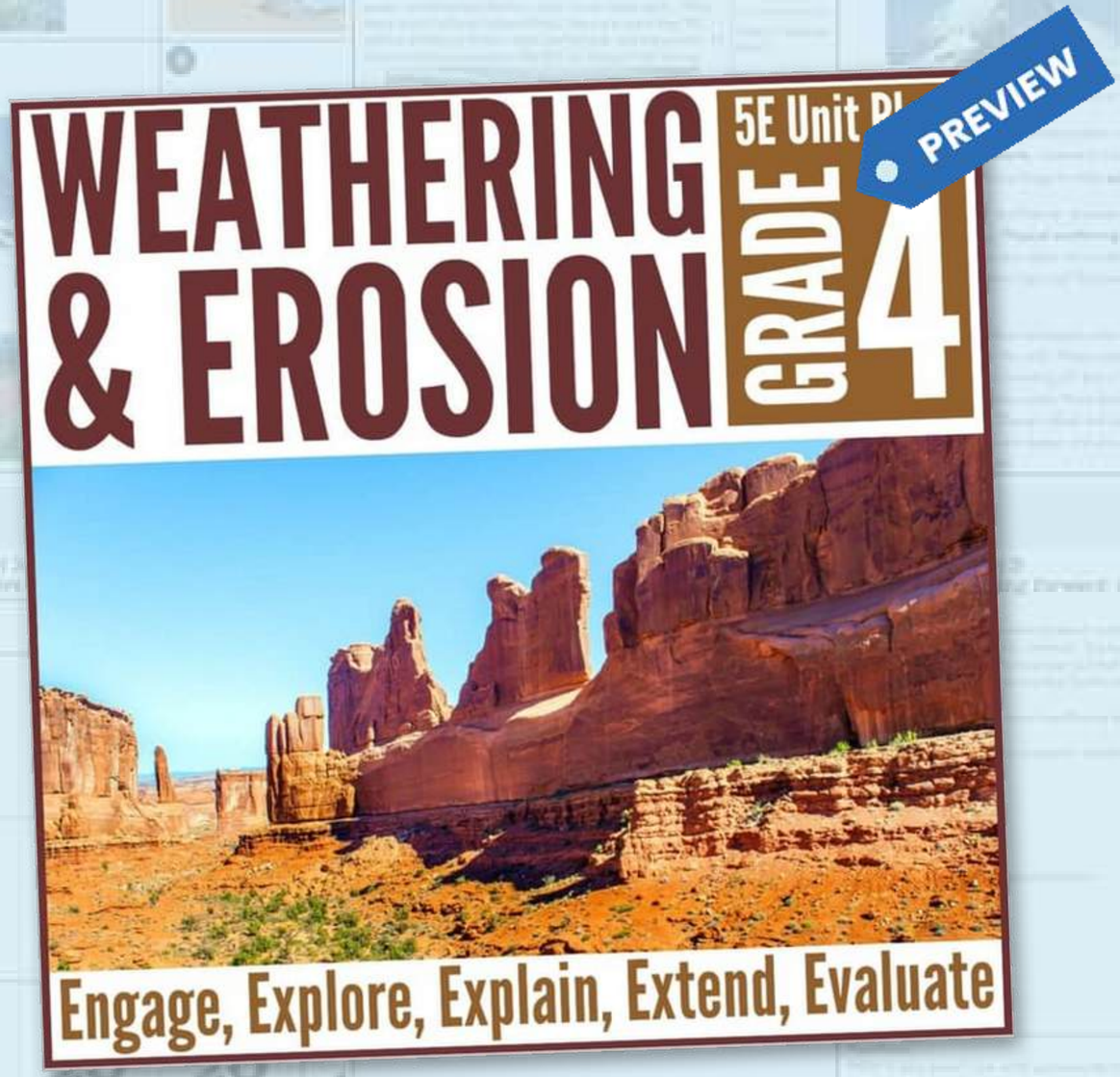


A Complete 5E Science Unit with Lesson Plans

4TH GRADE

WEATHERING AND EROSION

Engage, Explore, Explain, Extend, Evaluate

NGSS 4-ESS2-1

KEEP SCROLLING TO SEE WHAT'S INSIDE!

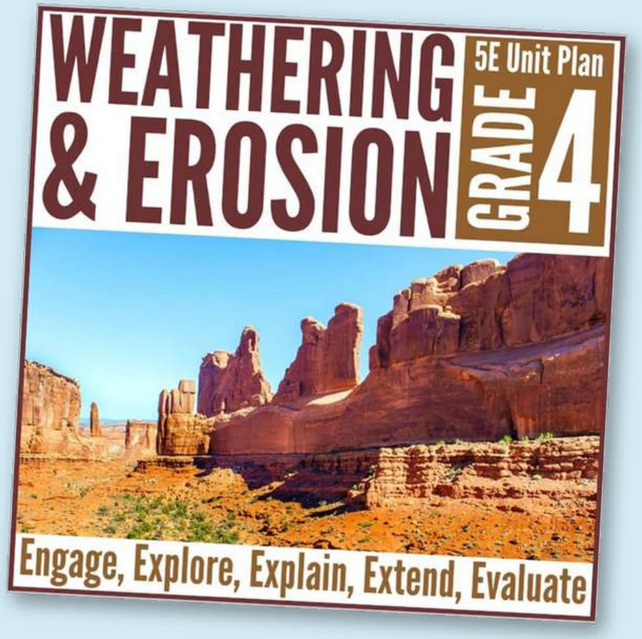
WHAT'S INCLUDED

5E WEATHERING AND EROSION UNIT

- 230+ Page 5E Unit Plan
- Lesson Plans for All 5 Phases
- Teacher Notes and Misconceptions
- Materials Checklist and 4 Timelines
- Hands-On Weathering Investigations
- Reading Passages on National Parks
- 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 freeze chalk, break down sugar cubes, blow sand, and build landform models.
- Teacher background, lesson plans, and student pages in every phase.
- Aligned to NGSS 4-ESS2-1.

