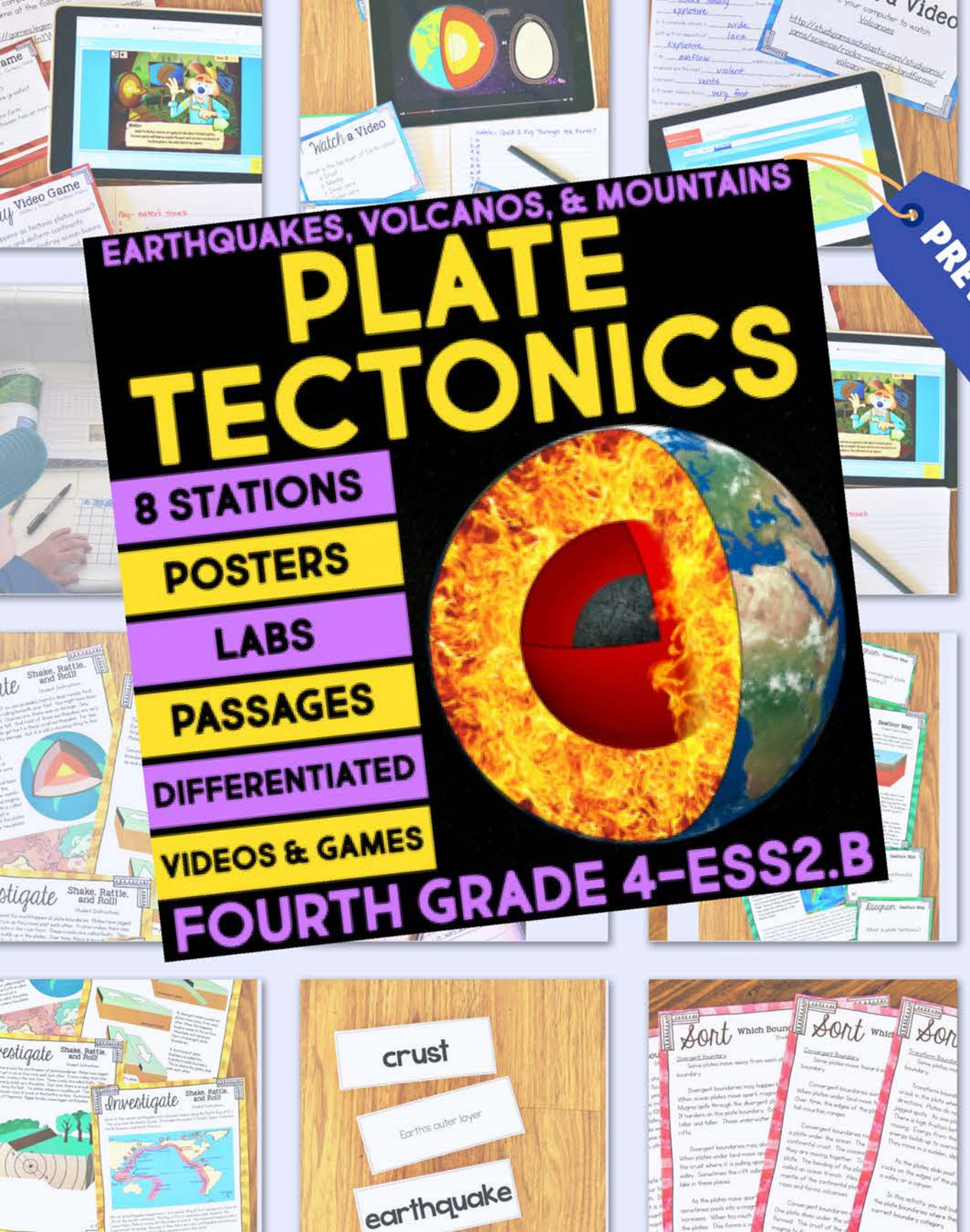


4TH GRADE

Unleashing Earth's Power!

PLATE TECTONICS LAB VOLCANOES EARTHQUAKES STATION ACTIVITIES

4th Grade Science Bundle

KEEP SCROLLING TO SEE WHAT'S INSIDE!

YOU WILL LOVE THIS BECAUSE



Concept Mastery

This resource covers essential topics in plate tectonics, providing students with a thorough understanding of volcanoes, earthquakes, and geological formations.



Aligned with NGSS

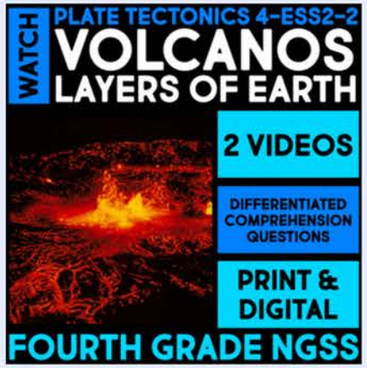
These lesson plans aren't just random; they're laser-focused on Next Generation Science Standards. No more curriculum guesswork!

