September 21, 2016

Aims:
✓ SWBAT identify their current mastery of Earth’s Interior
✓ SWBAT obtain an 80% or higher on their Earth’s Interior Unit Test.

Agenda

1. Do Now
2. Independent Practice
3. Practicing our AIMS:
   ✓ EI.15 - Review Analysis

How will you help our class earn all of our S.T.R.I.V.E. Points?

Unit test countdown: 1 Study Day!
Aim Check:

What action steps are you going to do to DOMINATE tomorrow?
OBJECTIVES: By the end of class, students will be able to...

- **SWBAT** identify their current mastery of Earth’s Interior
- **SWBAT** obtain an 80% or higher on their Earth’s Interior Unit Test.

DO NOW

Directions: Review the following excellent examples of an effective review analysis. Identify at least one characteristic for each example that makes it effective.

DON’T PANIC: YOU ARE NOT EXPECTED TO KNOW THE CONTENT THEY’RE ANALYZING! (...yet 😊)

### Reproduction and Meiosis (q)

<table>
<thead>
<tr>
<th>What I Need to Review</th>
<th>What I Need to Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>The difference between mitosis and meiosis</td>
<td>Getting done in a timely manner and having time to review</td>
</tr>
</tbody>
</table>

Grade earned: A 100%

Describe one way you will improve your answers for next time.

I can know the difference between mitosis and meiosis to get done quicker.

### Mendelian Heredity

<table>
<thead>
<tr>
<th>What I Need to Review</th>
<th>What I Need to Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compare and contrast Mendel and Suttons contributions to heredity</td>
<td>Key terms</td>
</tr>
</tbody>
</table>

Grade earned: [Blank]

Describe one way you will improve your answers for next time.

Accept my missing work when

Continued on next page → → →
What are some things you can do to make today's review effective and tomorrow's test cute and cuddly.
PRACTICE: Seismic Waves (6 points)

1. The graph shows the behavior of primary waves during an earthquake.

![Seismic P-Wave Speeds Graph](graph.png)

ON THE GRAPH, draw a box to around each region of the graph where seismic waves entered different layers of Earth’s interior.

Then, label on the graph the each layer as mantle, outer core, crust, or inner core.

2. The composition of Earth from its surface to its center 6,300 kilometers (km) down can be studied using seismic waves. There are two basic types of seismic waves, S-waves and P-waves. Students studying Earth’s interior are given the following information about P and S waves and how they travel through Earth.

- S-waves travel only through solids.
- P-waves at 30 km depth change direction.
- P-waves can travel through solids and liquids.
- S-waves and P-waves are detected from 5,200 km to 6,300 km deep.
- P-waves, but no S-waves, are detected from 2,900 km to 5,200 km deep.
- S-waves and P-waves are detected from the surface (0 km) to 2,900 km deep.

Identify the depths where there is a change in the Earth’s density.

Then, identify the depth range where there is a liquid.
3. The cross-sectional diagram below of the Earth shows the paths of seismic waves from an earthquake. Letter X represents the location of a seismic station.

Explain why station X received only P-waves.

Then, identify which seismogram of this earthquake was recorded at seismic stations X.
PRACTICE: Earth’s Interior (6 points)

4. In a very young planet, also called a protoplanet, elements are distributed evenly throughout. As the protoplanet ages, the elements separate, leading to the formation of layers with different concentrations.

   Explain the role of density as a protoplanet differentiates into layers.

   Then, compare the densities of the Earth’s layers (crust, mantle and core).

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   Explain the role of density as a protoplanet differentiates into layers.

   Then, compare the densities of the Earth’s layers (crust, mantle and core).
6. List the two ways Earth’s interior generates thermal energy.

7. Compare and contrast the Earth's inner and outer core.

PRACTICE: Theory of Plate Tectonics (8 points)

8. What three pieces of evidence did Wegener use to support his hypothesis of Continental Drift?
9. The diagram below shows the magnetic orientation of igneous rock on the seafloor on the east (right) side of a mid-ocean ridge. The pattern on the west (left) side of the ridge has been omitted. The age of the igneous rock and its distance from the ridge center are shown.

A. **ON THE DIAGRAM**, draw the pattern scientists should expect to see on the west (left) side of the ridge.

B. How can scientists use the distance between the mid-ocean ridge and the ocean floor band to tell when the reversals of the magnetic field occurred.

10. The map below shows the continents of Africa and South America, the ocean between them, and the ocean ridge. Locations A and D are on the continents. Locations B and C are on the ocean floor.

Determine the relative ages of the locations on the map, so that they support the hypothesis that Atlantic Ocean is spreading apart at a divergent boundary.

Then, explain how this is evidence to support the Theory of Plate Tectonics.
11. The cross section depicts magnetized oceanic crust at a spreading center.

In the cross section, the ages are labeled below the plates. The "+" symbol indicates normal magnetic bands and the "-" symbol indicates reversed magnetic bands.

Explain how two pieces of geological evidence from the diagram support the hypothesis of seafloor spreading.

12. Two types of plate boundaries are divergent and convergent.

A. Copy arrows from the sidebar into the two blank boxes to show how the convection currents in the mantle would move at a divergent plate boundary.

B. Copy arrows from the sidebar into the two blank boxes to show how the convection currents in the mantle would move at a convergent plate boundary.

- Copy the arrows exactly as given.
- Write only one arrow in each blank box.
- You may use each arrow more than once.
13. Draw a picture showing how convection currents in the mantle work. Make sure to label any heating/cooling, rising/sinking, and changes in density.

14. The block diagram below shows the bedrock age as measured by radioactive dating and the present location of part of the Hawaiian Island chain. These volcanic islands may have formed as the Pacific Plate moved over a mantle hot spot.