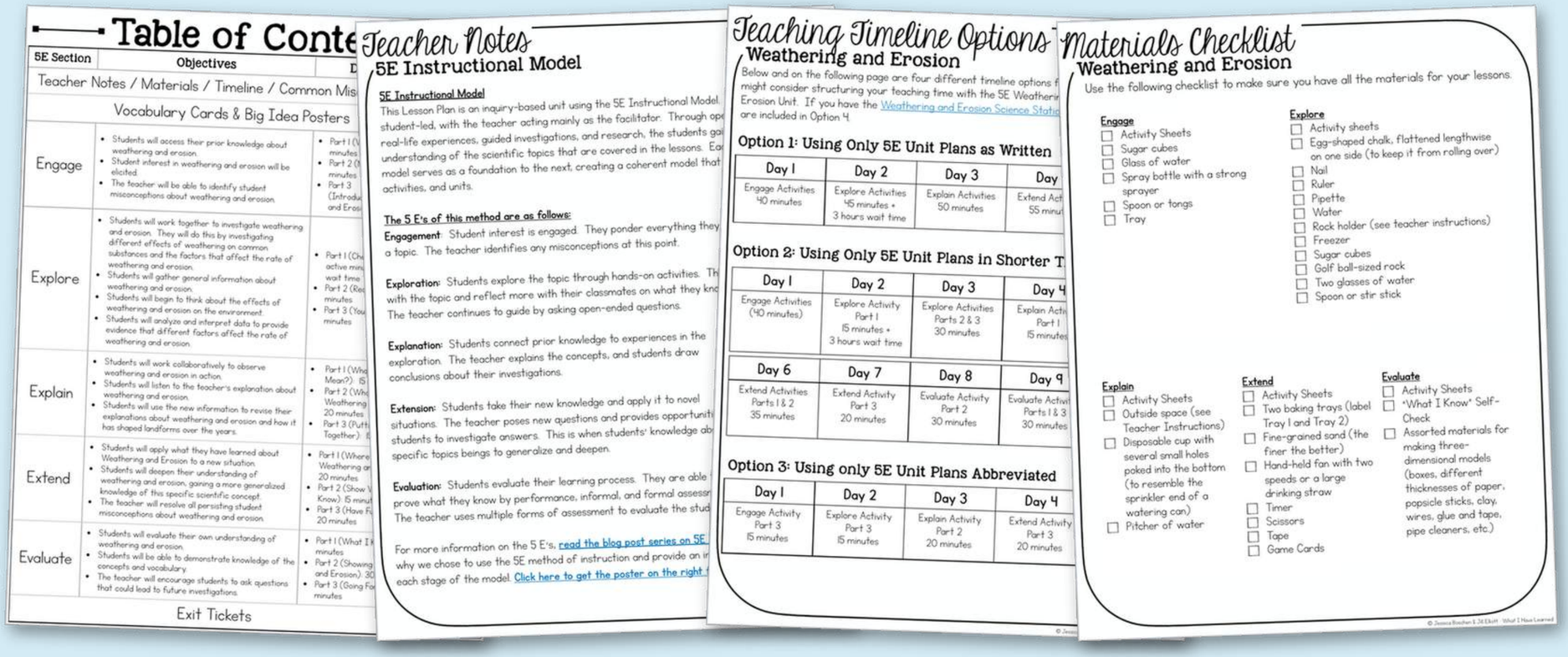
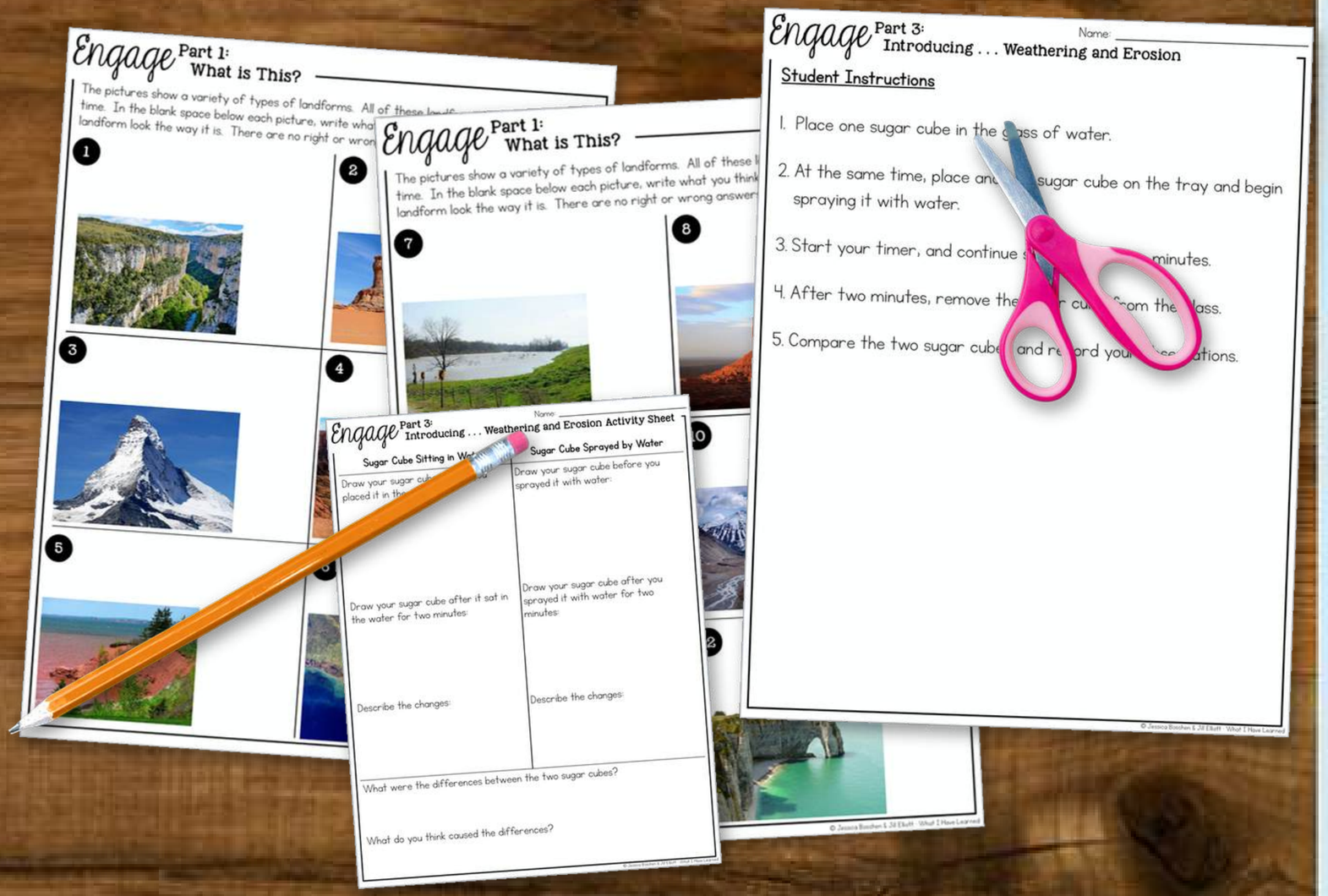


Table of Contents **Teacher Notes** **Timeline Options** **Materials Checklist**

ENGAGE



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

E E E E E

Spark curiosity with changing landforms

1 What Is This?

Students study pictures of landforms and make guesses about how each one changed over time.