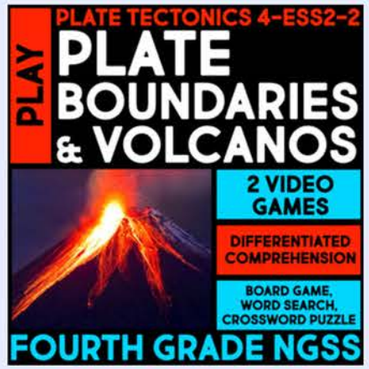


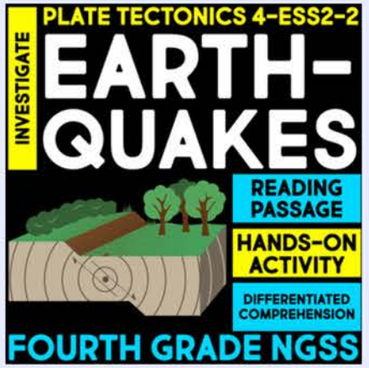
Student Engagement

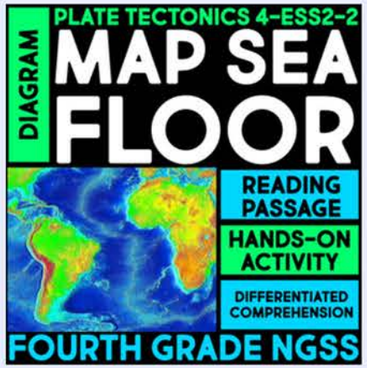
With a variety of activities including videos, games, models, and hands-on investigations, this resource caters to diverse learning needs.

WHAT'S INCLUDED IN THE BUNDLE?

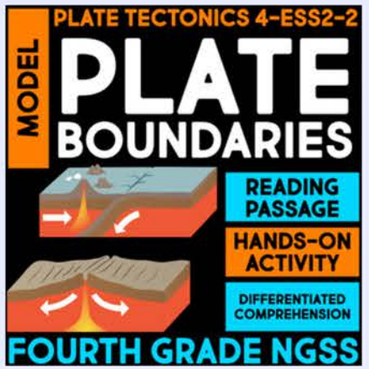


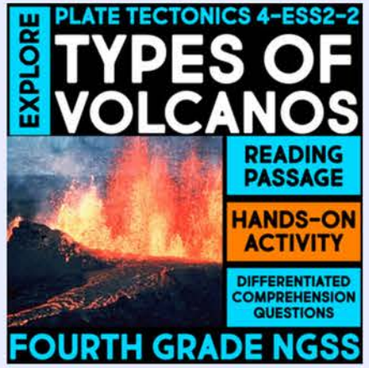


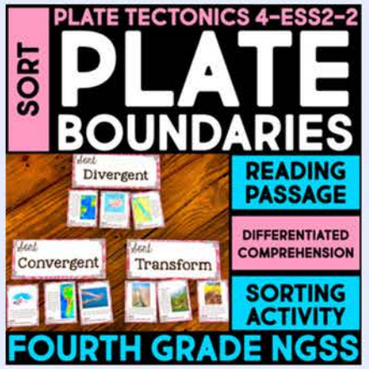












- 8 Science Stations aligned with the NGSS for 4th grade
- 6 Reading passages
- Hands-on activities
- Differentiated comprehension questions
- Digital Videos & Video Games
- Digital Google Slides & Forms

WATCH • PLAY • INVESTIGATE • DIAGRAM • READ • MODEL • EXPLORE • SORT

PLATE TECTONICS STATION ACTIVITIES

SUGGESTED USES

Learning Stations

Use all eight stations or just a few as learning stations that students complete at their own pace.

Science Centers

Set up a rotation where students visit each center to complete the activities.

Whole Class

Use the activities in a whole class format.

Small Group

Use the activities with a small group who need extra help.