As the Pacific plate continues to move, predict where scientists should expect the next island to form in relation to the island of Hawaii.

15. List the three types of plate boundaries. Describe the plate motion at each.
16. Compare and contrast a ridge and a rift.

17. The map below shows the major tectonic plates and their movements around North America.

Identify which tectonic plate(s) created the San Andreas Fault. Describe the most likely effect of living by this fault.
18. The diagram below shows some features of Earth's crust and upper mantle.

![Diagram of Earth's crust and upper mantle]

(Not drawn to scale)

Identify the boundary type at Boundary A and Boundary B.

**Extra Challenge: draw arrows on the diagram to show the motion of the convention currents that cause these boundaries.**

19. Compare and contrast a subduction zone and a folded mountain.
1. Scientists use seismic waves to
   A. collect evidence to create inferences about the Earth’s interior
   B. observe the Earth’s interior directly
   C. drill to the Earth's interior
   D. create earthquakes

2. The process by which the Earth divided up into layers with different densities is called
   A. the big bang
   B. densification
   C. planetary layering
   D. differentiation

3. Select the **two** processes that occur at mid-ocean ridges.
   A. Material rises from the mantle to the crust.
   B. Sediments from the crust sink into the mantle.
   C. Crustal rock subducts into the mantle and melts.
   D. Thermal energy rises from the mantle to the crust.
   E. Tsunami waves transfer energy from the crust to the mantle.

4. What happens when a piece of continent reaches an ocean subduction zone?
   A. An island arc is formed
   B. A folded mountain is formed
   C. The oceanic plate is subducted.
   D. The continental plate is subducted.

5. Which of Earth’s internal layers is completely liquid?
   A. crust
   B. mantle
   C. outer core
   D. inner core

6. Select the **three** correct statements.
   A. the asthenosphere lies beneath the lithosphere
   B. the asthenosphere is hotter than the lithosphere
   C. the asthenosphere rises close to the surface where the lithosphere is broken
   D. asthenosphere is partially molten
7. Which type of wave can travel through solid, liquid and gas?
   A. surface waves
   B. P-waves
   C. S-waves
   D. body waves

8. How does continental drift affect a continent’s climate?
   A. As a continent moves toward the poles, its climate gets warmer.
   B. As a continent moves between the equator and the poles, its climate stays the same.
   C. As a continent moves toward the equator, its climate becomes drier.
   D. As a continent moves toward the equator, its climate becomes warmer.

9. Select the three factors that play a role in creating convection currents
   A. heating and cooling of a fluid
   B. changes in a fluid’s density
   C. the force of gravity
   D. The amount of fluid present

10. The layer of Earth that experiences convection currents is the
    A. lithosphere
    B. asthenosphere
    C. inner core
    D. crust

11. The layer in the Earth having the greatest density is the __________. It is very dense because it contains a lot of __________.
    A. crust; silica
    B. crust; iron
    C. inner core; iron
    D. inner core; silica

12. The thermal energy that drives the Earth’s convection current is produced by
    A. radioactive decay and combustion
    B. gravity and radioactive decay
    C. combustion and solar heating
    D. solar heating and gravity

13. What cause the rock of the ocean floor to have a pattern of magnetic stripes?
    A. differing amounts of molten material erupting along the mid-ocean ridges
    B. different ages of the rocks
    C. reversals of the Earth’s magnetic poles
    D. underwater earthquakes
14. A transform boundary is where

A. two plates pull away from each other.
B. two plates move toward each other.
C. two plates slide past one another.
D. two plates collide.

15. In some areas, magma chambers exist close to Earth’s surface. Water seeping into the ground becomes heated by the rock overlying these magma chambers.

What is most likely to occur when the heated water under pressure rises back toward the surface through fractured rock?

A. plate subduction
B. geyser formation
C. volcanic eruption
D. earthquake activity

16. Which surface feature was produced by crustal movements at a divergent plate boundary?

A. Tasman Hot Spot
B. San Andreas Fault
C. Aleutian Trench
D. East African Rift

17. Which two landforms are caused by convergent boundaries?

A. a ridge and rift valley
B. a trench and a mid-ocean ridge
C. a rift valley and an ocean trench
D. an ocean trench and a mountain range

18. The lithosphere includes:

A. crust and uppermost, rigid mantle
B. outer core and inner core
C. asthenosphere and mesosphere
D. outer core and lower mantle

19. Alfred Wegener theorized that South Africa must have been, at one time, much closer to the South Pole. He based his theory on

A. the deep scratches in South African rocks, indicating glaciers were once there.
B. the discovery of Glossopteris fossils only in South African caves.
C. the presence of coal beds.
D. mountain ranges in Africa.
Science 8

Name: _____________________________
Date: _______________________________
Homeroom: _________________________
Quick Notes: ________________________

SKILL SNAPSHOT

Like A Scholar? Yes No
Redo? Yes No

MY OVERALL SCORE IS _______ out of 35

My current skills show (circle your score):

- Mastery (28-35)
- Progressing (25-27)
- Not Yet (0-24)

<table>
<thead>
<tr>
<th>CONCEPT:</th>
<th>SEISMIC WAVES</th>
</tr>
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<tbody>
<tr>
<td>Parts I Could Do BY MYSELF</td>
<td>Concepts I Needed REMINDING to do</td>
</tr>
<tr>
<td>Grade earned</td>
<td>Mastery (5-6)</td>
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Describe one way you will improve your answers for next time.


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| Grade earned | Mastery (7-8) | Progressing (6) | Not Yet (0-5) |

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<tr>
<th>CONCEPT:</th>
<th>PLATE MOVEMENT</th>
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| Grade earned | Mastery (6-7) | Progressing (5) | Not Yet (0-4) |

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<th>CONCEPT:</th>
<th>BOUNDARY FEATURES</th>
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