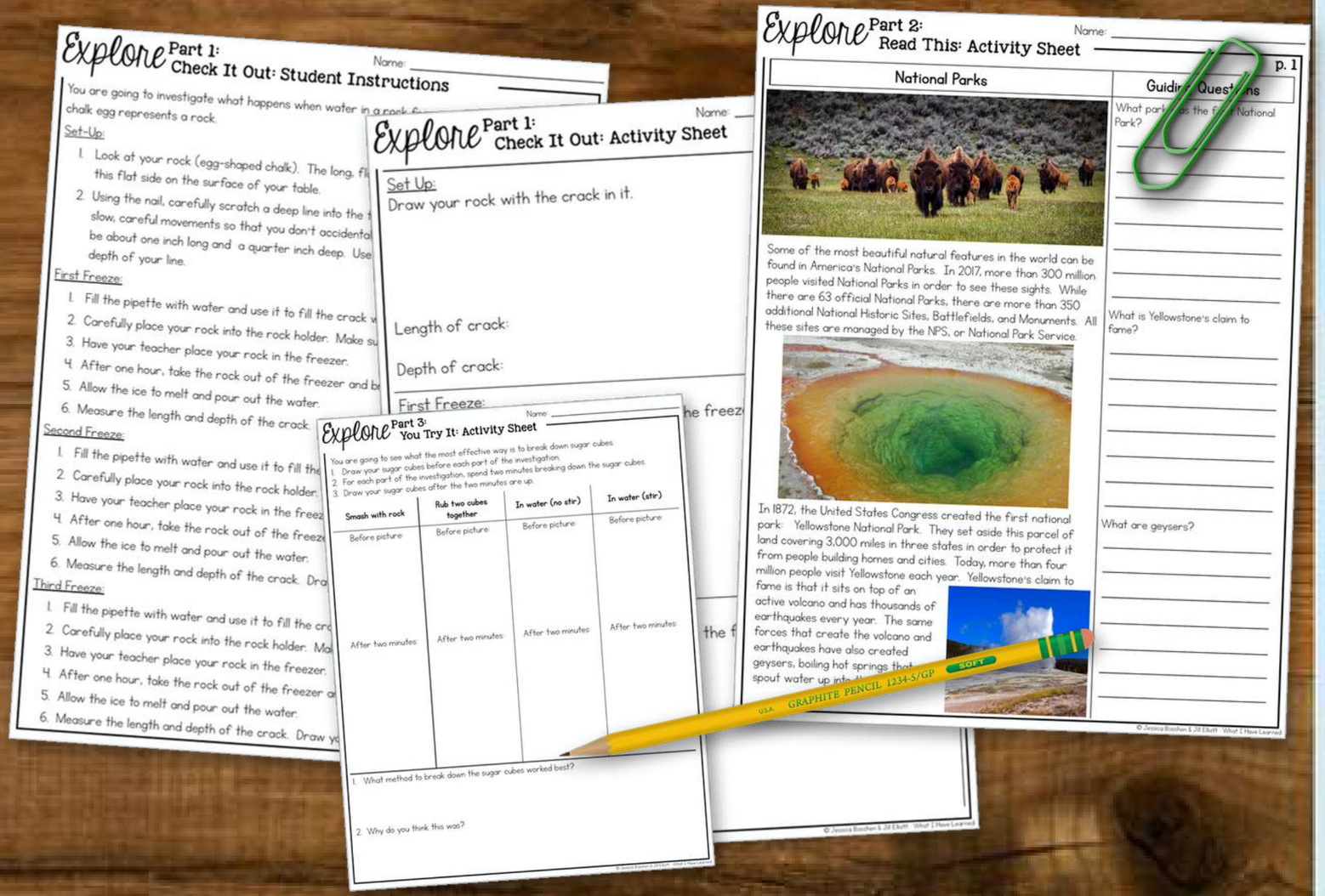
2 My Experiences

Students describe landforms near them and consider whether those landforms are still changing.

3 Introducing Weathering and Erosion

Students compare sugar cubes in water and under a spray bottle to start forming hypotheses.

EXPLORE



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

E E E E E

Investigate ice, water, wind, and landforms

1 Check It Out

Students freeze a chalk model of a rock and measure how the crack changes over several rounds.