6 READING PASSAGES

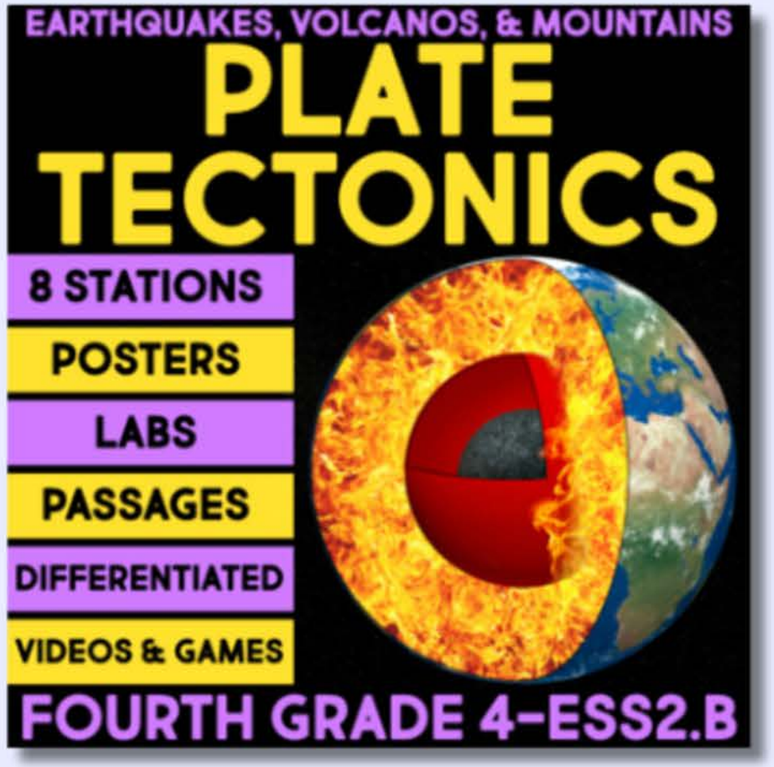


6 Reading Passages that provide all scientific background knowledge for each station

Available in two formats + Digital

Includes pictures and visuals

PAGE OVERVIEW



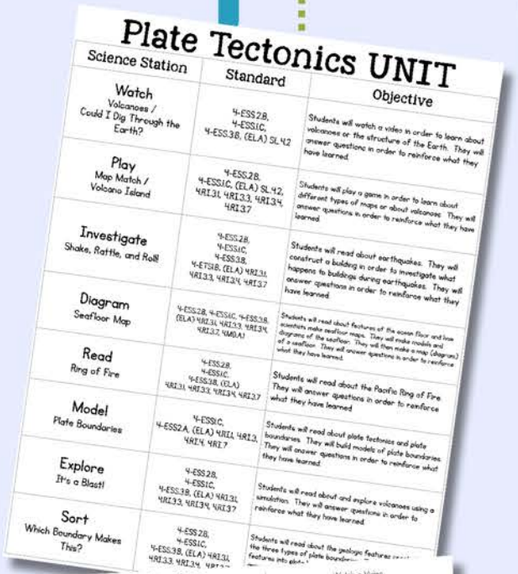


Plate Tectonics UNIT

Science Station	Standard	Objective
Watch Volcanoes / Could I Dig Through the Earth?	4-ESS2.B, 4-ESS1.C, 4-ESS3.B, (ELA) SL.4.2	Students will watch a video in order to learn about volcanoes or the structure of the Earth. They will answer questions in order to reinforce what they have learned.
Play Map Match / Volcano Island	4-ESS2.B, 4-ESS1.C, (ELA) SL.4.2, 4.RI.3.1, 4.RI.3.3, 4.RI.3.4, 4.RI.3.7	Students will play a game in order to learn about different types of maps or about volcanoes. They will answer questions in order to reinforce what they have learned.
Investigate Shake, Rattle, and Roll	4-ESS2.B, 4-ESS1.C, 4-ESS3.B, 4-ETS1.B, (ELA) 4.RI.3.1, 4.RI.3.3, 4.RI.3.4, 4.RI.3.7	Students will read about earthquakes. They will construct a building in order to investigate what happens to buildings during earthquakes. They will answer questions in order to reinforce what they have learned.
Diagram Seafloor Map	4-ESS2.B, 4-ESS1.C, 4-ESS3.B, (ELA) 4.RI.3.1, 4.RI.3.3, 4.RI.3.4, 4.MD.A.1	Students will read about features of the ocean floor and how scientists make seafloor maps. They will make models and diagrams of the seafloor. They will then make a map (diagram) of a seafloor. They will answer questions in order to reinforce what they have learned.
Read Ring of Fire	4-ESS2.B, 4-ESS1.C, 4-ESS3.B, (ELA) 4.RI.3.1, 4.RI.3.3, 4.RI.3.4, 4.RI.3.7	Students will read about the Pacific Ring of Fire. They will answer questions in order to reinforce what they have learned.
Model Plate Boundaries	4-ESS1.C, 4-ESS2.A, (ELA) 4.RI.1, 4.RI.2, 4.RI.7, 4.RI.7	Students will read about plate tectonics and plate boundaries. They will build models of plate boundaries. They will answer questions in order to reinforce what they have learned.
Explore It's a Blast!	4-ESS2.B, 4-ESS1.C, 4-ESS3.B, (ELA) 4.RI.3.1, 4.RI.3.3, 4.RI.3.4, 4.RI.3.7	Students will read about and explore volcanoes using a simulation. They will answer questions in order to reinforce what they have learned.
Sort Which Boundary Makes This?	4-ESS2.B, 4-ESS1.C, 4-ESS3.B, (ELA) 4.RI.3.1, 4.RI.3.3, 4.RI.3.4, 4.RI.3.7	Students will read about the geologic features created at the three types of plate boundaries. They will sort these features into plate boundary categories. They will then answer questions in order to reinforce what they have learned.



Plate Tectonics
Science Stations

These Science Stations have several different ways students can display their understanding. Most of the variations are similar to each other, but differentiated for various classrooms and learning styles. Included are worksheets for both short-answer and fill-in-the-blank and task cards for both short-answer and multiple choice responses. To provide even more support, I give students a word list for the fill-in-the-blank options. Also included are vocabulary cards in two formats which could become a ninth station if needed.

Students are encouraged to use their Science Journals with the task cards, but worksheets are provided as well. Use the checklist to monitor student progress through the stations. The Science Stations are designed to last about 20 minutes each. Students may do one a day for eight days or two a day for four days. The following checklists will help you organize the stations.

Every Station in this set meets the Crosscutting Concept "Patterns. "Patterns can be used as evidence to support an explanation." Each Station addresses how scientists can understand how large-scale interactions (volcanoes and other landforms, earthquakes, etc.) explain and are explained by plate tectonics.

In Fourth Grade, students are expected to "Analyze and interpret data from maps to describe patterns of Earth's features" (4-ESS2-1). This correlates with the DCI "4-ESS2.B, which states, "The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features areas of Earth." All stations in this set meet the DCI, helping students gain an understanding of plate tectonics and how it explains volcanoes, earthquakes, and other large-scale geologic interactions and land formations. The Engineering Practice of "Analyze and interpret data to make sense of phenomena using logical reasoning" is part of the Investigate, Diagram, Model, and Explore stations.

There is no specific Engineering DCI in the standard strand.

Video & Game links are included in three formats: the original full link, a bit.ly link and a Google Shortlink. YouTube Videos are also available via SafeShare links in the three formats.

Watch a Video
Students will watch a video in order to learn about volcanoes or the structure of the Earth. They will answer questions in order to reinforce what they have learned.

