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Weekly Instructions:

Every week, the packet will start with a choice board. This choice board consists of 9 assignments. I am asking your 8th grader to complete 3 of those 9 assignments. The papers that come after the choice board correspond to one of the options. Not all the options have papers in the packet because all that is required is pen and paper. The options on the choice boards range in time from 20- 40 mins (or should). This week, pick choices that you haven't chosen already. If you are interested in extra credit, do an extra assignment, take a picture and email/text it to me.

I provided choices because your students learn in many different ways. If I were the parent of an 8th grader, I would want the options that require them to go outside, to spend time with their household, or do something with their hands/experiment, because "the only difference between goofing off and science is writing it down." - Adam Savage

Plate Tectonics Choice Board
Graphs Charts Tables
Mapping the Ocean Floor
Exit Tickets
Theory of Plate Tectonics Writing Prompt
Continental Drift Self Experiment

Pick 3

Plate Tectonics Choice Board

Only 3

Create an anchor chart/poster detailing convection currents and their role in plate movement.	Complete the Graphs-Charts-Tables ~ Plate Tectonics Worksheet in Google Slides.	Write a rap, rhyme, or song that explains seafloor spreading, continental drift, and plate tectonics.
Read Mapping the Ocean Floor Informational Text and answer the questions - (Mini Project Preferable)	Watch Pangaea Pop-Up. Write 1 paragraph, using CER, answering the prompted question.	Using Google Docs, design and perform (with parental supervision) an experiment exploring continental drift.
Answer the daily Exit Ticket questions. (If you do 1 day, must do all week)	Complete the Theory of Plate Tectonics Writing Prompt.	Venn Diagram Oceanic><Oceanic Convergence vs. Continental><Oceanic Convergence

SHOW WHAT YOU KNOW!

What evidence have scientists found that supports the Theory of Plate Tectonics?