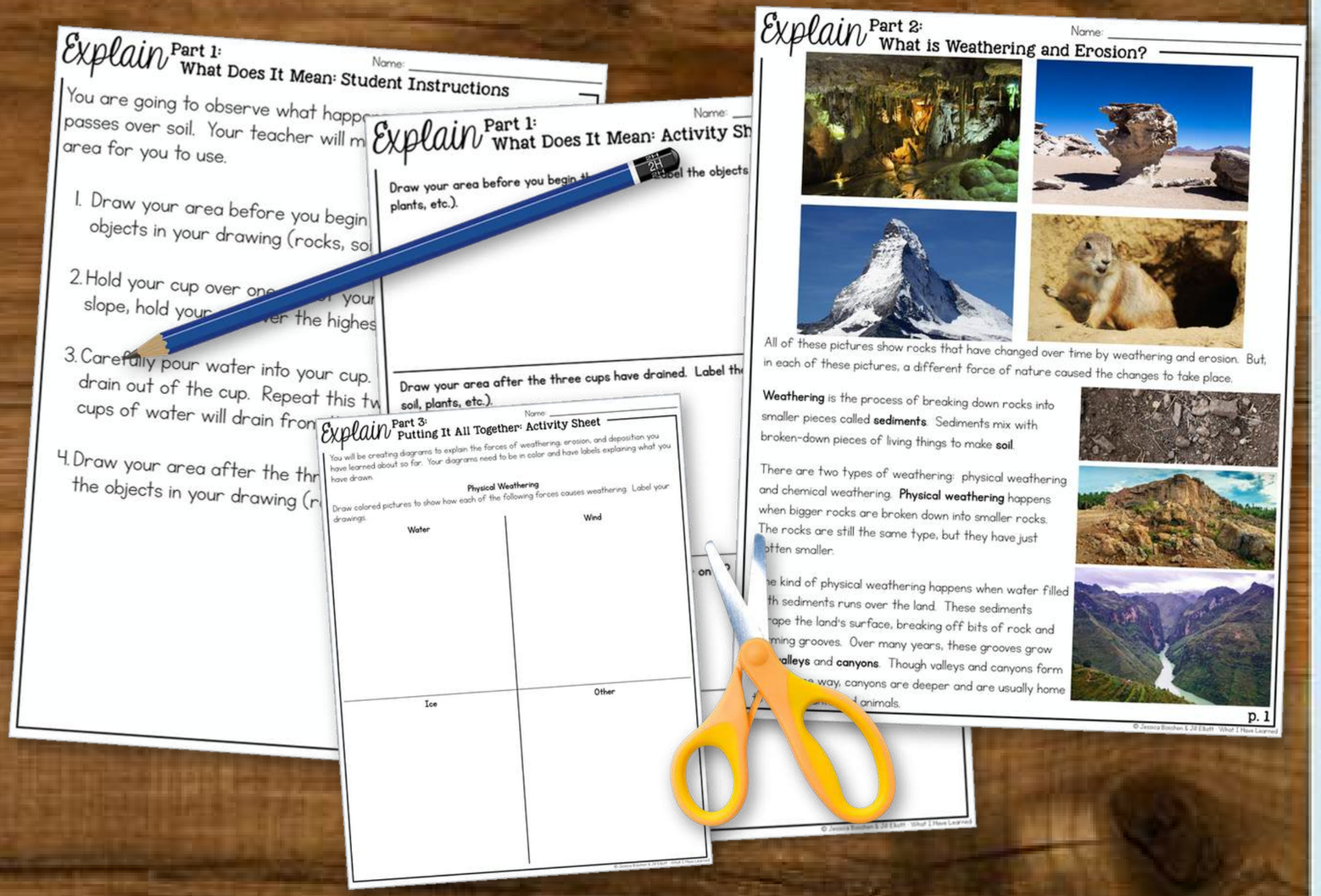
2 Read This

Students read about National Parks and take notes on landforms shaped by weathering and erosion.

3 You Try It

Students compare ways to break down sugar cubes and use their observations to explain the results.

EXPLAIN



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

E E E E E

Build explanations from evidence

1 What Does It Mean?

Students observe water moving over soil and vegetation and record how the land changes.

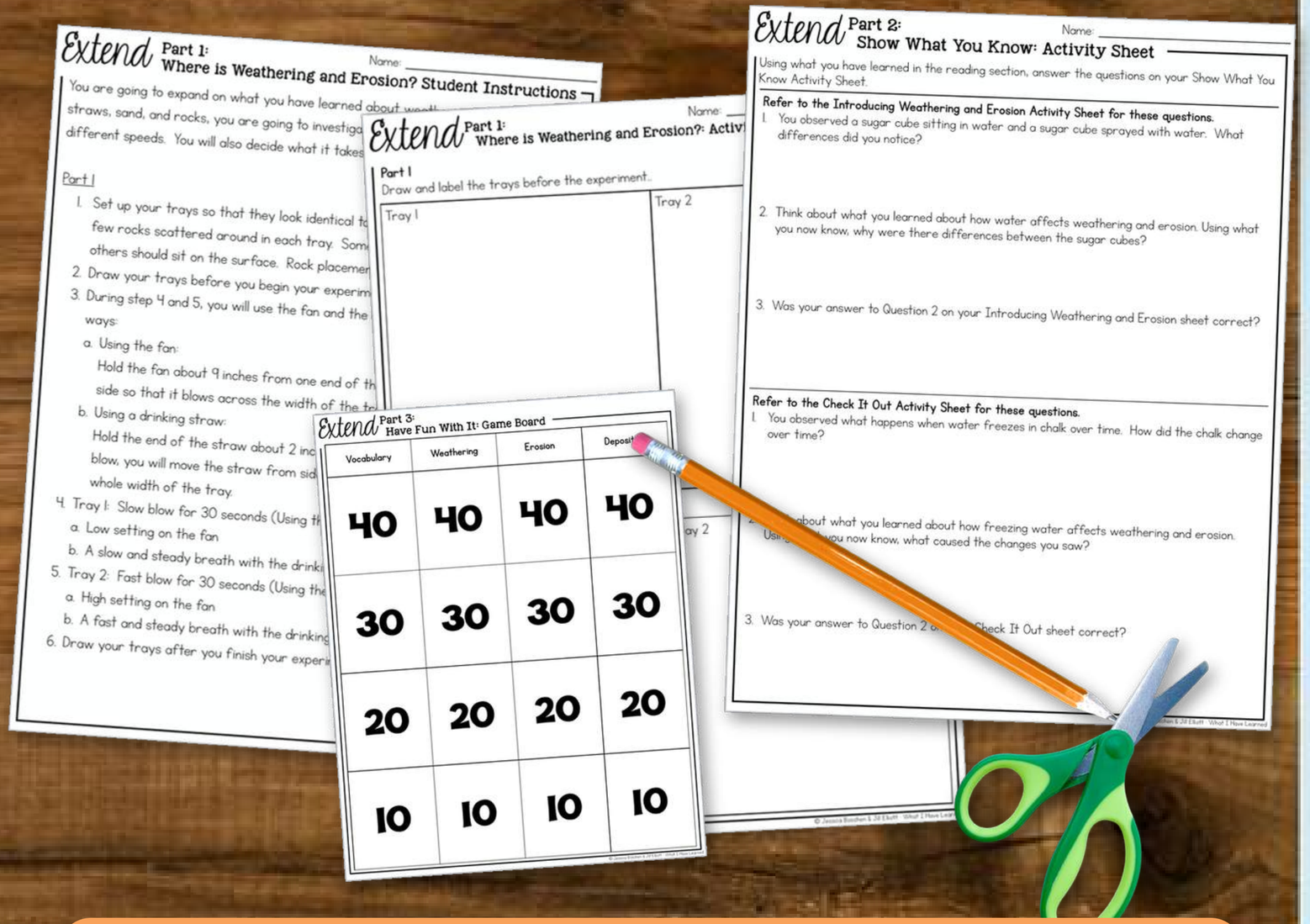
2 What Is Weathering and Erosion?

Students read about physical and chemical weathering, erosion, deposition, and glaciers.

3 Putting It All Together

Students create diagrams that show physical weathering, chemical weathering, erosion, and deposition.

