Team Name _____ Team # ___

Dynamic Planet

Holt Invitational

2/24/18

Score _____ / ~~150~~ 120 Rank _____

Matching

***Match the term or name to its correct definition or description. Terms may be used once, more than once, or not at all.* (1 point each).**

A. Alfred Wegener	H. Alexander Du Toit	O. Paleontological
B. Asthenosphere	I. Harry Hess	P. Dan McKenzie
C. Convection	J. Lithosphere	Q. Pangea
D. Deep Ocean Trench	K. Mid Ocean Ridge	R. SeaFloor Spreading
E. Arthur Holmes	L. Paleoclimate	S. Tectonic plate
F. Isostasy	M. Paleomagnetic	T. Laurentia
G. Basal Drag	N. Pahoehoe	U. Aa

_____1. An area where seafloor is being returned back into the mantle of the Earth.

_____2. Evidence for Continental Drift that includes fossils of animals that were at one time living in various locations on Earth.

_____3. Evidence for Continental Drift that includes information pointing to change in climates within a continent's history.

_____4. Evidence for Seafloor Spreading that allows scientists to compare the ages of rocks by using the alignment of the magnetic domains within the rocks.

_____5. Geologic features on the ocean floor where new ocean floor is being created as the seafloor spreads.

_____6. The brittle crust of the Earth has broken into these pieces that move over time.

_____7.The layer of the Earth which includes the crust and the solid brittle part of the upper mantle.

_____8. lava that has a rough, jagged, spiny, and generally clinkery surface

_____9. The name of the past supercontinent that contained all of our current continents in one land mass.

_____10. The plastic like layer of rock that is part of the Earth's upper mantle, the tectonic plates float on top of this layer.

_____11. The scientist, who through the use of radar, discovered mid ocean ridges and deep sea trenches.

_____12. The transfer of thermal energy caused by warm fluids rising and cool fluids sinking due to their density.

_____13. credited with the final version of the Plate Tectonic theory.

_____14. South African geologist who theorized the existence of Laurasia and Gondwana.

_____15. large continental craton that forms the ancient geological core of the North American continent.

_____ 16. Plate movement due to friction between the asthenosphere convection currents and the lithosphere.

_____17. Gravitational equilibrium between the lithosphere and asthenosphere.

_____18. lava that in solidified form is characterized by a smooth, billowy, or ropy surface

_____ 19. The meteorologist who proposed the theory of Continental Drift.

_____ 20. British geologist that suggested that thermal convection currents in the mantle move the continents.

Multiple Choice:

_____ 1. Which best describes the circumstances by which "gravitational collapse" occurs?

A. As the mountain is being built by collision, the lesser the downward force on the base of the mountain, causing horizontal escape of the base rocks.
B. As the mountain erodes away, the greater the downward force on the base causing horizontal escape of the base rocks.
C. The higher the mountain, the greater the downward force on the base causing horizontal escape of the base rocks.
D. The lower the mountain, the lesser the downward force on the base causing horizontal escape of the base rocks
E. none of the above

_____ 2. Which of the following can trigger a tsunami?

A. undersea earthquakes
B. undersea landslides
C. the eruption of an oceanic volcano
D. all the above
E. none of the above

_____3. According to the idea of "isostatic adjustment," what would happen if a weight is added to the top of the crust?

A. It will respond by uplifting the crust higher
B. It will have no effect on the crust at all
C. It will respond by sinking the crust downward
D. It will force the crust into the mantle to start a subduction zone
E. None of the above

_____4. Which plate boundary has NO earthquakes?

A. Divergent
B. Convergent
C. Transform
D. All of the above
E. None of the above

_____5. Which of these is an instrument NOT used to measure a tsunami?

A. Seismograph
B. Ocean buoys
C. Tide gauge
D. Barometer
E. Satellite altimetry

_____6. Mountain-building activity in the present-day Rocky Mountains occurred during this phase of the Cordilleran orogeny:

A. Sonoma
B. Laramide
C. Nevadan
D. Sevier
E. None of the above

_____7. Hot seawater in hydrothermal vents does not boil because

A. it's mixed with minerals
B. temperature is below boiling point
C. magma that heats the seawater is not hot enough
D. seawater cannot boil
E. of the extreme pressure at the depths

_____8. The production of magma is favored by an increase in _____ and _____, and a decrease in _____.

A. pressure, water content, heat
B. pressure, heat, water content
C. heat, water content, pressure
D. solar heat, water content, pressure
E. solar heat, pressure, water content

_____9. The orogenies that made the Appalachian Mountains along the eastern United States occurred because of

A. Transform faulting
B. Ocean-ocean collision
C. Oceanic-continent collision
D. Continent-continent collision
E. None of the above

_____10. Which of these features must be present for a hydrothermal vent to form at a subduction zone?

A. Fine grained minerals
B. Ocean-continent collision
C. Transform fault
D. Low pressure
E. seawater percolating down through fissures in the ocean crust

_____11. Which of earth's layers is the thickest?

A. Crust
B. Mantle
C. Outer core
D. Inner core

_____12. Earth's inner core is?

A. A dense ball of solid metal
B. A layer of molten metal
C. A layer of hot rock
D. A layer of rock that layers the earth

_____13. The similarities in the rock layers between South America and Africa is which of the types of evidence for continental drift?