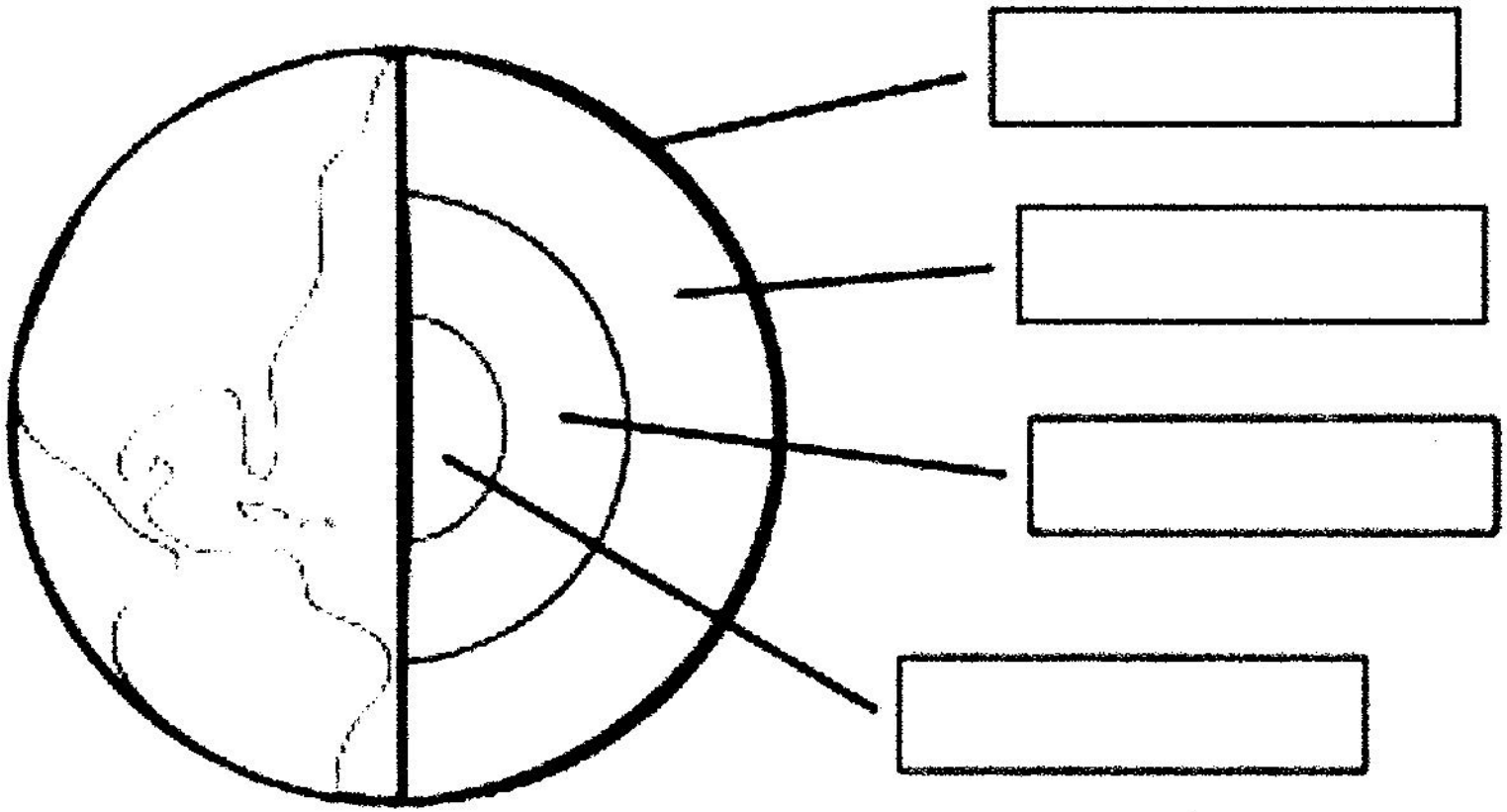
Name: _____ Date: _____

ADMIT ONE

Exit Ticket

ADMIT ONE

Label the layers of the Earth on the diagram below.



Name: _____ Date: _____

ADMIT ONE

Exit Ticket

ADMIT ONE

1. Briefly describe continental drift.

2. Who was Alfred Wegener?

3. What was Pangaea?

4. Why did many scientists reject Alfred Wegener's hypothesis of continental drift?

Name: _____ Date: _____

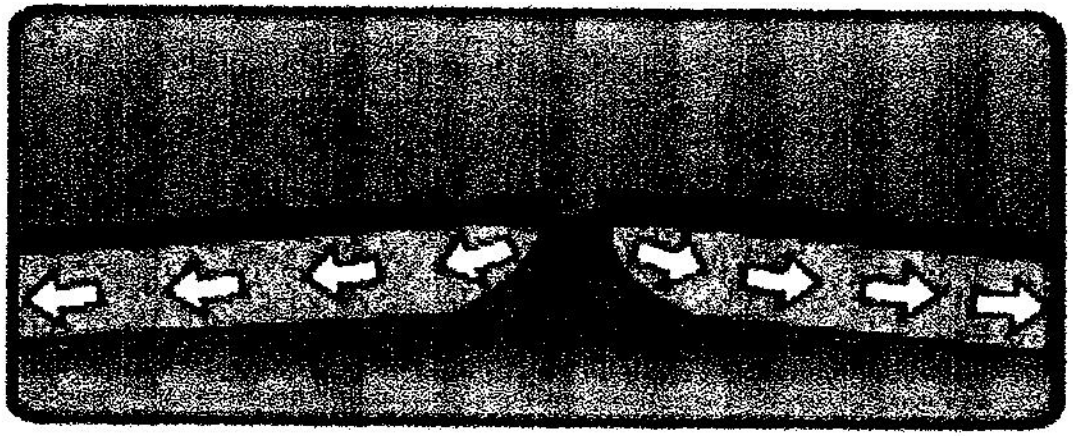
ADMIT ONE

Exit Ticket

ADMIT ONE

Explain seafloor spreading in your own words.

Use arrows to indicate the location of the youngest and the oldest rock below.



Why is the Earth not getting larger if the sea floor is slowly spreading?

Name: _____ Date: _____

ADMIT ONE

Exit Ticket

ADMIT ONE

What is a convergent boundary?

Convergent Boundary	Diagram/Sketch	Feature Formed
Continent to Continent		
Continent to Ocean		
Ocean to Ocean		

Name: _____ Date: _____

ADMIT ONE

Exit Ticket

ADMIT ONE

What is a divergent boundary?

Divergent Boundary	Diagram/Sketch	Feature Formed
Continent to Continent		
Ocean to Ocean		

MAPPING THE *Ocean Floor*

Think about some of the famous landforms on Earth such Mt. Everest, the Grand Canyon, the Rift Valley of Eastern Africa, and the Cascade volcanoes of the Pacific Northwest. All of these natural icons pale in comparison to dramatic formations that lie beneath the ocean. It's difficult to believe we know more about our Moon and planets in the solar system than we do about our ocean floors. Currently, only about five percent of the ocean floor is mapped.

