Plate Tectonics Webquest

Go through the USGS Website: This Dynamic Earth. Start with the Preface and read through each of the sections while you answer the flowing questions.

1. In the early 1960s, the emergence of the _____ started a revolution in the earth sciences.
2. In geologic terms, what is a *tectonic plate*?

3. The word *tectonics* comes from the Greek root "_____."
4. Give the name of the last large supercontinent that included all of the current continents.

   _____
5. During which geologic era were the northern continents joined in to Laurasia and the southern continents joined into Gondwanaland? _____
6. Until the 1700s, most Europeans thought that a series of catastrophes shaped the Earth's surface. This way of thinking was known as "_____."
7. It was not until 1912 that the idea of moving continents was seriously considered as a full-blown scientific theory -- called _____-- introduced in two articles published by a 32-year-old German meteorologist named _____ _____.
8. Wegener's theory was based in part on what appeared to him to be the remarkable fit of the _____ _____.and _____ continents.
9. A fatal weakness in Wegener's theory was that it could not satisfactorily answer the most fundamental question raised by his critics. What was this question?

10. It was not until World War I that the _____ _____, a submarine mountain chain in the central Atlantic, was discovered.
11. Beginning in the 1950s, scientists, using magnetic instruments *(_____)* began recognizing odd magnetic variations across the _____.
12. In _____, scientists began to theorize that mid-ocean ridges mark structurally weak zones where the ocean floor was being ripped in two lengthwise along the ridge crest. New magma from deep within the Earth rises easily through these weak zones and eventually erupts along the crest of the ridges to create new oceanic crust. This process, was later called _____ _____.
13. During the 20th century, improvements in seismic instrumentation and greater use of earthquake-recording instruments *(_____)* worldwide enabled scientists to learn that

earthquakes tend to be _____ in certain areas, most notably along the _____ _____ and spreading ridges.

14. What are four types of plate boundaries? Give a brief explanation & an example of each.
    a. Boundary type:
        i. Explanation:
        ii. Example:
    b. Boundary type:
        i. Explanation:
        ii. Example:
    c. Boundary type:
        i. Explanation:
        ii. Example:
    d. Boundary type:
        i. Explanation:
        ii. Example:
15. What are the three types of convergent plate boundaries? Tell how each is different and give an example of each.
    a. Type:
        i. Explanation:
        ii. Example:
    b. Type:
        i. Explanation:
        ii. Example:
    c. Type:
        i. Explanation:
        ii. Example:
16. How do scientists know what the rates of plate movement have been over geologic time?

17. What are “Hotspots?” Name and give the location for at least two island chains, other than the Hawaiian Islands that formed over hot spots.

18. What causes the geysers and hotsprings in Yellowstone?

19. Is there evidence for extraterrestrial plate tectonics? If so, where?

20. Using this plate motion calculator plate motion calculator from the University of Tokyo determine the present-day absolute plate motion for the Africa plate at 20 degrees North latitude and 20 degrees East longitude ***and*** for the North American Plate at Wichita, Ks (Latitude 37° 43' North, Longitude 97° 20' West).

21. What is the greatest natural hazard to people associated with plate tectonics? Explain how this hazard is related to plate tectonics.

22. Using Google or another search engine, find at least one lab or project related to either plate tectonics or volcanoes that you think would be appropriate for a high school Earth-Space science class. Summarize it and provide a website.

Plate Tectonics Hidden Message Search

P L A T E T E C T O N I C S B I Z T T K B M R U K Y Y C G D X S V Y P
G Y Q O F N V J W T Z R X Z H Y U E R E H P S O H T I L N R V O A T K
Y P A L E O M A G N E T I S M A S T H E N O S P H E R E I Y L Y O O W
C R A C I N A C L O V L A T N E N I T N O C Z D Y R A Q D C P K E S E
I L A Z K U Z W Q Y I M W A A R C C M L M M B U S I F N A F W O W C M
D U M D H E U L P T O Y E E E G C C G O T O Y R E H M N E G Q B R J X
W W B C N I H K I E K M G V D L R V H X A T Z L S V I W R B F P C D X
C I O R W U A P I T S P E I X D D P T X R E V O I C D O P W Z N X O A
O N M B J T O I I G H R I N D G X U V A Y P R R I G O I S Q H C Y S S
G R I Q G H N B D X S H F J L E A R N Q L Y Z S P G C S R H C V A N D
P U G R P Z H A T E J H T W P X S S I C C U L L O K E D O T F I R G D
N L F W G R O Q P N R J X N M T F U H X R A J W I A A P O I P L B H B
D Y A V D E I O P I E K P F F O I Z B C N J T O Z L N L L W H I T J R
P Q U T J X L B X K Y G R I R C U V Z D N O O Q O E I B F H K H S O A
F W N D E A G T Y Y C W R M V H J F A L U E S J S V C K A J C Z C T P
P B R L R T O K B T K D F E G Q A R Y D V C R E G Q R X E I X P M N N
I Z S I S P E W Z F L A J B V K C K P X J C T T C E I U S E J K H O M
L M T J S P K C Y A U X E H O I J D M D O U U I N B D Y X E Y E Q R V
U Y T T W L H I T L G H L O L K D G C N J K C H O A G Z G T S V Z M O
U I O L N C I N T O C Y V Y E L L A V T F I R C V N E S W H R H Z A P
H H J N Y Q E B K J N U E R A S A E L Z F M L L W S Z C M D M Z O L M
W S Y Z P N O A R X A I R F A R R W M Z V Q Z N H G I O O E O D W P C
B T T K I U E U A Y G C C O W G U V V B T P T A X H H N N P F D U O B
N O W T N T N O M F D X R S E P O L A R W A N D E R I N G E E O T L X
X L N D A O O J J E U G B N O N V M F P V Z L W G K J R H R N E R A F
C O A L R E K O O D C A T T C Y J D Z L V I B L G Y N H F V Y C D R Y
C R P K D E B H G X A B F C Q I F S A M Y G P P X I D M M Z S V R I Y
Y I M E D Z A N P E O B R L Z U I H F A Y Q X C S S X P X L A N M T T
B T Y B J Q I A K U W P P Y R D H B D T Q P X O B Z B L T D F O B Y P
Y E X C M V R D N M M B D G H N J C I Q O C R Y T S V Y W E B J H W N
U B U C D U P D Z Y K S X O N R H Q U F V P G Q Z E S C G O H O R F W
J X T B T F A S J E Y Z Q I R C N H I Z O N Z Y C W G U Z A Q L Y U M
K P L Y Y R N F D D U D U L K B Y H I F Y C P N V L T N R Q J M M E A
T D Z L Y G T K W G A S E J I X N N E O X J S V A E A G N A P S K Q J
M D I W U L J G D S L K V T K P G M M W D C B Z O Q H E O H K S T S U

Asthenosphere
continental drift
continental volcanic arc
convergent boundary
deep-ocean trench
divergent boundary
hot spot
lithosphere
mid-oceanic ridge
normal polarity
paleomagnetism
Pangaea
plate
plate tectonics
polar wandering
reverse polarity
rift
rift valley
seafloor spreading
subduction zone
transform fault boundary
volcanic island arc

Hidden Message

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