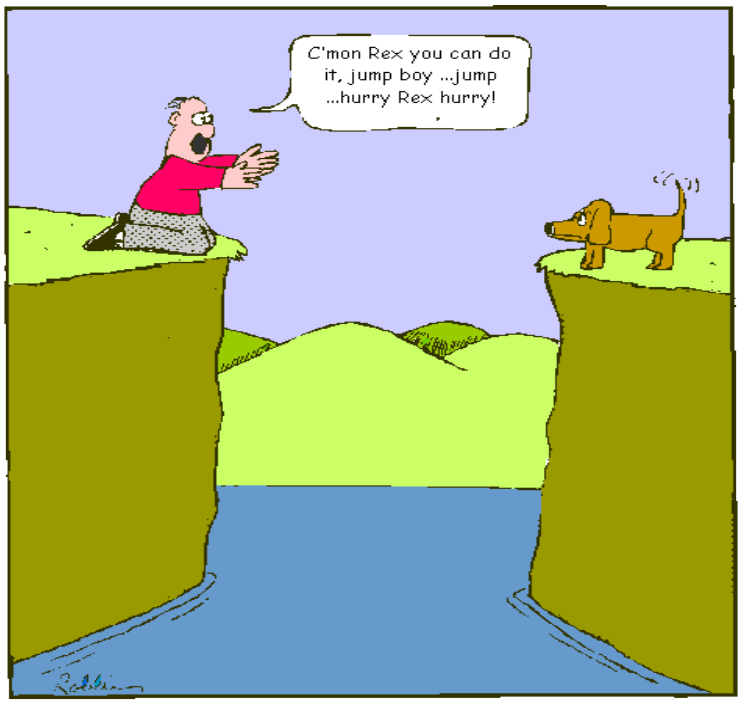
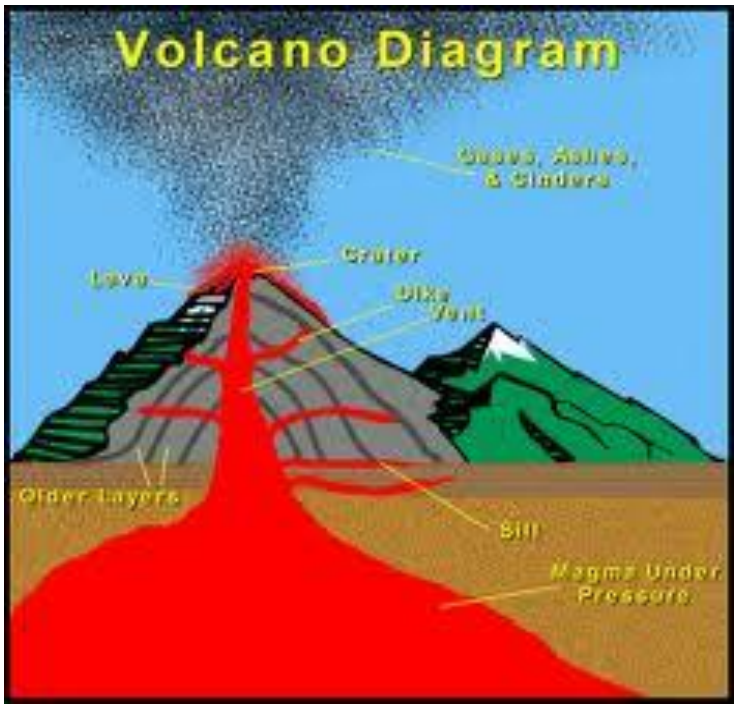
Yanbu University College