EXTEND



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

E E E E E

Apply weathering and erosion to new situations

1 Where Is Weathering and Erosion?

Students use sand, rocks, and air to investigate how wind changes landforms.

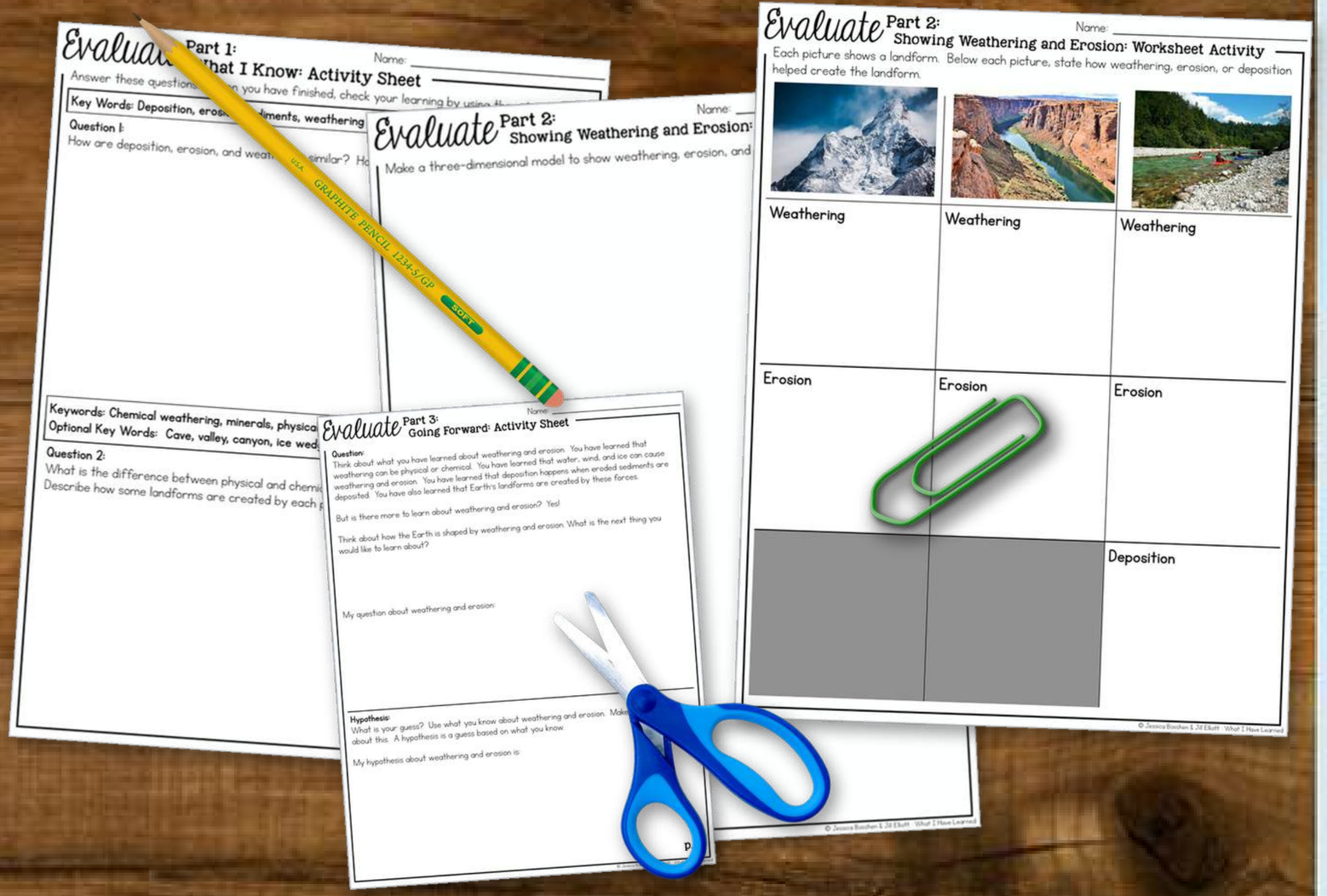
2 Show What You Know

Students answer questions that connect their investigations to weathering, erosion, and deposition.

3 Have Fun With It

Students play a review game about sediments, landforms, weathering, erosion, and deposition.

EVALUATE



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

E E E E E

Show understanding with landform evidence

1 What I Know

Students answer questions about key concepts and use a rubric to assess their understanding.

2 Showing Weathering and Erosion

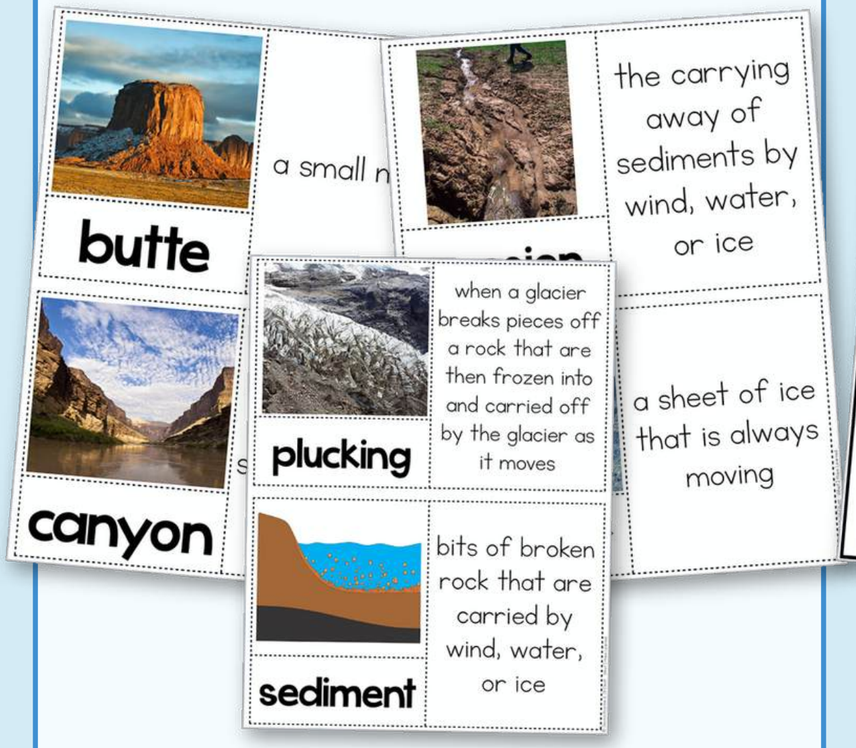
Students build a three-dimensional model that shows weathering, erosion, and deposition.

