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Unit: Dynamic Earth

Timeline: 4-6 weeks

Big Ideas:

Earth's surface features are continually affected by interactions of forces.

Natural events have caused earth to change over time.

Essential Questions:

**** Has the Earth always been the same? Will it always be the same?**

1. What causes mountains to form in some places but not others?
2. If you were going to build a nuclear power plant where would you put it and why?
3. In millions of years will all the continents ever collide again?
4. Would you be able to see a mountain erode away in your lifetime?

Connections to Next Generation Science Standards:

GLE: ESS. 7. 1 Major geologic events such as earthquakes, volcanic eruptions, mid-ocean ridges, and mountain formations are associated with plate boundaries and attributed to plate motions.

GLE: ESS 7.2*

Geologic time, history, and changing life forms are indicated by fossils and successive sedimentation, folding, faulting, and uplifting of layers of sedimentary rock.

GLE: ESS 6.1

Complex interrelationships exist between Earth's structure and natural processes that over time are both constructive and destructive.

Unit MAP:

*Hook: Pangea

1. Earth's Layers:

1. Layers
2. Density
3. Convection Currents

2. PLATE TECTONICS:

1. Why plates move (convection)
2. Pangea- past movement
3. Types of plate boundaries/plate movement
4. Evidence of plate movement- earthquakes/volcanos

3. EARTH'S CHANGING SURFACE:

1. Weathering/erosion
3. Why are some changes gradual and some sudden?

Vocabulary:

density	convection currents
plate boundary	convergent
divergent	transform
continental crust	oceanic crust
sea floor spreading	mid-ocean ridge
fault	subduction
tectonic plates	mantle
core	Pangaea
weathering	erosion

Possible Misconceptions:

Plate tectonics move quickly and they can see drastic changes in their lifetime.

Earthquakes cause the plates to move.

Continental crust is floating on the ocean.

The waves from the ocean push the continents.

Learning Target	Assessments	Activities	Timeline
I can use my knowledge of density to describe the layers of the Earth.	Density Column Lab Earth Layers Diagram	1. Earth Layers 2. Float or Sink 3. Density Column 4. Connections to layers/Plasticity Lab 5. Layers Diagram	6 days
I can diagram how convection currents affect the Earth.	Convection Diagram	1. Density and Heat Investigation 2. Convection Demo 3. Connections to Earth 4. Convection Diagram	4 days
I can construct a model to show the types of tectonic plate movement and the processes and features they cause.	Graham Cracker Models and Explanations	1. Earthquake/ Volcano Map Activity 2. Plate Movement Online Investigation 3. Sea Floor Spreading Activity 4. New Ocean Article (Rifts) 5. Plate Movement Chart 6. Graham Cracker Model Creation and Explanation	10 days
I can describe how tectonic plate movement can change the surface of the earth over time.	Quick Write: Plates to Pangea	1. 100 million year old puzzle (Puzzling Pangea) 2. Connections: Plates to Pangea	3 days
I can model how weathering and erosion change the surface of the Earth.	CER- Erosion	1. Ghost Lake Article 2. Weathering/ Erosion Lab 3. CER- Weathering/Erosion	5 days
I can explain why some geologic events are gradual and some are sudden.	Quick Write	1. How much time does it take? Activity 2. Connections + Quick Write	3 days

Final Product “My World Project”

What it is: This is a project that you will be working on all year. With every unit, you will need to add to your My World Project, until it is finished at the end of the unit.

Part 1: Structure of My World

This first section of the My World project goes along with our Layers of the Earth and Plate Tectonics Unit. You will create your own world and are expected to show evidence (via poster, model, or diagram) and be able to explain about the layers of your world, show evidence of the different types of heat transfer on your world, show the plate boundaries and have the appropriate features associated with each boundary, and show plate movement over time. This world is completely your own. Take the time to really think about how you want your world to look and how you want it set up, because you will be working with and presenting your world through this whole unit. Most of all have fun with this, the sky is the limit!

How you will be graded:

Please fill out and attach with project when it is turned in.

If you are not at Exceeding Target in any area, you have to make corrections on your project until everything is at exceeding.

A- Approaching Target M- Meeting Target E- Exceeding Target

Learning Target	Self- Assessment	A	M	E	Teacher Assessment
I can label and describe the layers of my world.					
I can label the convection currents in my world.					
I can identify features associated with plate boundaries					
I can show how weathering/erosion change the way my world looks.					
I can show plate movement over time and how it changes how my world looks.					
Mechanics- I can use mechanics (complete sentences, capital letters, indentations of paragraphs, correct grammar, and correct punctuation) and text helps explain graphics, so that my audience takes me seriously.					
Creativity/ Neatness: Poster is made of high quality, looks professional, uses color, and shows individuality.					