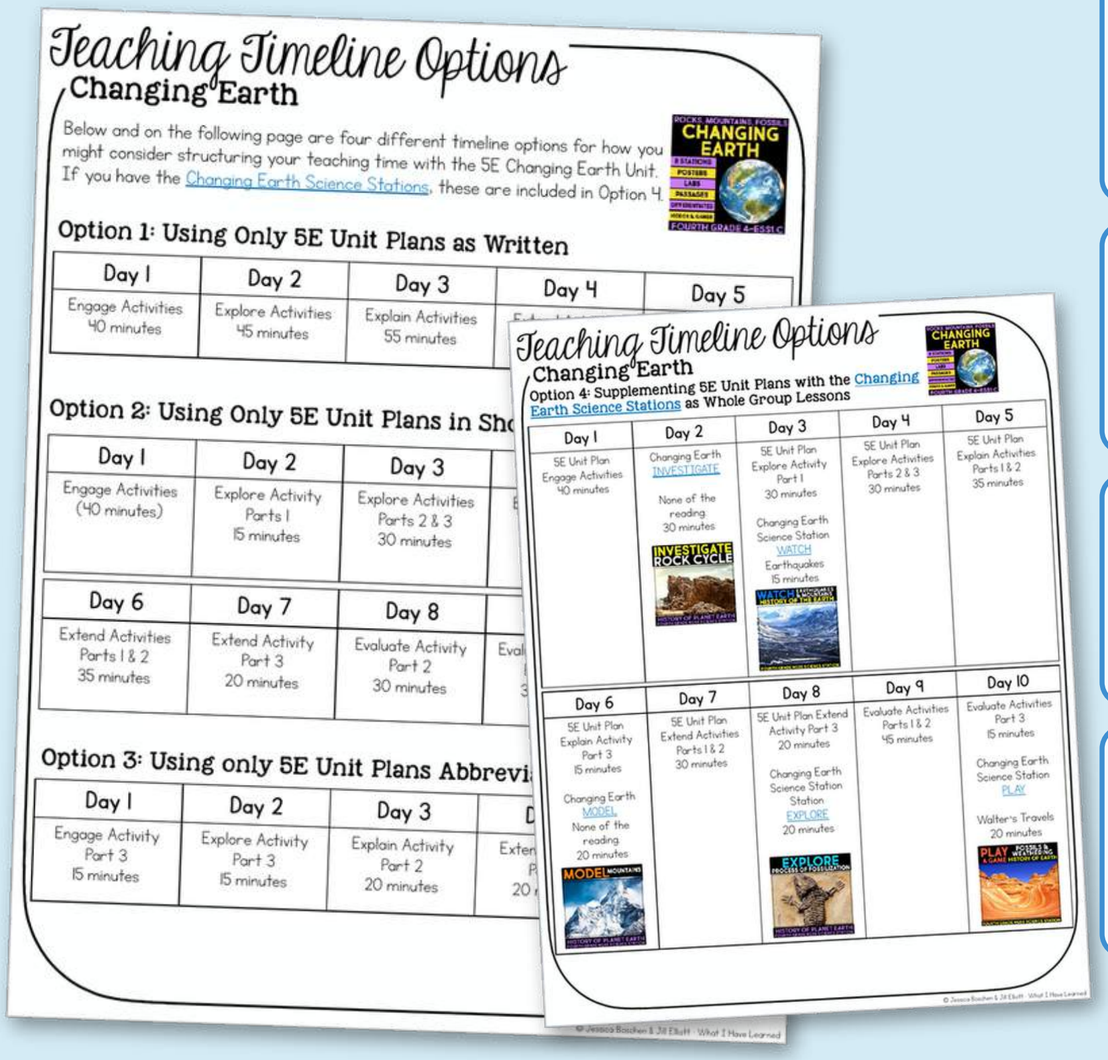
Big idea posters on the rock cycle, plate tectonics, plate boundaries, and evidence from rocks and fossils.

EXIT TICKETS



Six exit-ticket topics in short answer, fill-in-the-blank, and multiple-choice formats.

WAYS TO USE IN YOUR CLASSROOM



1 **Whole-Class 5E Unit**

Teach one phase a day over 5 days as written, with 40 to 60 minutes per phase.