Play a Game
Students will play a game in order to learn about different types of maps or about volcanoes. They will answer questions in order to reinforce what they have learned.

Investigate
Students will read about earthquakes. They will construct a building in order to investigate what happens to buildings during earthquakes. They will answer questions in order to reinforce what they have learned.

Draw a Diagram
Students will read about features of the ocean floor and how scientists make seafloor maps. They will make models and diagrams of the seafloor. They will then make a map (diagram) of a seafloor. They will answer questions in order to reinforce what they have learned.

Read a Passage
Students will read about the Pacific Ring of Fire. They will answer questions in order to reinforce what they have learned.

Create a Model
Students will read about plate tectonics and plate boundaries. They will build models of plate boundaries. They will answer questions in order to reinforce what they have learned.

Explore
Students will read about and explore volcanoes using a simulation. They will answer questions in order to reinforce what they have learned.

Sort
Students will read about the geologic features created at the three types of plate boundaries. They will sort these features into plate boundary categories. They will then answer questions in order to reinforce what they have learned.

Science Stations Overview

This is a general overview of all science stations in each UNIT BUNDLE.

Watch a Video
At this station, students will watch a video relevant to the topic and answer questions. You have the option of using the included worksheet with the questions or using the task cards and having students respond in their science journals.

Play a Game
Students play a game and answer questions about the experience. Students play a video game, a board game, do a crossword puzzle or a word search.

Investigate
Students use materials to investigate the science topic by following directions and recording results. Students answer questions about the investigation.

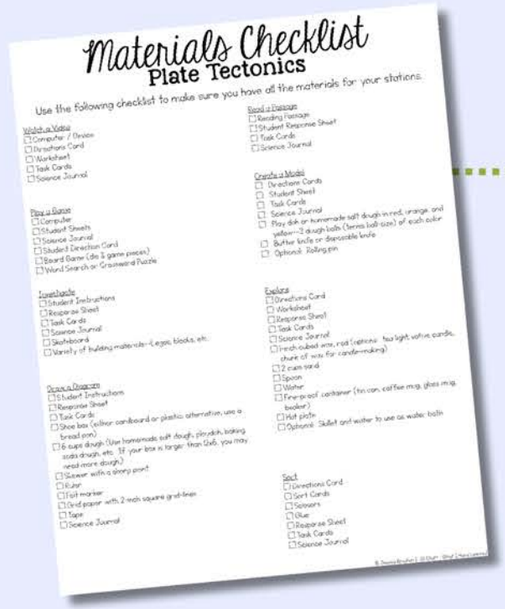
Draw a Diagram
Students draw and label a diagram specific to certain requirements. Students then explain how their diagram meets the requirements.

Read a Passage
Students read a short passage about the topic and answer questions about the information in the passage. You have the option of using the included worksheet with the questions or using the task cards and having students respond in their science journals.

Create a Model
Students use materials to illustrate the science concept and answer questions. You have the option of using the included worksheet with the questions or using the task cards and having students respond in their science journals.

Explore
Students create a sample and manipulate it using the new science concepts they have learned. Students answer questions based on the effects.

Sort
Students sort cards into groups or put them in a specific order. Students record the sort and then describe their reasoning.



Materials Checklist
Plate Tectonics

Use the following checklist to make sure you have all the materials for your stations.

Watch a Video
- ☐ Computer / Device
- ☐ Directions Card
- ☐ Worksheet
- ☐ Task Cards
- ☐ Science Journal

Play a Game
- ☐ Computer
- ☐ Student Sheets
- ☐ Science Journal
- ☐ Student Direction Card
- ☐ Board Game (dice & game pieces)
- ☐ Word Search or Crossword Puzzle

Investigate
- ☐ Student Instructions
- ☐ Response Sheet
- ☐ Task Cards
- ☐ Science Journal
- ☐ Skateboard
- ☐ Variety of building materials--Legos, blocks, etc.

Draw a Diagram
- ☐ Student Instructions
- ☐ Response Sheet
- ☐ Task Cards
- ☐ Shoe box (either cardboard or plastic; alternative, use a bread pan)
- ☐ 6 cups dough (Use homemade soft dough, playdoh, baking soda dough, etc. If your box is larger than 12x9, you may need more dough.)
- ☐ Skewer with a sharp point
- ☐ Ruler
- ☐ Felt marker
- ☐ Grid paper with 2 inch square grid lines
- ☐ Tape
- ☐ Science Journal

Read a Passage
- ☐ Reading Passage
- ☐ Student Response Sheet
- ☐ Task Cards
- ☐ Science Journal

Create a Model
- ☐ Directions Cards
- ☐ Student Sheet
- ☐ Task Cards
- ☐ Science Journal
- ☐ Play dough or homemade salt dough in red, orange, and yellow—2 dough balls (tennis ball-size) of each color
- ☐ Butter knife or disposable knife
- ☐ Optional: Rolling pin

Explore
- ☐ Directions Card
- ☐ Worksheet
- ☐ Response Sheet
- ☐ Task Cards
- ☐ Science Journal
- ☐ Fresh-cubed ems. red (optional: tea light votive candle, chunk of wax for candle-making)
- ☐ 2 cups sand
- ☐ Spoon
- ☐ Water
- ☐ Fire-proof container (tin can, coffee mug, glass mug, beaker)
- ☐ Hot plate
- ☐ Optional: Skillet and water to use as water bath

Sort
- ☐ Directions Card
- ☐ Sort Cards
- ☐ Scissors
- ☐ Glue
- ☐ Response Sheet
- ☐ Task Cards
- ☐ Science Journal

Plate Tectonics Unit

Science Station Overview

Materials Checklist

Teacher Notes

BIG IDEA POSTERS

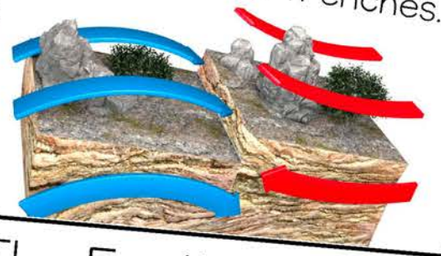
There are three types of plate boundaries: convergent, divergent, and transform.



