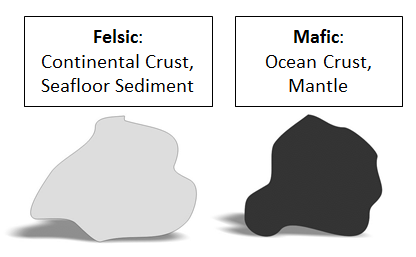
ESS 100 (Stapleton) Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Plate Tectonics, Part 2

**Goals:**

1. Compare and contrast the materials in ocean crust, continental crust, seafloor sediment, and the mantle.
2. Describe the motions and plates involved at a variety of types of plate boundaries and hotspots.
3. Match real-world locations to the various types of plate boundaries and hotspots.
4. Know the characteristics and features associated with each type of plate boundary and hotspot.

**Continental Crust:**

* Classified as Felsic
* Light in color
* Not dense
* High Viscosity (gooey) when turned to magma
  + Builds up pressure and makes volcanoes more explosive
  + Piles up, so it makes volcanoes steeper
* Example Rock -- Granite

**Ocean Crust (similar to mantle):**

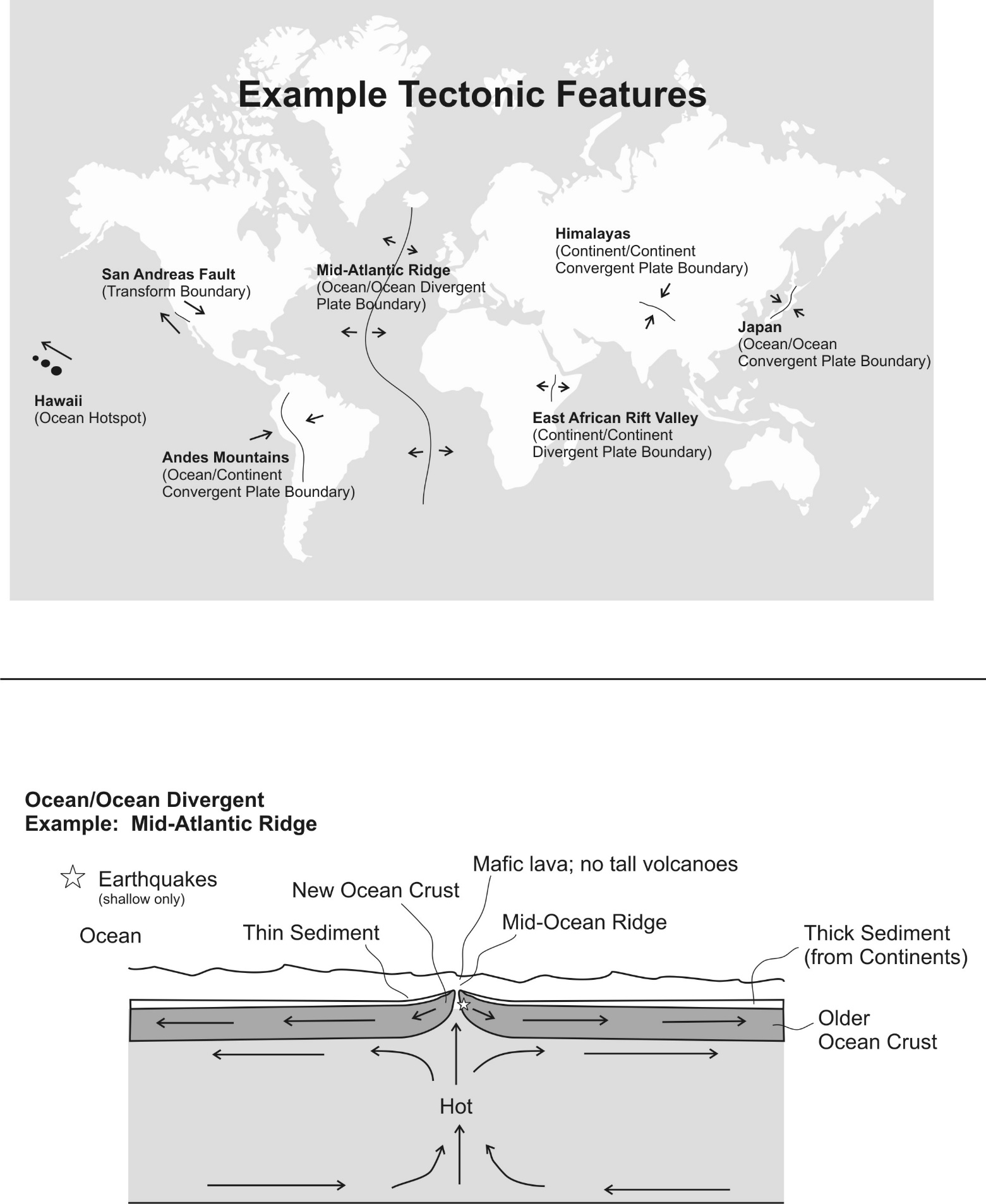
* Classified as Mafic
* Dark in color
* Dense
* Low Viscosity (runny) when turned to magma
  + Does not build up high pressure, so it roduces gentler eruptions
  + Does not pile up, so volcanoes are lower and rounder
* Example Rock -- Basalt