2 **Shorter Science Blocks**

Spread the unit across 9 days in shorter time blocks when science minutes are limited.

3 **Alongside Science Stations**

Add the Changing Earth Science Stations for a 10-day plan.

4 **Formative Checks**

Use the exit tickets throughout the unit and pair the performance activity with a final model.

TEACHING TIMELINE OPTIONS

Option 1 — 5 days
As Written

Day 1	Day 2	Day 3	Day 4	Day 5
Engage	**Explore**	**Explain**	**Extend**	**Evaluate**
40 min	45 min	55 min	55 min	60 min

Option 2 — 9 days
Shorter Time Blocks

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9
Engage	**Explore 1**	**Explore 2-3**	**Explain 1**	**Explain 2-3**	**Extend 1-2**	**Extend 3**	**Evaluate 2**	**Evaluate 1 & 3**
40 min	15 min	30 min	20 min	35 min	35 min	20 min	30 min	30 min

Option 3 — 5 days
Abbreviated

Day 1	Day 2	Day 3	Day 4	Day 5
Engage 3	**Explore 3**	**Explain 2**	**Extend 3**	**Evaluate 1**
15 min	15 min	20 min	20 min	15 min

Option 4 — 10 days
With Science Stations

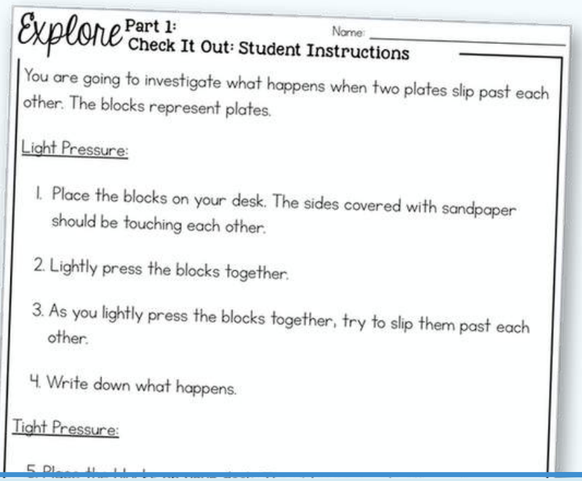
Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
Engage	**Investigate**	**Explore 1**	**Explore 2-3**	**Explain 1-2**	**Explain 3**	**Model**	**Extend 1-2**	**Extend 3**	**Evaluate 1-2**
40 min	30 min	30 min	30 min +15 station	35 min	15 min	20 min	30 min	20 min +20 station	45 min +15 +20 station

Orange days are Science Station lessons. Magenta notes are extra station activities you can add that day.

YOU WILL LOVE THIS BECAUSE

Hands-On From Day One

Students move continents, model plate boundaries, compare fossils, and build a changing Earth model.



Explore Part 1: Check It Out: Student Instructions

Name: _____

You are going to investigate what happens when two plates slip past each other. The blocks represent plates.

Light Pressure:

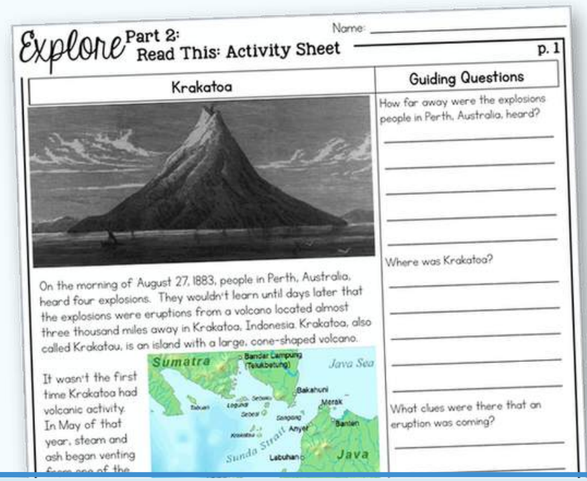
1. Place the blocks on your desk. The sides covered with sandpaper should be touching each other.
2. Lightly press the blocks together.
3. As you lightly press the blocks together, try to slip them past each other.
4. Write down what happens.