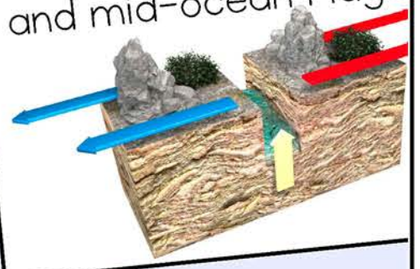
There are three types of volcanoes: shield, cinder cone, and composite.



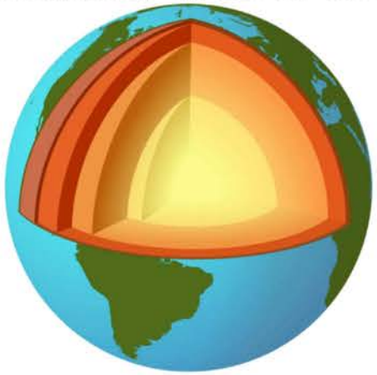
Convergent boundaries are where plates are moving toward each other. They may form mountains, volcanoes, and deep sea trenches.



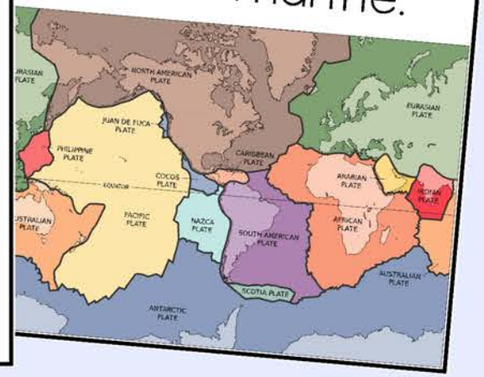
Divergent boundaries are where plates are moving away from eac other. They may forr mountains, volcanoes and mid-ocean ridge



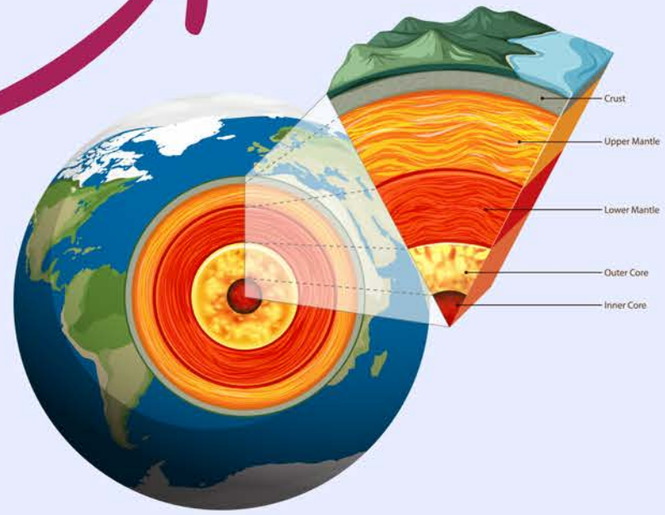
The Earth is made of four layers: the **inner core, outer core, mantle, and crust**.



The Earth's crust is made of **plates** that move around on the mantle.