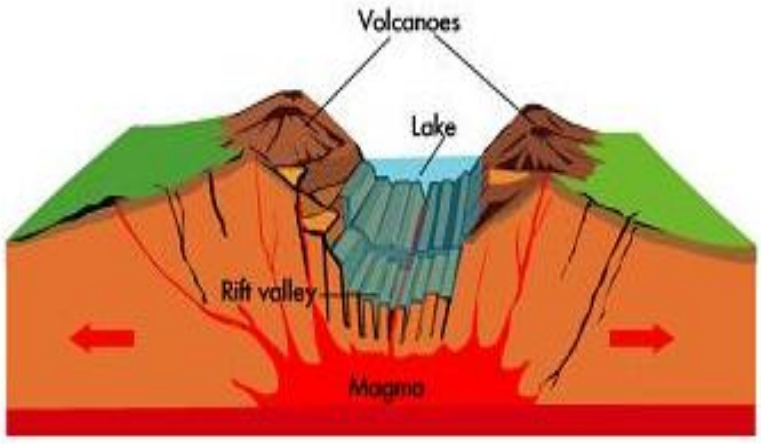
General Studies Department

PHSC001 Course

Chapter9 (Basic Geology: Earthquakes and volcanoes) Worksheet Solutions







Chapter 9 worksheet

Part1: Multiple choices

1. The earth's interior consists of three layers, which include **(D)**
A. Core, mantle, and lithosphere
B. Core, mantle, and asethnosphere
C. Crust, magma, and core
D. Crust, mantle, and core

2. The evidence for the Earth's inner structure comes from **(A)**
A. Seismic waves
B. Samples taken from earth's surface
C. Samples taken from oceans
D. Fossil samples

3. Pangaea is the name of **(C)**
A. One of tectonic plates
B. Volcano in South America
C. An assumed supercontinent
D. Scientist

4. Which of the following technologies was used to map the ocean floor and provide evidence for plate tectonic theory? **(C)**
A. Seismographs
B. X-rays
C. Sonar
D. Doppler radar

5. The age of oceanic crust **(A)**
A. Increases with distance from the center of an ocean floor
B. Decreases with distance from the center of an ocean floor
C. Remains constant for each ocean floor
D. Alternately increases and decreases from the center of an ocean floor

6. The word "plate" in plate tectonics refers to rigid, moving part of Earth's **(D)**
A. Asthenosphere
B. Oceanic crust
C. Continental crust
D. Lithosphere

7. Tectonic plates move in the **(B)**
A. Mantle
B. Asthenosphere
C. lithosphere
D. Ocean crust

8. Seafloor spreading occurs where **(B)**
A. Oceanic plates diverge
B. Oceanic plates converge

C. Oceanic plates collide to form mountains
D. Oceanic plates oscillate

9. Which of the following is associated with mountain formation
A. oceanic-continental convergent plate boundaries
B. continental-continental convergent plate boundaries
C. oceanic-oceanic convergent plate boundaries
D. volcanoes

10. Leading edge crust sinks (subducted)into the mantle and Islands chain form as melted subducted material rises on
A. Oceanic-oceanic convergent plate boundaries
B. Oceanic-continental convergent plate boundaries
C. Divergent plate boundaries
D. Volcanoes

11. When rock breaks, the sudden movement produces vibrations that are called **(A)**

A. Seismic waves
B. Surface aves
C. S- Waves
D. P -waves

12. Most earthquakes occur **(B)**

A. Near the center of mass of a plate
B. Near the boundary of a plate
C. Equally anywhere on a plate
D. Deep below a plate

Part2: True/False

13. The crust beneath the oceans is much younger than continental crust. **(A)**
A. True
B. False
14. Marine studies indicated that there is long, high and continuous mountain ranges run through the middle of the oceans **(A)**
A. True
B. false
15. Hot magma is forced up from earth's interior spreads the ocean floor and causing the continents to drift apart. **(A)**
A. True
B. False
16. According to plate tectonics, new crustal material is created at convergence boundaries. **(B)**
A. True
B. False
17. The Himalayan Mountains were formed as a result of continent-continent plate convergence. **(A)**
A. True
B. False

18. Seismic sea waves are called tsunami. **(A)**
A. True
B. False

Part3: Exercises

19. What lies directly beneath the earth's crust?
The mantle

20. The inner core is composed of **__iron__**and **___nickel_**

21. In which plate you are located by now?
The Arabian plate

22. What is a volcano?
A *volcano* is a rocky structure in the form of a hill or mountain formed by the ejected lava from magma beneath the earth surface and deposit in a conical shape

23. What did finally convince scientists that the continents did move?
Seafloor spreading is one evidence

24. What causes the earth's tectonic plates to move?
Inner convection current cycles caused by heat. These are located at the asthenosphere.