3 Going Forward

Students write a question and hypothesis about weathering and erosion, then plan an investigation.

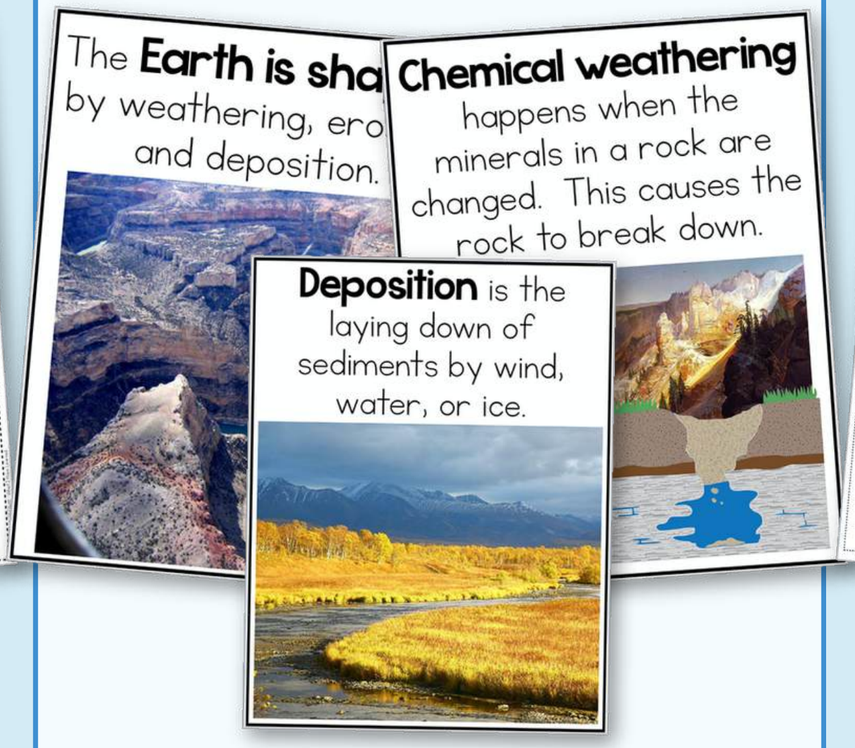
VOCABULARY, POSTERS & EXIT TICKETS

VOCABULARY CARDS



Picture cards and word cards for weathering, erosion, deposition, glaciers, landforms, and more.

BIG IDEA POSTERS



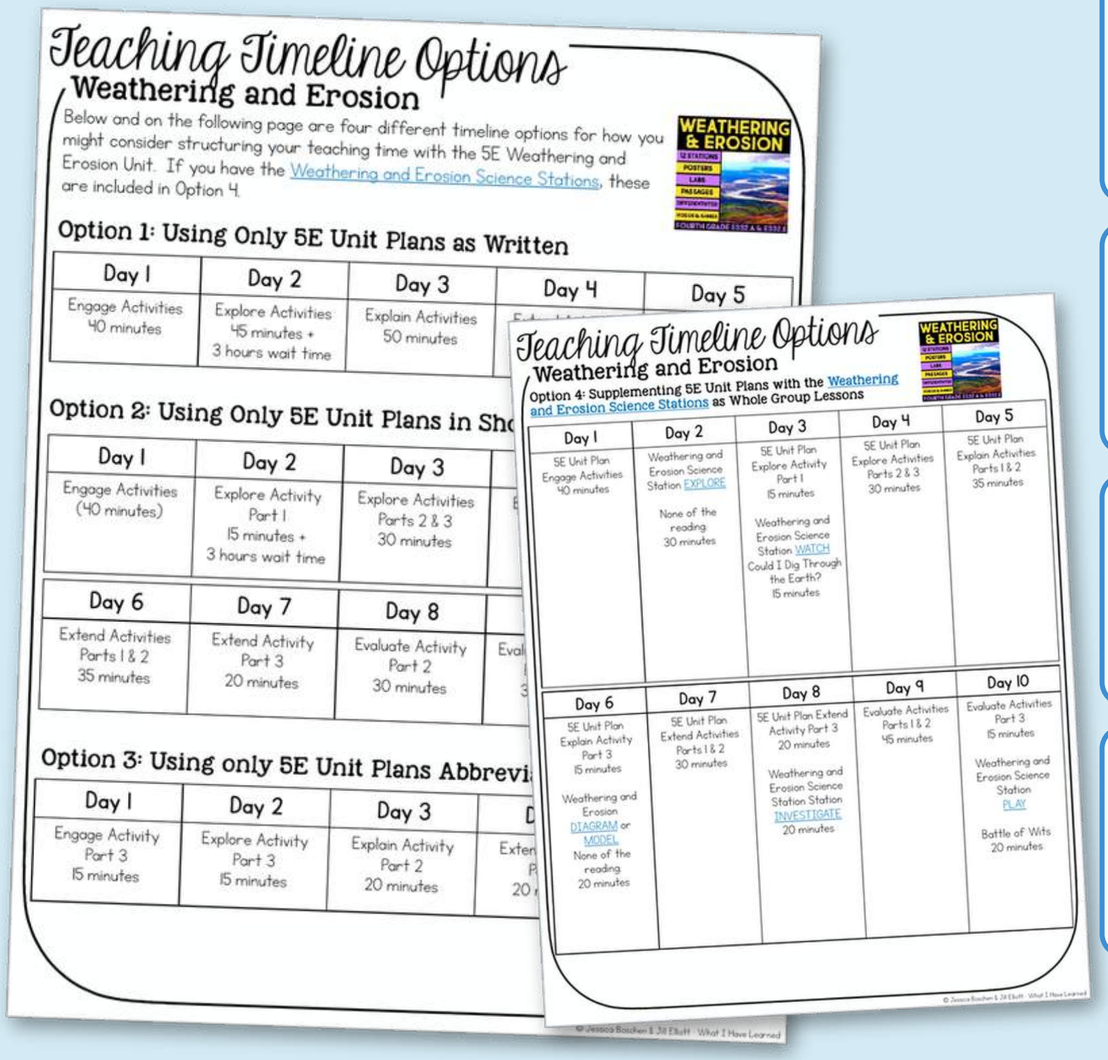
Big idea posters on Earth's changing surface, physical and chemical weathering, erosion, and deposition.