A. Geologic
B. Paleontologic
C. Paleomagnetic
D. Paleoclimate

_____14. The way that South America and Africa apparently fit together as if they were two pieces of the same puzzle, would be which type of evidence for continental drift?

A. Geologic
B. Paleontologic
C. Paleomagnetic
D. Paleoclimate

_____15. Mountain ranges that appear to be the same age and possibly part of one ancient mountain range, would be which type of evidence for continental drift?

A. Geologic
B. Paleontologic
C. Paleomagnetic
D. Paleoclimate

_____16. *Glossopteris* plant fossils found in South America, Africa, India, Australia and Antarctica, would be which type of evidence for continental drift?

A. Geologic
B. Paleontologic
C. Paleomagnetic
D. Paleoclimate

_____17. Glacial deposits in South America, Africa and India, would be which type of evidence for continental drift?

A. Geologic
B. Paleontologic
C. Paleomagnetic
D. Paleoclimate

_____18. The alignment of magnetic domains within bands of rock on the ocean floor, would be which type of evidence for continental drift?

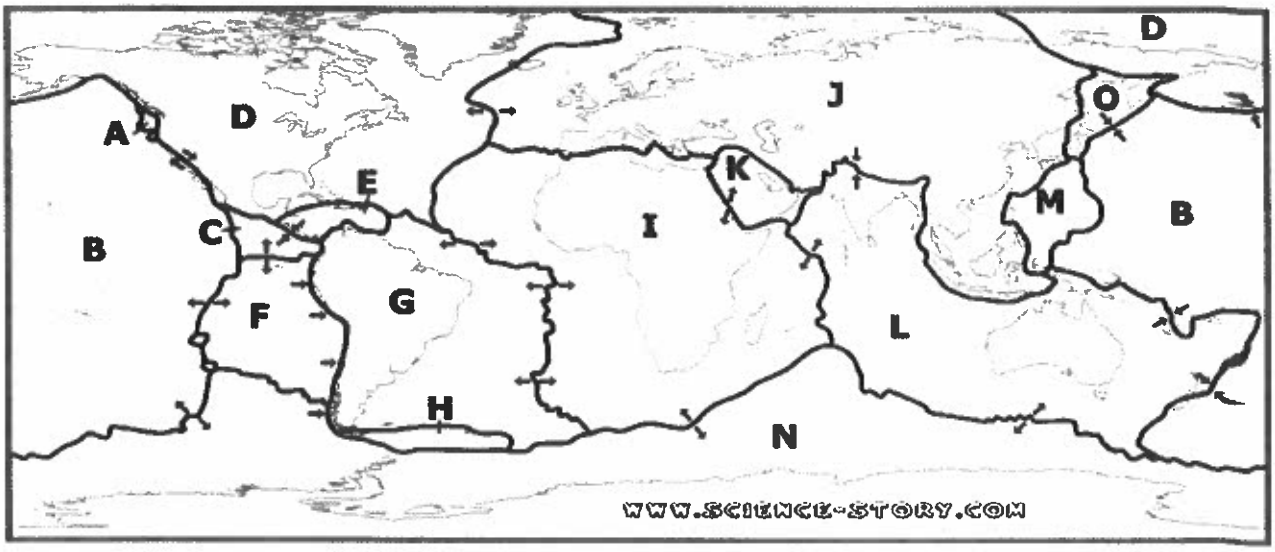
A. Geologic
B. Paleontologic
C. Paleomagnetic
D. Paleoclimate

_____19. Rock layers in North America and Europe that could only be formed by tropical plants, would be which type of evidence for continental drift?

A. Geologic
B. Paleontologic
C. Paleomagnetic
D. Paleoclimate

_____ 20. Continental drift was not widely accepted when it was first proposed because ____.
A Wegener couldn't explain why or how the continents moved
B. continental landmasses were too big to move slowly over Earth's surface
C. magnetic and sonar data proved that Wegener's hypothesis was incorrect
D. mantle convection currents weren't in motion at that time

Identify plates in the diagram below



A. _____

B. _____

C. _____

D. _____

E. _____

F. _____

G. _____

H. _____

I. _____

J. _____

K. _____

L. _____

M. _____

N. _____

O. _____

Short Answers:

1. What two metals make up most of the inner core?

2. What is a mixture of gas, ash, and rock that moves quickly down the slope of a volcano called?

3. What is the name of the scale used to measure the intensity of an earthquake?

4. Africa's "Great Rift Valley" was created by what type of plate boundary?

5. Name the process that makes solid ground behave like a fluid.

6. What is the name of the earliest known landmass (3 billion years old)?

7. What was the name of the ocean that surrounded the most recent supercontinent?

8. When discussing volcanic eruptions what is the VEI?

9. What instrument is used to study earthquakes, and who invented the earliest one of these instruments? (Hint: He was Chinese) **(2 points)**

11. Who created the first maps of the seafloor using data provided by Hess and Heezen? (First and last names)

12. What is another name for the North American Craton?

13. A fragment of crustal material formed on, or broken off from, one tectonic plate and accreted onto another plate.

14. Magma or molten rock that has reached the surface of the Earth.

15. This layer of the Earth composes ~85% of the Earth's volume and it is made primarily of silicate rock rich in magnesium and iron.