Tight Pressure:

5. Place the blocks on your desk. The sides covered with sandpaper should be touching each other.

Planned and Ready to Teach

Teacher notes, a misconceptions guide, a materials checklist, and answer keys are done for you.



Explore Part 2: Read This: Activity Sheet

Name: _____

p. 1

Krakatoa

On the morning of August 27, 1883, people in Perth, Australia, heard four explosions. They wouldn't learn until days later that the explosions were eruptions from a volcano located almost three thousand miles away in Krakatoa, Indonesia. Krakatoa, also called Krakatau, is an island with a large, cone-shaped volcano.

It wasn't the first time Krakatoa had volcanic activity. In May of that year, steam and ash began venting

Sumatra

Java Sea

Java

Sunda Strait

Bandar Lampung (Telukbetung)

Bakauhuni

Merak

Anyer

Banten

Labuhan

Guiding Questions

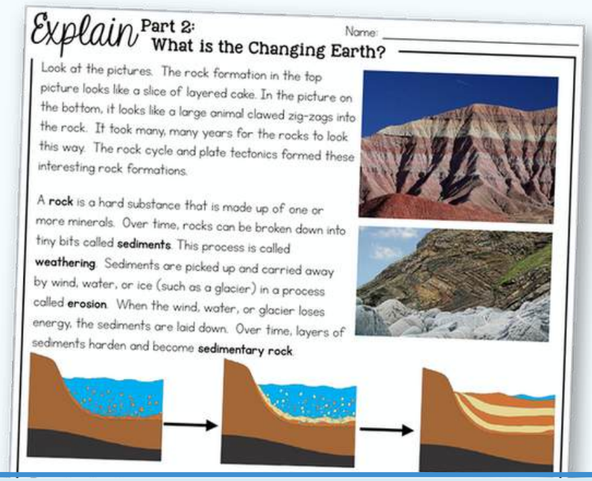
How far away were the explosions people in Perth, Australia, heard?

Where was Krakatoa?

What clues were there that an eruption was coming?

Fits Your Schedule

Choose from 4 timeline options, and use the Google Slides and Google Forms versions for a print or digital classroom.



Explain Part 2: What is the Changing Earth?

Name: _____

Look at the pictures. The rock formation in the top picture looks like a slice of layered cake. In the picture on the bottom, it looks like a large animal clawed zig-zags into the rock. It took many, many years for the rocks to look this way. The rock cycle and plate tectonics formed these interesting rock formations.

A **rock** is a hard substance that is made up of one or more minerals. Over time, rocks can be broken down into tiny bits called **sediments**. This process is called **weathering**. Sediments are picked up and carried away by wind, water, or ice (such as a glacier) in a process called **erosion**. When the wind, water, or glacier loses energy, the sediments are laid down. Over time, layers of sediments harden and become **sedimentary rock**.

TEACHERS LOVE IT!

★★★★★

Clear, engaging, and easy to use. My students responded well, and it saved me a lot of prep time. Highly recommend!

leah J.

★★★★★

I received great feedback since implementing this resource!

Danielle H.

★★★★★

Extremely satisfied with this unit for my 4th graders.

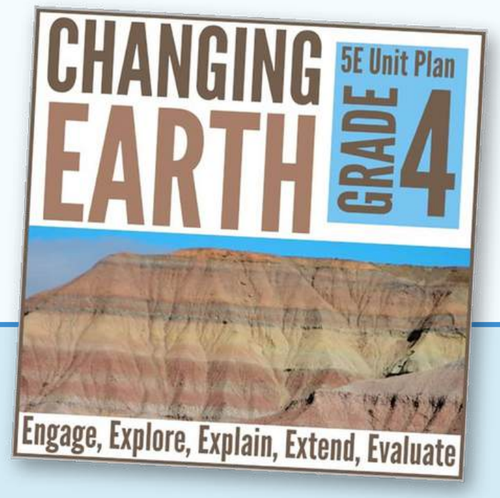
Olivia H.