EXIT TICKETS



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

WAYS TO USE IN YOUR CLASSROOM



Teaching Timeline Options

Weathering and Erosion

Below and on the following page are four different timeline options for how you might consider structuring your teaching time with the 5E Weathering and Erosion Unit. If you have the Weathering and Erosion Science Stations, these are included in Option 4.

Option 1: Using Only 5E Unit Plans as Written

Day 1	Day 2	Day 3	Day 4	Day 5
Engage Activities 40 minutes	Explore Activities 45 minutes + 3 hours wait time	Explain Activities 50 minutes		

Option 2: Using Only 5E Unit Plans in Sho

Day 1	Day 2	Day 3	
Engage Activities (40 minutes)	Explore Activity Part 1 15 minutes + 3 hours wait time	Explore Activities Parts 2 & 3 30 minutes	
Day 6	Day 7	Day 8	
Extend Activities Parts 1 & 2 35 minutes	Extend Activity Part 3 20 minutes	Evaluate Activity Part 2 30 minutes	Eval

Option 3: Using only 5E Unit Plans Abbrevi

Day 1	Day 2	Day 3	
Engage Activity Part 3 15 minutes	Explore Activity Part 3 15 minutes	Explain Activity Part 2 20 minutes	Exten P 20

Teaching Timeline Options

Weathering and Erosion

Option 4: Supplementing 5E Unit Plans with the Weathering and Erosion Science Stations as Whole Group Lessons

Day 1	Day 2	Day 3	Day 4	Day 5
5E Unit Plan Engage Activities 40 minutes	Weathering and Erosion Science Station EXPLORE None of the reading 30 minutes	5E Unit Plan Explore Activity Part 1 15 minutes Weathering and Erosion Science Station WATCH Could I Dig Through the Earth? 15 minutes	5E Unit Plan Explore Activities Parts 2 & 3 30 minutes	5E Unit Plan Explain Activities Parts 1 & 2 35 minutes
Day 6	**Day 7**	**Day 8**	**Day 9**	**Day 10**
5E Unit Plan Explain Activity Part 3 15 minutes Weathering and Erosion DIAGRAM or MODEL None of the reading 20 minutes	5E Unit Plan Extend Activities Parts 1 & 2 30 minutes	5E Unit Plan Extend Activity Part 3 20 minutes Weathering and Erosion Science Station Station INVESTIGATE 20 minutes	Evaluate Activities Parts 1 & 2 45 minutes	Evaluate Activities Part 3 15 minutes Weathering and Erosion Science Station PLAY Battle of Wits 20 minutes

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 Weathering and Erosion 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 +3 hr wait	50 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 +3 hr wait	30 min	15 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

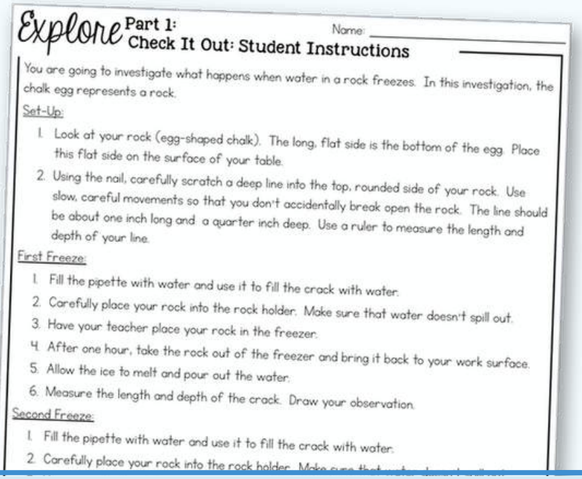
Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
Engage	**Explore Station**	**Explore 1**	**Explore 2-3**	**Explain 1-2**	**Explain 3**	**Diagram**	**Extend 1-2**	**Extend 3**	**Evaluate 1-2**
40 min	30 min	15 min	30 min	35 min	15 min	20 min	30 min	20 min +20 station	45 min +15 +20 station

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 freeze chalk, compare sugar cubes, blow sand, and build landform models, so Earth's changes become visible.



Explore Part 1: Check It Out: Student Instructions

Name: _____

You are going to investigate what happens when water in a rock freezes. In this investigation, the chalk egg represents a rock.

Set-Up:

1. Look at your rock (egg-shaped chalk). The long, flat side is the bottom of the egg. Place this flat side on the surface of your table.
2. Using the nail, carefully scratch a deep line into the top, rounded side of your rock. Use slow, careful movements so that you don't accidentally break open the rock. The line should be about one inch long and a quarter inch deep. Use a ruler to measure the length and depth of your line.

First Freeze:

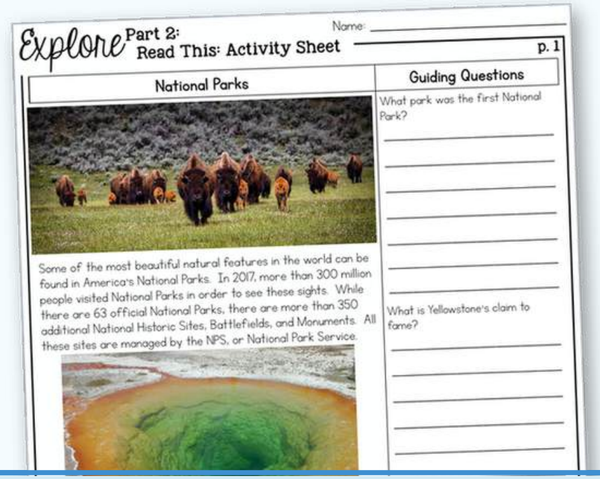
1. Fill the pipette with water and use it to fill the crack with water.
2. Carefully place your rock into the rock holder. Make sure that water doesn't spill out.
3. Have your teacher place your rock in the freezer.
4. After one hour, take the rock out of the freezer and bring it back to your work surface.
5. Allow the ice to melt and pour out the water.
6. Measure the length and depth of the crack. Draw your observation.

Second Freeze:

1. Fill the pipette with water and use it to fill the crack with water.
2. Carefully place your rock into the rock holder. Make sure that

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

National Parks

Guiding Questions

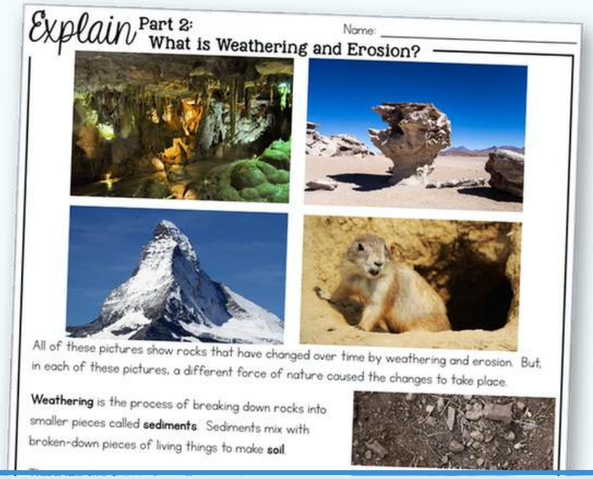
What park was the first National Park?