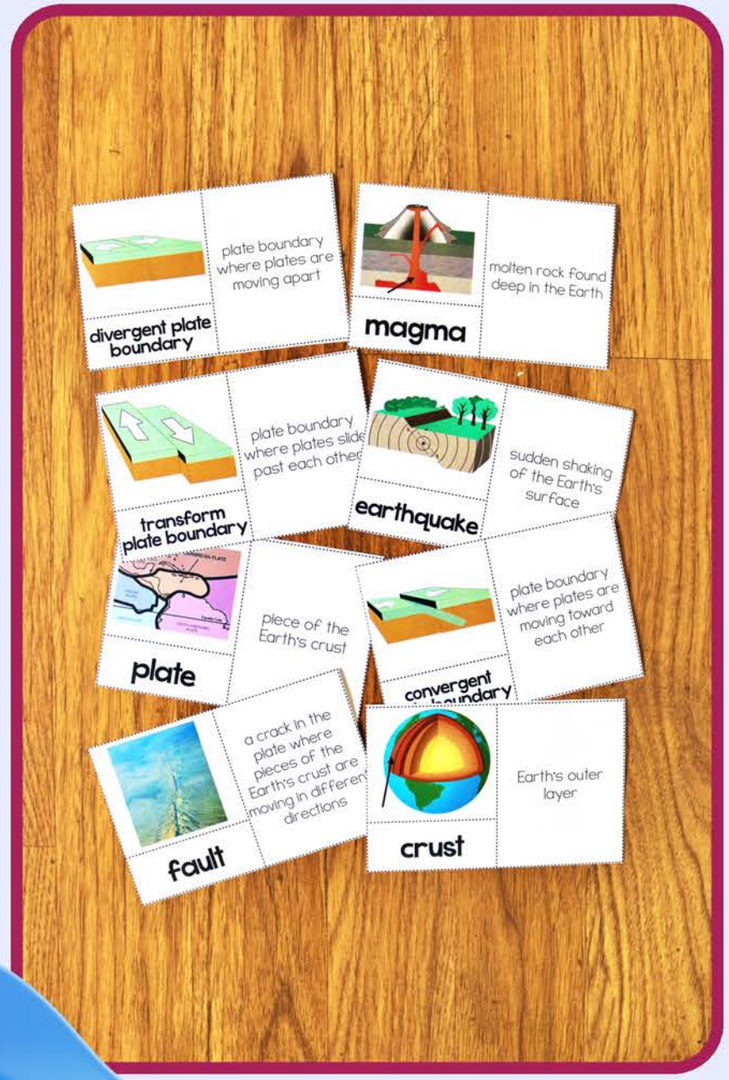


BIG IDEA POSTERS THAT EXPLAIN THE KEY CONCEPTS.

