

Week #2: Virtual Learning
Plate Tectonics
Mrs. Jones - Junior High Science

Hey guys! Well this is sure different. The following is our lesson plan/lecture for the week of March 30 - April 3rd. Please remember that all assignments are due on Friday via email by 3 pm. If you would like to turn things earlier, that's ok too. I will be checking my email throughout the day to answer any questions that you may have. I will set up specific office hours and hopefully a face to face meeting/lecture online too. We are working hard to make this transition as smooth as possible. It's going to be a learning curve for all of us but with patience, perseverance and prayers we WILL succeed! Stay healthy!

Virtual Hugs,
Mrs. Jones

Concept 3.5 - Plate Tectonics Discovery Education - 7th grade Science

You can choose to do this all in one day, or break it down.

1. Introduction to the chapter:

Please read Engage, and explore 1 and 2. Yes, I still want you to take notes (in the form of bullet points). I want to make sure your hands stay in tip top shape :)

*** Please create 15 - 20 bullet points that highlight the important topics on those 3 pages. There are several activities at the end of the engage tab, please do one of them to reinforce learning.

Please pay special attention to the layers of the Earth on these pages. The layers and understanding them are key in understanding this topic.

2. Please read and take notes (bullet points are fine) on Explore 3 and 4.

*** 15 - 20 bullet points - Important concepts, vocabulary words and examples.

Pay special attention to the 3 types of boundaries 1. Convergent 2. Divergent and 3. Transform Know what each is, what it does and what they create (landforms, earthquakes, volcanoes etc)

- As you are reading the paragraph 3 specific landforms, really think about how tectonic plates have shaped our land and will continue to change the landscape of Earth!

3. Watch the video on explore 4 - The Rock Cycle (2:49)

It should be a review. We talked about the rock cycle and the 3 types of rock at the beginning of the year.

4. Read the reading passage [An Overview of Plate Tectonics](#). It has been assigned to you in Discovery Education. *** Create a 10 question true/false quiz. 5 true and 5 false. If

the answer is false, please correct the question. You will be taking the quiz yourself. Please provide the answers.

5. Anagram Thursday: Not as much fun without the candy/competition (we can fix that when we get back to school :) but I thought you guys might like it if I included them. (1). tntonienal (2.) neovrcengt (3.) ieretgdvn (4.) rantsfrom (5.) icnvcoeton (6.) oetctinc septla GOOD LUCK!

The following is a brief summary of what you should know from reading the chapter, taking bullet points, watching the video, reading the passage (An Overview of Plate Tectonics) and creating your own quiz.

- What are tectonic plates and what causes them to move?

Answer: The **Earth's lithosphere** is broken into solid sections called tectonic plates. These solid sections float on top of the **asthenosphere**. The movement and flow of **heat** within the asthenosphere cause the plates to move.

What are convection currents?

Answer: As energy from Earth's **core** heats rock, it rises through the mantle, gradually cools, and then sinks. This rising and sinking happens in cycles called convection currents. Convection reshapes the rock in the asthenosphere. As the asthenosphere moves, the tectonic plates that make up the lithosphere move with it. Different plates move in different directions.

Which natural processes occur as a result of **tectonic plate** movement?

Answer: Tectonic plate movement causes earthquakes and volcanoes; it also creates mountains and ocean basins.

What are three primary types of plate boundaries and what landforms do they cause?

Answer: Transform boundaries happen where two plates slide past each other; they cause faults and earthquakes. Divergent boundaries happen where two plates move apart; they cause mid-ocean ridges and volcanic activity. Convergent boundaries happen where two plates move toward each other; they cause mountains and **seismic** activity.

How are the **rock cycle** and tectonic action related?

Answer: Volcanoes tend to form where plates collide. They are the mechanisms by which **magma** reaches the surface of the Earth; **magma** may also flow to Earth's surface between the moving plates at a divergent boundary. Called **lava** on Earth's surface, it cools and forms **igneous rock**. Igneous rock is a type of rock in the rock cycle. Through weathering, igneous

rocks can become **sediment**, which eventually can become **sedimentary rock**. This sedimentary rock, or the original igneous rock, can also become **metamorphic rock** when exposed to heat and **pressure** beneath Earth's surface. Metamorphic rocks in turn melt and become magma. This magma plus additional magma from the Earth's interior begin the cycle again.

ACTIVITY/LAB (send me pics and I will use this as 5 points of extra credit): This is a fun activity that you can try at home. If you don't have Oreo cookies or something similar, you can also use graham crackers and frosting. :) YUMMY! Simulating plate boundaries with Oreo® cookies. The upper cookie is the lithosphere, the creamy filling the asthenosphere, and the lower cookie the lower mantle. (Be sure to get the "Double Stuff" variety, which has adequate asthenosphere)! First, carefully remove the upper cookie (a "twisting" motion is required). Slide the upper cookie over the creamy filling to simulate motion of a rigid lithospheric plate over the softer asthenosphere. Next, break the upper cookie in half. As you do, listen to the sound it makes. What does that sound represent? (An earthquake. Message: it takes cold, brittle lithosphere to make earthquakes – earthquakes do not occur in the soft, flowing asthenosphere). a) To simulate a divergent plate boundary, push down on the two broken cookie halves and slide them apart. Notice that the creamy filling between the two broken "plates" may tend to flow upward, similar to the rising, decompression, and partial melting of hot asthenosphere at mid-ocean ridges and continental rift zones. b) Push one cookie piece beneath the other to make a convergent plate boundary. Note that this is the only situation where the cold, brittle lithosphere extends to great depths, and the only place where deep earthquakes occur. The very largest earthquakes are at subduction zones where two plates get stuck together for centuries, then suddenly let go. c) Simulate a transform plate boundary by sliding the two cookie pieces laterally past one another, over the creamy filling. You can feel and hear that the "plates" do not slide smoothly past one another, but rather stick then let go, stick then let go. The cracking sound you hear each time is like an earthquake occurring along the San Andreas Fault in California.

In summary you will be turning in the following:

1. 30 - 40 bullet points on pages engage, 1, 2, 3, and 4
2. A 10 question true/false quiz that you created (5 true and 5 false)
3. Oreo cookie lab pictures for 5 points of extra credit. This is not required - I just thought it was fun and we would have done this lab in class.

"Fly away little birds" - I hope to see you all soon. :)

Jones