Some of the most beautiful natural features in the world can be found in America's National Parks. In 2017, more than 300 million people visited National Parks in order to see these sights. While there are 63 official National Parks, there are more than 350 additional National Historic Sites, Battlefields, and Monuments. All these sites are managed by the NPS, or National Park Service.

What is Yellowstone's claim to fame?

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 Weathering and Erosion?

Name: _____

All of these pictures show rocks that have changed over time by weathering and erosion. But, in each of these pictures, a different force of nature caused the changes to take place.

Weathering is the process of breaking down rocks into smaller pieces called **sediments**. Sediments mix with broken-down pieces of living things to make **soil**.

TEACHERS LOVE IT!

★★★★★

This is a valuable resource for supplementing social studies.

Kaylee R.

★★★★★

I used this as part of a unit and it worked really well.

teacherluv24

★★★★★

This resource was a fun and engaging way to walk the kids through the 5E's of science.

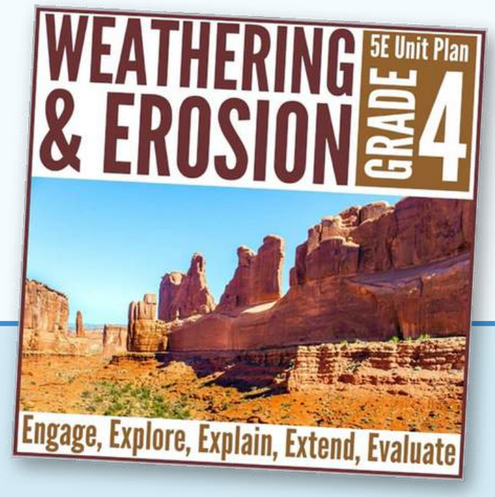
Mrs Martinez Krouse





READY FOR YOUR CLASSROOM

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

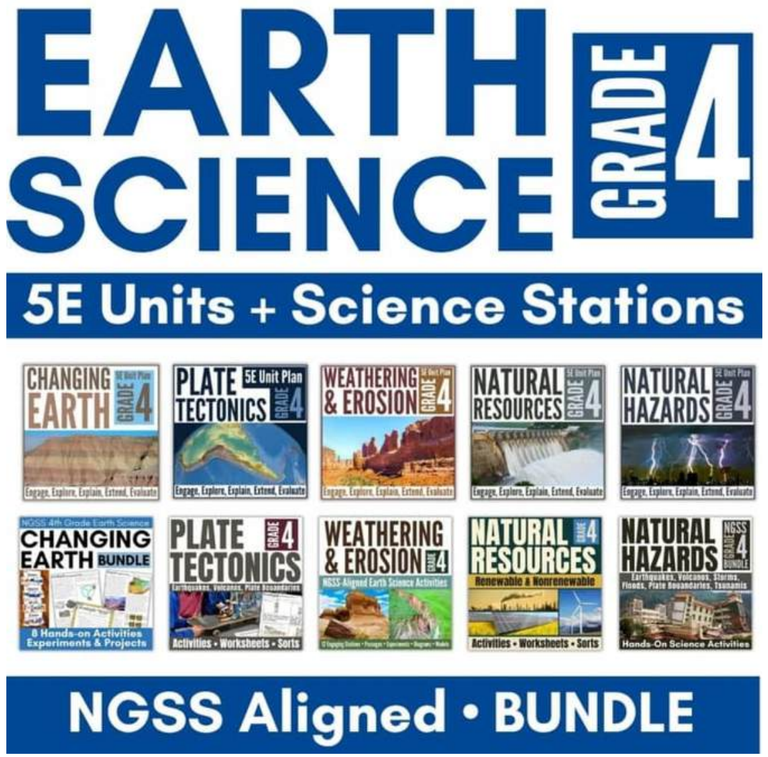


WANT MORE 4TH GRADE 5E UNITS?

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

TOPIC BUNDLE

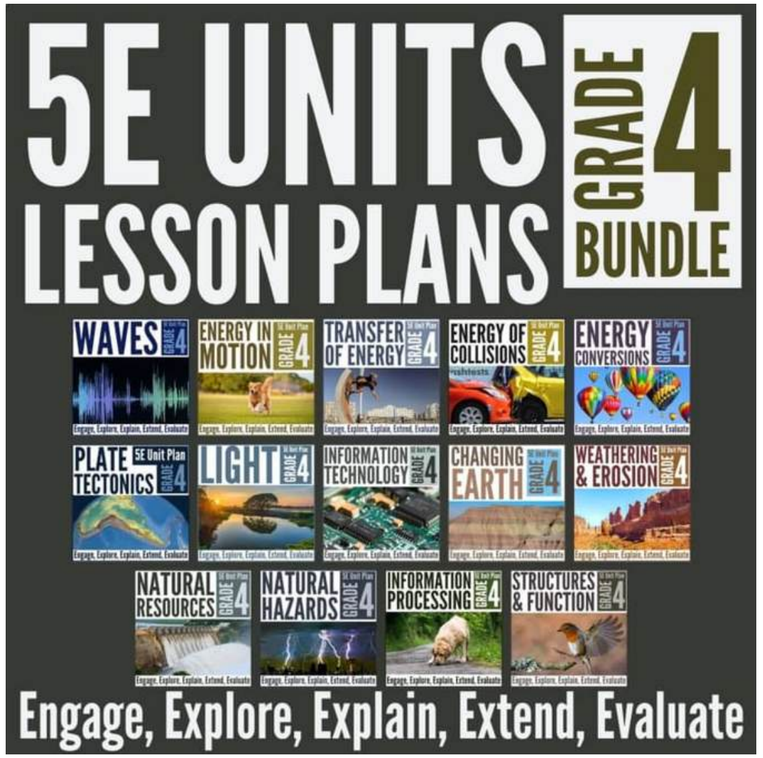
GOOD VALUE



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.



teach MATH | teach SCIENCE | teach READING | teach WRITING

What I have LEARNED