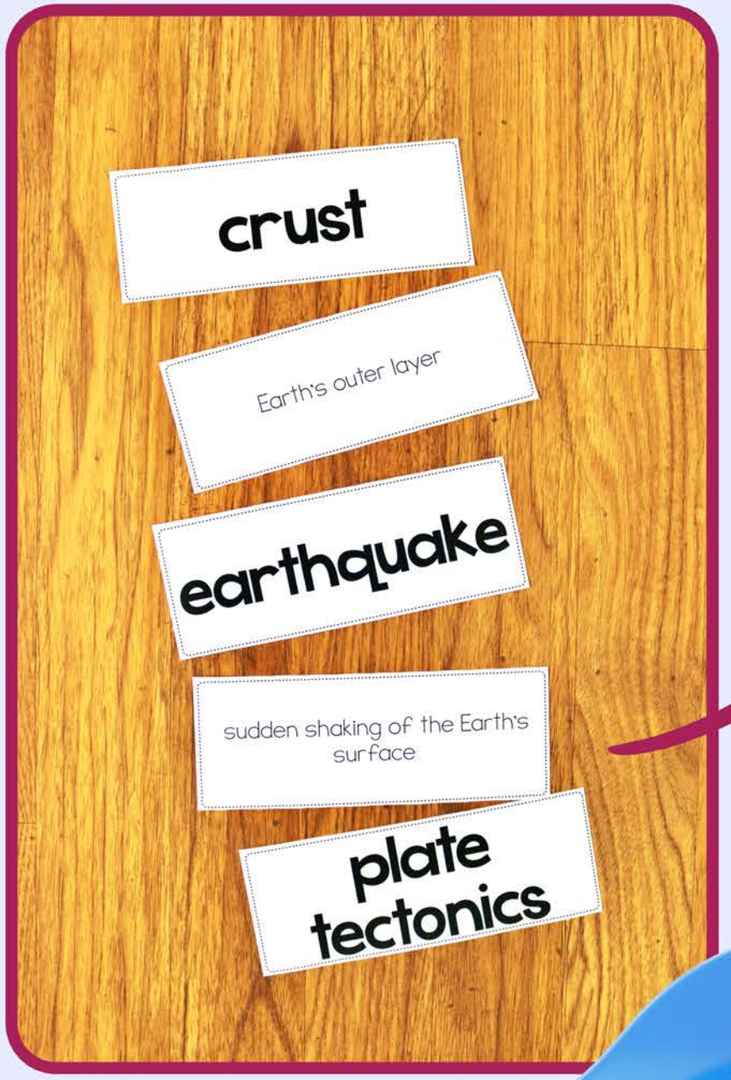


VOCABULARY CARDS IN TWO FORMATS

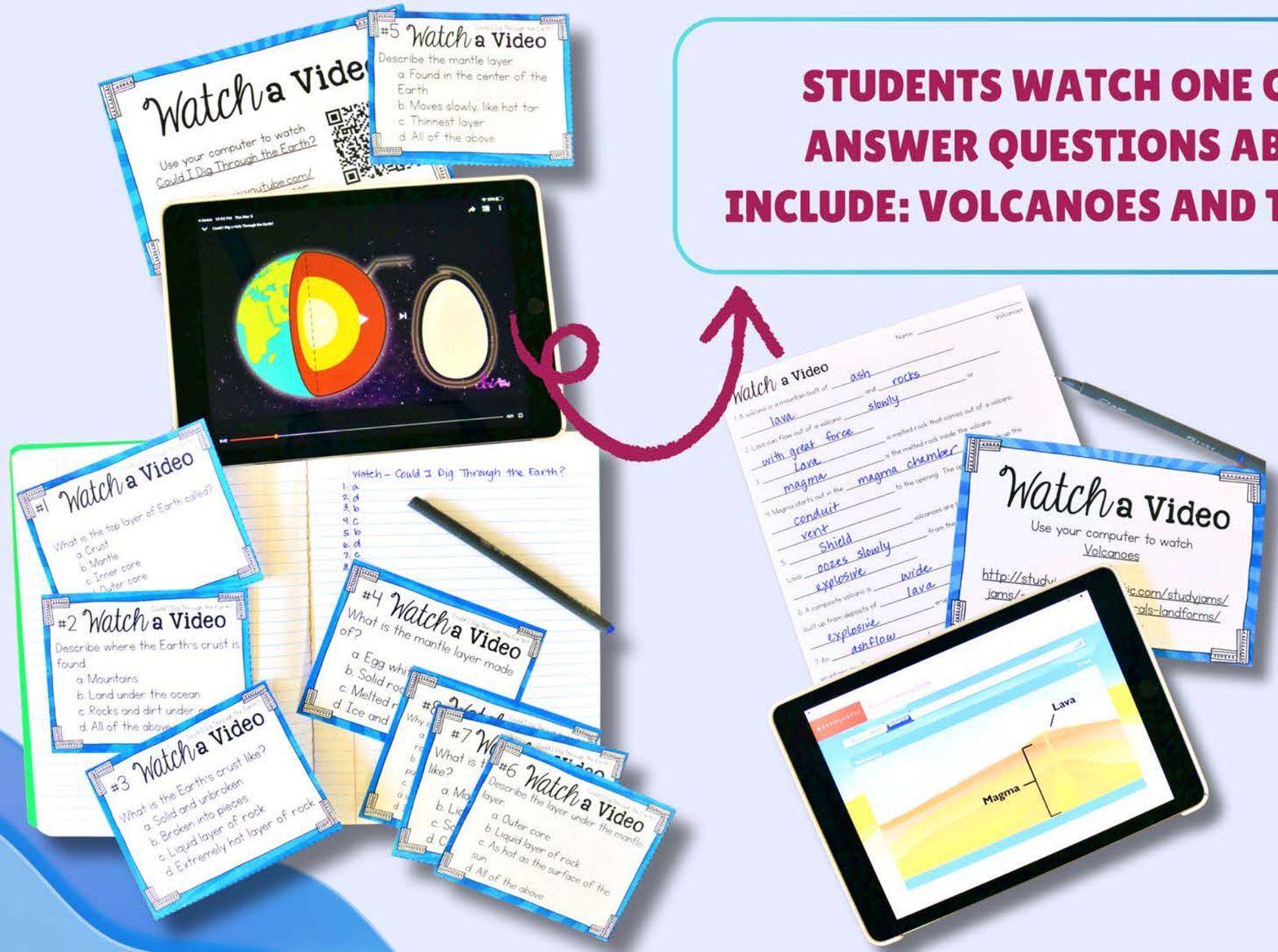
WITH PICTURES



WITHOUT PICTURES



ONE VIDEO FROM THE WATCH STATION



STUDENTS WATCH ONE OF TWO VIDEOS AND THEN ANSWER QUESTIONS ABOUT THE VIDEOS. VIDEOS INCLUDE: VOLCANOES AND THE STRUCTURE OF THE EARTH.

> "Great ideas. Loved the hands on centers and video."
>
> - Vicky Parker

LEARN MORE

WATCH STATION

ONE GAME FROM THE PLAY STATION



STUDENTS CHOOSE TO PLAY A VIDEO GAME OR PRINTABLE GAMES AND LEARN EITHER ABOUT DIFFERENT TYPES OF MAPS OR VOLCANOES.

> "This resource was amazing. My students wanted to go to this resource for fun."
>
> - Third Inning

LEARN MORE

PLAY STATION

A FEW PAGES FROM THE INVESTIGATE STATION



STUDENTS WILL LEARN ABOUT EARTHQUAKES, CONSTRUCT A BUILDING TO INVESTIGATE ITS BEHAVIOR DURING EARTHQUAKES, AND THEN ANSWER QUESTIONS TO REINFORCE THEIR UNDERSTANDING OF THE CONCEPTS.

> "I used this to solidify the learning of our unit on earthquakes and natural disasters."
>
> - Havin' Fun in Kinder

LEARN MORE

INVESTIGATE STATION

A FEW PAGES FROM THE DIAGRAM STATION



STUDENTS LEARN ABOUT THE OCEAN FLOOR FEATURES, SEAFLOOR MAPPING, CREATE MODELS AND DIAGRAMS, MAKE A SEAFLOOR MAP, AND ANSWER QUESTIONS TO REINFORCE LEARNING.

> "This is a very good resource. It it organized, easy to implement, and enjoyed by my students."
>
> -Janelle L.

LEARN MORE

DIAGRAM STATION

A FEW PAGES FROM THE READ STATION



STUDENTS READ ABOUT THE PACIFIC RING OF FIRE. THEY ANSWER QUESTIONS IN ORDER TO REINFORCE WHAT THEY HAVE LEARNED.

> "Thank you for putting together this resource. This helped us review our science standards before TCAP."
>
> -From K to 5

LEARN MORE

READ STATION

A FEW PAGES FROM THE MODEL STATION



STUDENTS READ ABOUT PLATE TECTONICS AND PLATE BOUNDARIES. THEY BUILD MODELS OF PLATE BOUNDARIES. THEY ANSWER QUESTIONS IN ORDER TO REINFORCE WHAT THEY HAVE LEARNED.