Completion

1. _____ is the theory that states that many features of the landscape were created by rapidly forming events.

2. _____is is the theory that states that changes in the earth's crust during geological history have resulted from the action of continuous and uniform processes.

3. The oceanic crust is primarily made up of this basic type of rock _____.

4. Mount Everest, the highest mountain on earth, is made of marine limestone and is part of the Himalayan mountain chain. The elevation of the limestone to such a great height is primarily the result of: _____.

5. The San Andreas fault is a _____fault.

6. Pangea was surrounded by an ocean called_____.

7. The boundary between the crust and mantle is called _____.

8. List 3 types of evidence which supported the Theory of Seafloor Spreading:

   A. _____

   B. _____

   C. _____

9. Name the sea that was located between Gondwana and Laurasia _____.

10. What was the name of the Supercontinent that came before Pangaea _____

11. Name the type of lava shown below _____

12. Name the type of fault shown in the picture

_____

13. Identify the fault, hanging wall, and footwall in the picture. (3pts)

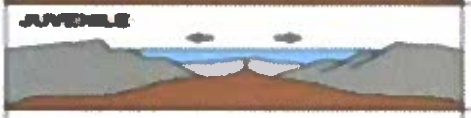
14. Which type of stress force causes this type of faulting?

_____

15. At which type of plate boundary might you find this fault at?

_____

Identify the Cycle Below: _____

STAGE	MOTION	PHYSIOGRAPHY	EXAMPLE
7. _____ 	1. _____	Complex system of linear rift valleys on continent	East African rift valleys
JUVENILE 	Divergence (spreading)	2. _____	Red Sea
8. _____ 	3. _____	Ocean basin with continental margins	Atlantic and Arctic Oceans
9. _____ 	4. _____	Island arcs and trenches around basin edge	Pacific Ocean
TERMINAL 	Convergence (collision) and uplift	5. _____	Mediterranean Sea
10. _____ 	6. _____	Young to mature mountain belts	Himalaya Mountains

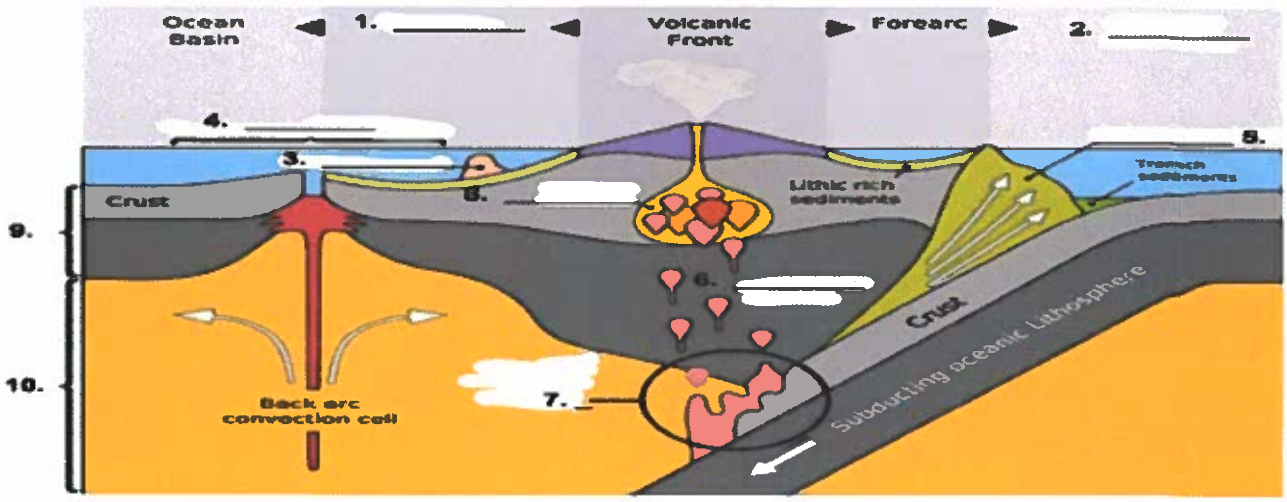
Complete the table for 1-6

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Identify the stage 7-10

7. _____
8. _____
9. _____
10. _____

Identify the parts and mechanisms of the subduction zone below



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Identify the layers of the Earth

A. _____
B. _____
C. _____
D. _____
E. _____
F. _____
G. _____
H. _____
I. _____