Trimester Test 8th Grade Earth Science Unit Study Guide

Interior of the Earth, Plate Tectonics, Earthquakes, Volcanoes, Carbon Cycle, and Earth Spheres

I have helped you by listing where you can find the information for each topic. You need to use your notes, journal, readings on my weebly, and assignments to prepare for the test:

1) Be able to describe the interior of the earth (in terms of crust, mantle, inner and outer cores)

- **Journal 4 & page 232 (section 10.2)**

Temp. & Depth increase as you move down

Crust - uppermost layer
Upper mantle - Lower part of the lithosphere
Asthenosphere - part of upper mantle on which lithospheric plates slide
Lower Mantle - Largest part of Earth's interior
Outer core - Liquid iron
Inner core - Solid iron. Hotter than the surface of the sun.

2) Understand the differences between oceanic and continental crust (including density, age, and composition) Know the type of rock and its properties for each crust

- **Book page 234 and 251 (section 10.3)**

Oceanic	Continental
1. Dense	1. Less dense
2. Basalt	2. Granite
3. Oceanic crust subducts and recycles so it stays younger	3. Does not subduct so it is older

* When oceanic & oceanic are involved the older & colder one is more dense.

3) Describe how plate tectonics causes seafloor spreading, mid-ocean ridges, subduction zones, earthquakes, volcanoes, mountain ranges, island chains/archs and the type of magma/lava found at each location

- **Book page 249 – 253 (section 11.2) & Harry Hess Close and Critical Reading assignment.**

Mid-ocean ridges - oceanic/oceanic (Pillow Lava) ← →

Subduction zones - denser plate sinks under another. continental/oceanic → ← oceanic/oceanic (colder/older)

Earthquakes - Continental/Continental Transform - ↑↓

Volcanoes - continental/oceanic Subduction zones

Mountains - continental/continental → ←

Island chains - Formed by a mantle Plume hotspot

Sea-floor spreading - The Process by which new floor is created.

Volcanic Island Arc - a string of volcanoes formed at a Subduction zone in open water.

4) Know what continental drift is and the evidence Wegener used to explain this.

- **Book page 246 & 247 book (section 11.1) & Alfred Wegener Close and Critical Reading assignment.**

* Wegener's theory that the continents move slowly on the Earth's surface.

* Evidence:
  1) Matching plant fossils
  2) Matching mountain Ranges
  3) Matching coal beds.

5) Be able to explain why tectonic lithospheric plates move by convection currents in the lower mantle

- **Book page 252 (section 11.2)**

The Earth's core heats rock material of the lower mantle. As it is heated it expands & becomes less dense. The less dense material will rise and the denser material will sink creating a current

6) Distinguish each plate boundary (convergent, divergent, and transform, stick-slip) and be able to describe what happens when the interact

- **Book page 255 -261 (section 11.3) & Clay model assignment & Journal 7**

Convergent	Divergent	Transform
continental | continental → ← mountains	continental | continental ← → Rift Valley	continental | continental ↑↓ earthquakes
oceanic | oceanic → older, colder, denser subducts	oceanic | oceanic ← → Mid-ocean ridge	oceanic | oceanic ↑↓ earthquakes
continental | oceanic → oceanic subducts		continental | oceanic ↑↓ earthquakes

7) Understand the different scales that are used to rate earthquakes (Richter, Moment Magnitude, and Modified Mercalli) and what their values represent

- **Journal 8 (earthquake vocab) & Book page 278-279 (section 12.1) & Earthquake power point notes.**

Richter	Moment Magnitude	Modified Mercalli
1) Rate earthquakes according to the size of seismic waves. 2) Each rating is 10 times stronger than the previous	1) Rates the total energy released by an earthquakes 2)	1) Rates the damage suffered by building, ground & people during an Earthquake

3→4 = 10x
3→5 = 100x

8) Understand the differences between primary (P) and secondary (S) waves in terms of speed and damage

- **Journal 8 (earthquake vocab) & Book page 275-277 (section 12.1) & Earthquake power point notes.**

(when P & S wave reaches the surface)

	P - Waves	S - Waves	Surface Waves
Speed	fastest	slower	slowest
Damage	least amount of damage	cause more damage	cause the most damage.