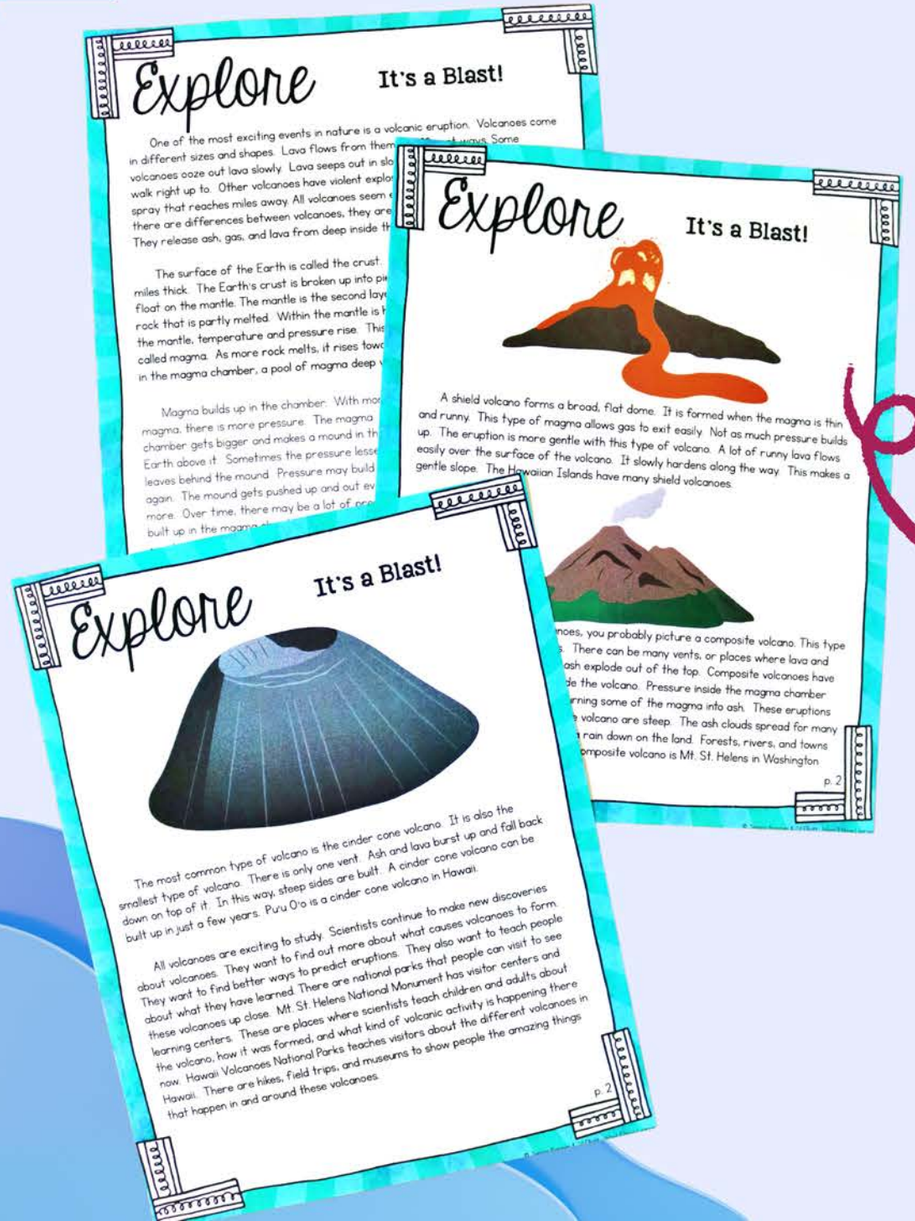
"Using this resource to teach science and hands on activities. Our current science curriculum and materials do not provide anything engaging as this, thanks!"

- Miss Villalvazo

LEARN MORE

MODEL STATION

A FEW PAGES FROM THE EXPLORE STATION



STUDENTS READ ABOUT AND EXPLORE VOLCANOES USING A SIMULATION. THEY THEN ANSWER QUESTIONS ABOUT THE EXPLORATION.

> "My students loved using this resource. They were actively engaged."
>
> - Georgie S.

LEARN MORE

EXPLORE STATION

A FEW PAGES FROM THE SORT STATION



STUDENTS LEARN ABOUT GEOLOGIC FEATURES AT DIFFERENT PLATE BOUNDARIES, CATEGORIZE THEM, AND REINFORCE THEIR LEARNING THROUGH QUESTIONS.

> "Great activities. I used the materials in small group for reteaching and for practice. My students loved everything."
> - Caren P.

LEARN MORE

SORT STATION



All activities have the same basic components:

- Student Directions
- Short Answer Worksheet
- Fill-in-the-Blank Worksheet
- Cut & Paste Worksheet
- Short Answer Task Cards
- Multiple Choice Task Cards

Some activities have more reading to build background knowledge and additional worksheets or activity sheets to help organize the new information.

NOT ALL VERSIONS OF THE PAGES ARE DISPLAYED ON THE FOLLOWING PAGES, BUT ALL ARE IN EACH RESOURCE

DIGITAL VERSIONS

- ✔ Google Forms and/or
- ✔ Google Slides for every station
- ✔ Videos
- ✔ Video Games
- ✔ Digital Crossword Puzzles & Word Searches

Answer keys provided

CAN BE INDEPENDENT

- Watch
- Play
- Read
- Sort

MAY REQUIRE TEACHER SUPPORT

- Investigate
- Diagram
- Model
- Explore

TEACHER PREP

- Choose a topic and activities
- Choose which type of questions students will answer
- Set up the station using the included materials list
- Have students read the passage to build background knowledge (optional)
- Have students complete the stations using the included student directions

TEACHERS LOVE IT!

They loved this unit and were so into earthquakes that we had to build our own buildings after and see if they could survive. It was so engaging and fun!

– Marah B.



My students really benefitted from this and it made my life so much easier! I was able to go through and grab what I needed. The projects were fun and they didn't take too much to put together. I really enjoyed this unit because of this resource! Thank you for creating this!

– Jaquelyn R.



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