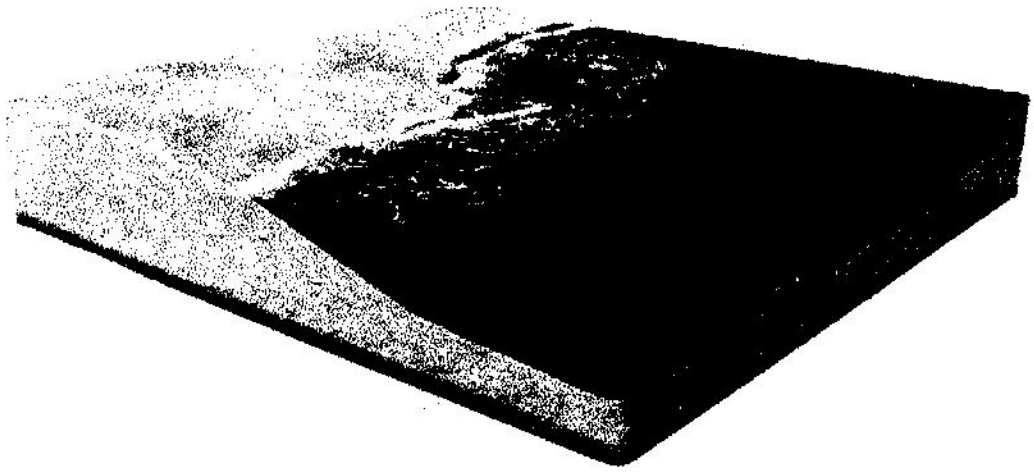
Here are some reasons why we should map the ocean floor; first, the ocean floor can help us predict weather patterns. Second, mapping it could predict a tsunami's movement and help warn people faster, and third, it could assist in determining the supervision of fisheries that feed millions. Finally, mapping the ocean floor will help us envision the future of our climate.

Mapping the ocean floor has proven to be a problematic task. However, the Seabed 2030 project has confidence that it's up to the challenge. With a generous budget, they are currently enlisting 100 ships to circumscribe the globe for 13 years. Many oceanographers are enthusiastic about this attempt as they believe it will yield an abundant amount of geological and biological data. It will also help ships navigate the oceans without as much danger.

The first ocean floor mappers used plumb lines to heave overboard and measure one point of depth at a time. Today modern ships like those employed by Seabed 2030 use a multibeam bathymetry system. Sensors bounce sound waves over expanses of the ocean floor. The time it takes the sound waves to return to the ship tells scientists the depth of the floor. One ship can cover thousands of square kilometers of high-resolution maps during an expedition.

Many discoveries are predicted during this research venture, but we know little about the potential environmental impacts. Many mineral deposits can be embedded in the ocean floor. The mapping project could serve as a treasure map for the mining industry. Deep-sea mining worries biologists who have apprehension about the protection of our marine habitats.

Martin Jakobbson, a Swedish professor of Marine Geology in Stockholm, says "It's not so easy to map the ocean because the water is in the way."
To complete this difficult expedition, oceanographers and geologists must take to the high seas. Watch for progress in mapping the ocean floor during your lifetime.



MAPPING THE *Ocean Floor*

Answer the questions below based on the article about mapping the ocean floor.

COMPREHENSION QUESTIONS:

1. How much of the Earth's ocean floors have currently been mapped?

2. What are some reasons why we should learn more about and map our ocean floors?

3. What project is tasked with mapping the ocean floors?

4. How long is this project supposed to last? Circle your answer in the text.

5. What type of system is used currently to map the ocean floor? Highlight your answer in the text.

6. What worries scientist about mapping?

Mini-PROJECT: **MAP RESEARCH**

Research and find a current map of the ocean floor. Considering only a small portion has currently been mapped, what do you think new maps will look like? What do you think will be found in the future? Explain your answer below.

Part One: Phenomenon

India was once a large island situated off the Australian coast and separated from Asia by the Tethys Ocean. But the supercontinent Pangea began to break up and India started a northward drift towards Asia. Finally, the Indian plate collided with the Eurasian plate and the enormous pressure forces resulting from this shock caused a gigantic mountain uplift.

There are 3000 km of the Himalayas, with Mount Everest being the highest peak at 8848 meters.

1. What do you know about this phenomenon?

2. What topics could a scientist study in these fields?

3. What kind of data could scientists collect from these fields?

Part Two: Visualizing Data

1. How could the diagrams below be related to the phenomenon we discussed?
2. What additional information can we add to the list of what we know?
3. Identify the key parts of the diagrams.

Plate movements

Description	Occurring Area
Two continental plates converging	
Ridge formed by plates diverging	
Movement at transform fault boundary	

Title	Title	Title	Title	Title	Title	Title	Title	Title	Title	Title	Title
Scale	Scale	Scale	Scale	Scale	Scale	Scale	Scale	Scale	Scale	Scale	Scale
X-axis	X-axis	X-axis	X-axis	X-axis	X-axis	X-axis	X-axis	X-axis	X-axis	X-axis	X-axis
Y-axis	Y-axis	Y-axis	Y-axis	Y-axis	Y-axis	Y-axis	Y-axis	Y-axis	Y-axis	Y-axis	Y-axis
Independent Variable	Independent Variable	Independent Variable	Independent Variable	Independent Variable	Independent Variable	Independent Variable	Independent Variable	Independent Variable	Independent Variable	Independent Variable	Independent Variable
Dependent Variable	Dependent Variable	Dependent Variable	Dependent Variable	Dependent Variable	Dependent Variable	Dependent Variable	Dependent Variable	Dependent Variable	Dependent Variable	Dependent Variable	Dependent Variable

Labels for Graphs

Part Three: Questions and Answers

Create three questions of your own that this graph could answer. Be sure to write down the correct answers to your questions.