9) Be able to identify the points above and below the surface of the earth as it relates to earthquakes (focus, fault, and epicenter)

- **Journal 8 (earthquake vocab) & Book page 271 (section 12.1) & Earthquake power point notes.**

Focus (Seismic waves start here)	Fault	Epicenter
1. Underground or below the earth's surface where the rock breaks & causes an earthquake.	1. The region on the Earth's surface that is split into 2 pieces due to an earthquake	1. The location on the Earth's surface directly above where the rock breaks

10) Know what device measures an earthquake's strength and how many stations are needed to determine the epicenter and what it measures

- **Book page 271 (section 12.1) & Earthquake power point notes & Earthquake webquest**

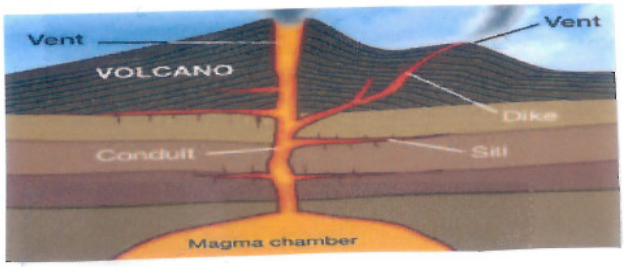
1) Seismograph - instrument that records & measures Seismic waves.

2) Readings from 3 different seismic stations are needed to find the epicenter.

11) Know all the parts of a volcano (magma, vent, sill, conduit, dike, magma chamber, lava lake, resurgent dome, and caldera)

- **Journal 9 & Book page 282 and 283**

Know all of the above vocab terms. Journal 9 & in book.



12) Know the stages of a volcanoes life

- **Book Page 284 & Adopt a volcano project**

Active	Dormant	Extinct
1) Volcano that is erupting or has erupted recently	1) A volcano that is not active now but may become active again	1) Volcano that is no longer able to erupt

13) Use eruption history to predict which volcanoes will erupt and know the types of eruptions each one will have (cinder cone, composite, Shield), be able to give regional examples of each type of volcano

- **Book page 282 – 294 (section 12.2) & Adopt a volcano project & Journal 10.**

	Composite	Shield	Cinder Cone
① eruption	1) Pyroclastic material	1) Lava is bubbly and flows slow	1) fire fountain eruption
② Regional examples	2) Mt. Fuji in Japan	2) Mauna Loa in Hawaii	2) Lava Butte in Oregon

14) Understand silica and gas content, pressure, and temperature in relationship to rock (magma) composition

- **Book page 282 – 294 (section 12.2) & Adopt a volcano project & Journal 10.**

	Low Gas	High gas
Low silica	• Runny magma - like syrup • Quiet eruption	• Runny magma - bubbly • Fire fountain eruption
High Silica	• Thick sticky magma • Quiet Eruption	• Thick, sticky magma • Explosive eruption

15) Know what carbon is and its characteristics both positively (why it is important to us) along with knowing the negative effects of carbon

- **Movement of carbon poster project & Carbon footprint assignment & Carbon Cartoon**

Carbon is:

* Found in all living & non-living things
* occurs in all organic compounds
* A naturally abundant non-metallic element

Positive effect	Negative effect
1) Plants need it to photosynthesize 2) Helps keep the planet warm	1) TOO much in the atmosphere can change the temp. of Earth 2) TOO much in oceans can hurt aquatic plants & Animals

16) Be able to explain the four major earth systems (spheres) and how they work together

- **Movement of carbon poster project**

All of the carbon flows on your carbon movement poster

17) Understand which earth system represents the air, solid and molten rock, solid, liquid, and gaseous water, and life of all kind

- **Movement of carbon poster project, & back bulletin board**

* Biosphere - All living things on Earth
* Atmosphere - All of the Air on Earth
* Hydrosphere - All of the water on Earth
* Geosphere/Lithosphere - All molten & solid rock on Earth

18) Be able to identify the two-way cause and effect relationship between an event and a sphere

- **Movement of carbon poster project**

An interaction - is a two-way cause and effect relationship. Atmosphere ⟷ Hydrosphere

A flow - is a one way relation between two or more things. Atmosphere → Hydrosphere