READY FOR YOUR CLASSROOM

- **Instant digital download**
- **Print and use the activities**
- **Google Slides and Forms versions**

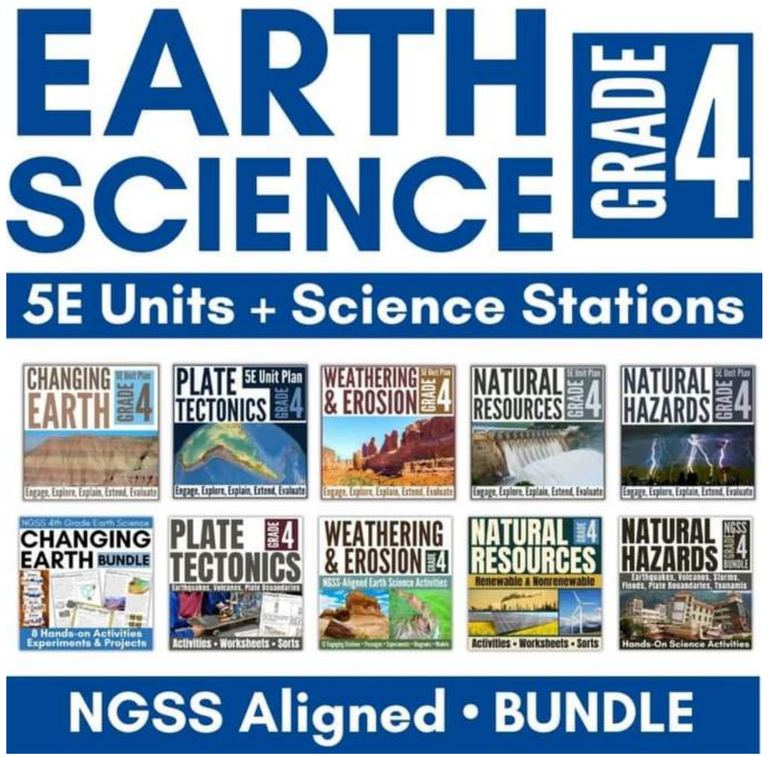


WANT MORE 4TH GRADE 5E UNITS?

Save with a topic bundle or the full-year bundle.

TOPIC BUNDLE

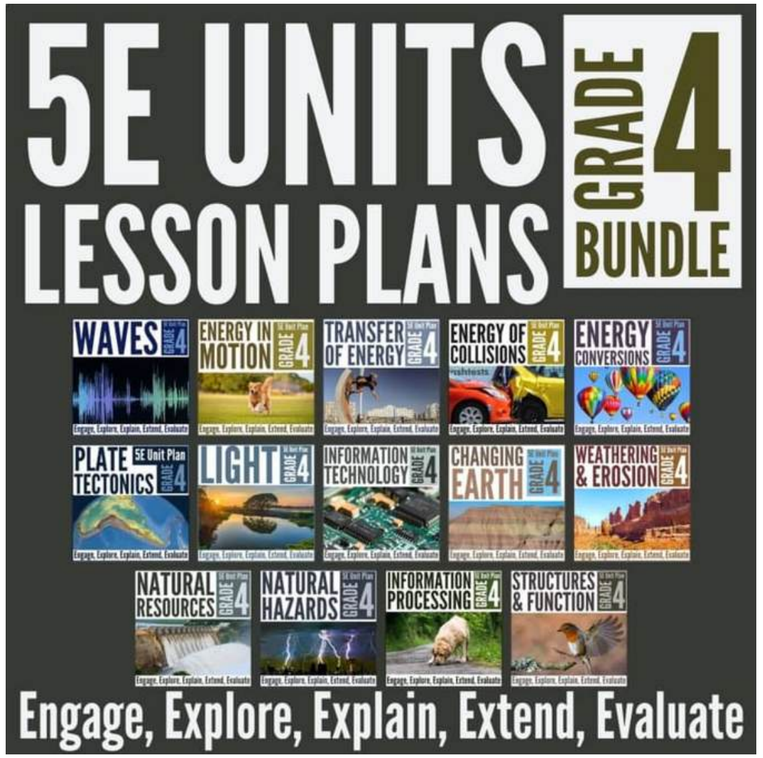
GOOD VALUE



SEE THE BUNDLE

FULL-YEAR BUNDLE

BEST VALUE



SEE THE BUNDLE

My passion is making learning accessible to all students.

I love scaffolding learning, breaking down the concepts and building them up so that students can see the connections. I love figuring out the small components that build up to the big ideas and helping students see it all.





What I have LEARNED