Plate movements

Description	Occurring Area
Two continental plates converging	
Ridge formed by plates diverging	
Movement at transform fault boundary	

Part Four: New Forms of Visual Data

Plate movements

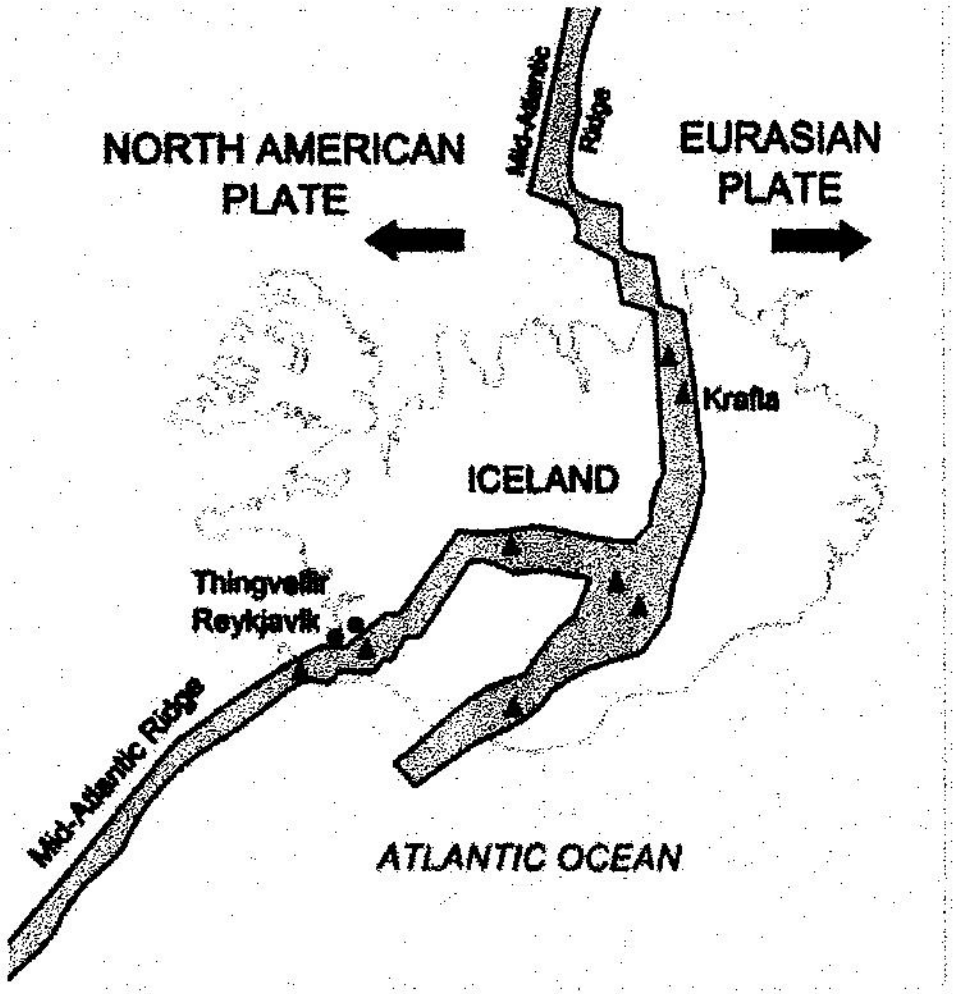
Description	Occurring Area
Two continental plates converging	
Ridge formed by plates diverging	
Movement at transform fault boundary	

1. Why was this type of graph probably used?

2. What are some other ways we can demonstrate this data? Design a new graph, chart, or table to represent this data.

Part Five: Make Your Own!

Iceland is found on Mid-Atlantic ridge, or the boundary of the North American plate and Eurasian plate. These tectonic plates are drifting at a rate of 2.5 centimeters (1 inch) per year. Use this information, along with the diagram on the right, to create a graph, chart or table that illustrates the plate boundary. Be sure your graph, chart or table includes a title and appropriate labels.



Continental Drift Self Experiment

I. **Question** (What are you observing or exploring?)

II. **Hypothesis** (If/then… statement)

III. **Materials** (What do you need to safely conduct this experiment?)

IV. **Procedure** (Every step must be reproducible by another scientist.)

Continental Drift Self Experiment

V. **Data Analysis** (Write down every observation. How will you record your data?)

Continental Drift Self Experiment

VI. Conclusion (Remember to follow CER "Claim, Evidence, Reasoning")