25. What causes an earthquake?
Plates movement.

26. What is the theory of plate tectonics?
Plate tectonics is a theory that explains the movements of continents (continental drift).

27. How many lithosphere plates are there?
About 12.

28. What is subduction zone?
It is the zone created when the high density oceanic plate sinks below the low density continental plate when both plates converge.

29. On the average how far do the plates move per year?
1-6cm

30. What drives the plates movement?
Convection current cycles at the asthenosphere.

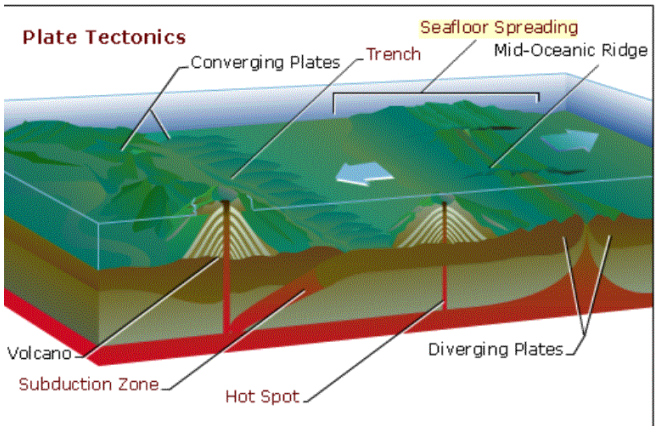
31. What is continental drift?
It is the separation of continents due to seafloor spreading.

Part4: Learning from observation

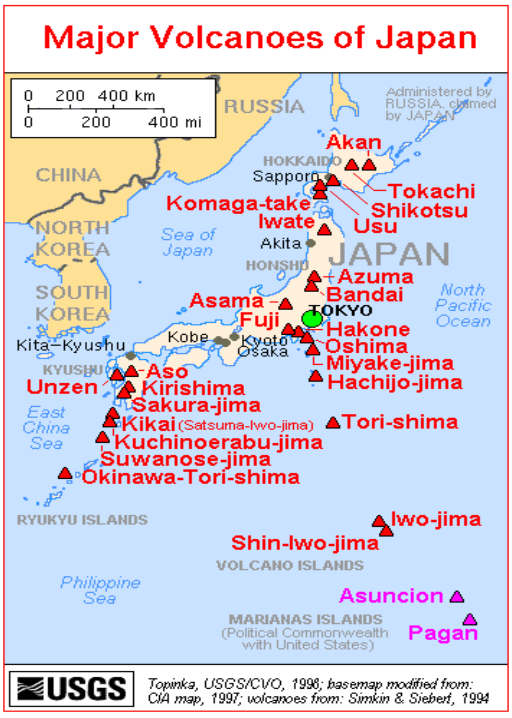
In few lines describe your understanding from observing these images

A. Heating a liquid like water creates convection current cycle as shown in the Figure. The water layer close to fire is heated first and becomes less dense, move upward and replaced by denser cold water. This process continues until the whole water is heated equally.

B. At converging plates, subduction occures trenches created, and earthquakes and volcanoes are resulted. At diverging plates, seafloor spreding result in ridges formation. Hot spot occurs deeo in the mantle.



C. Japan is a volcanic islands produced by magma forced up through rifts deep in the ocean. When this magma cools by water it turns into land. This is happening on successive periods of time.



C. Mountains are created when two plates collide. The Boundary pile up high forming a mountain.