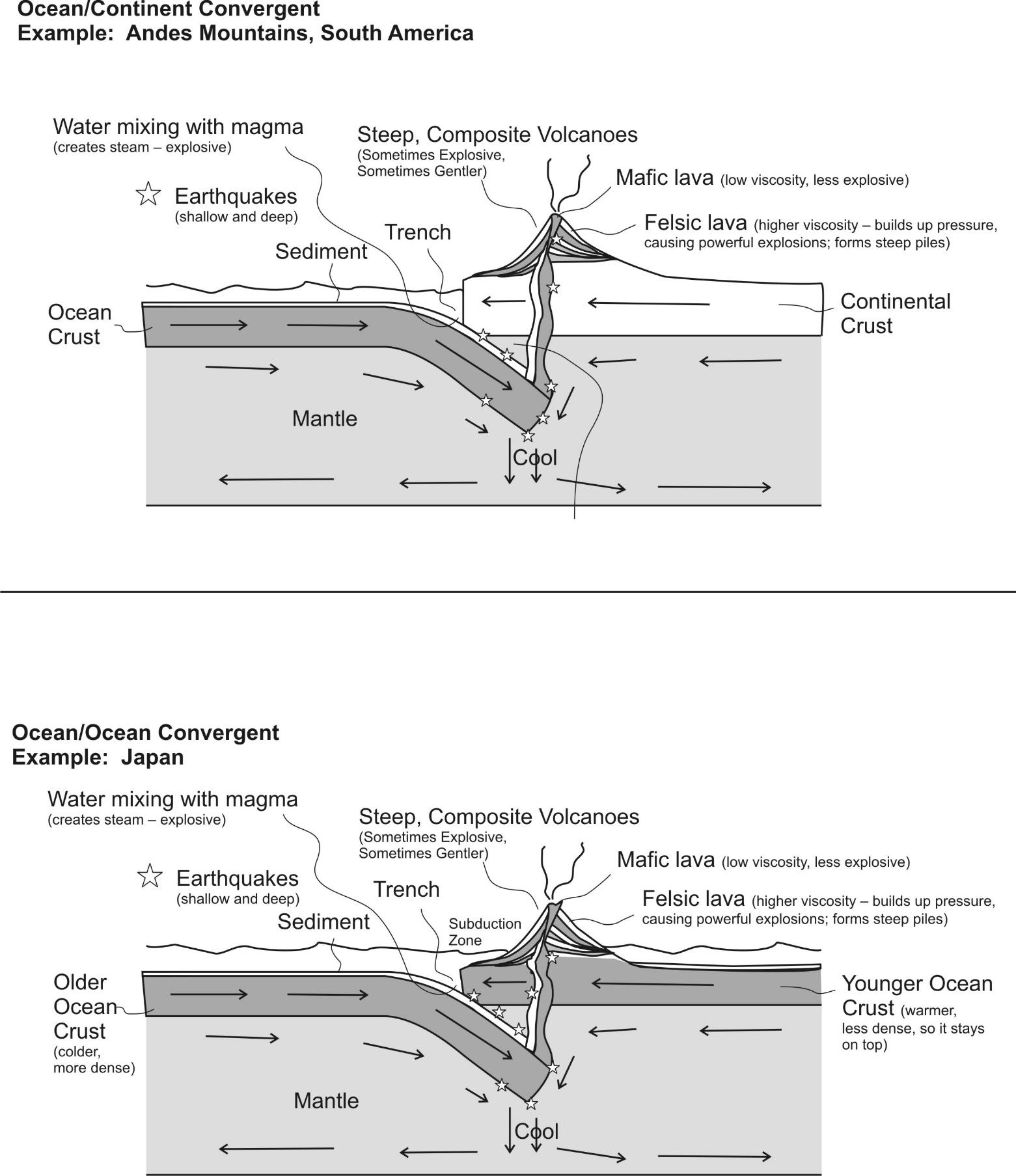
**Mantle (similar to ocean crust):**

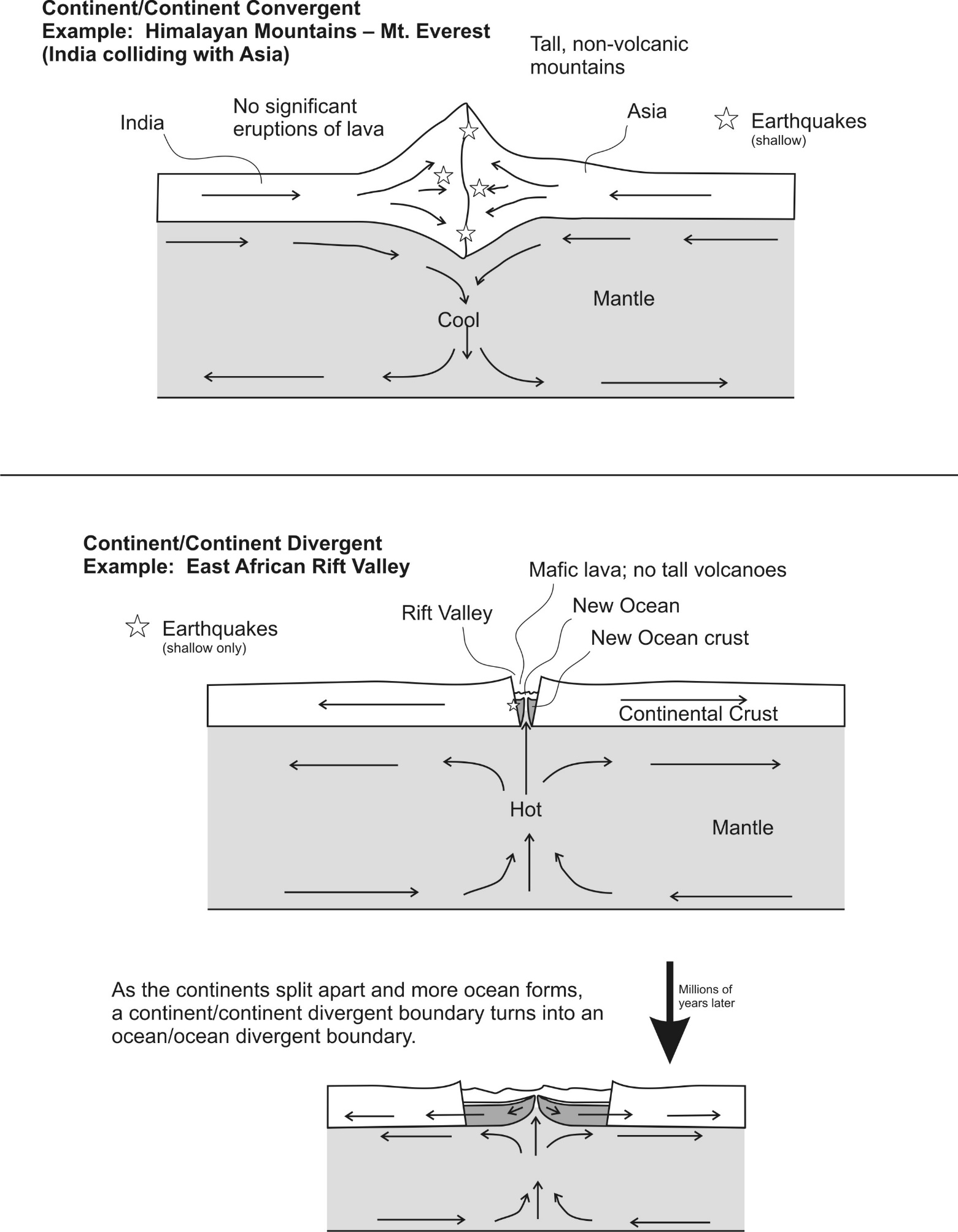
* Classified as Mafic
* Dark in color
* Very Dense
* Low Viscosity (runny) when turned to magma
* When mantle material melts and solidifies, it turns into ocean crust.

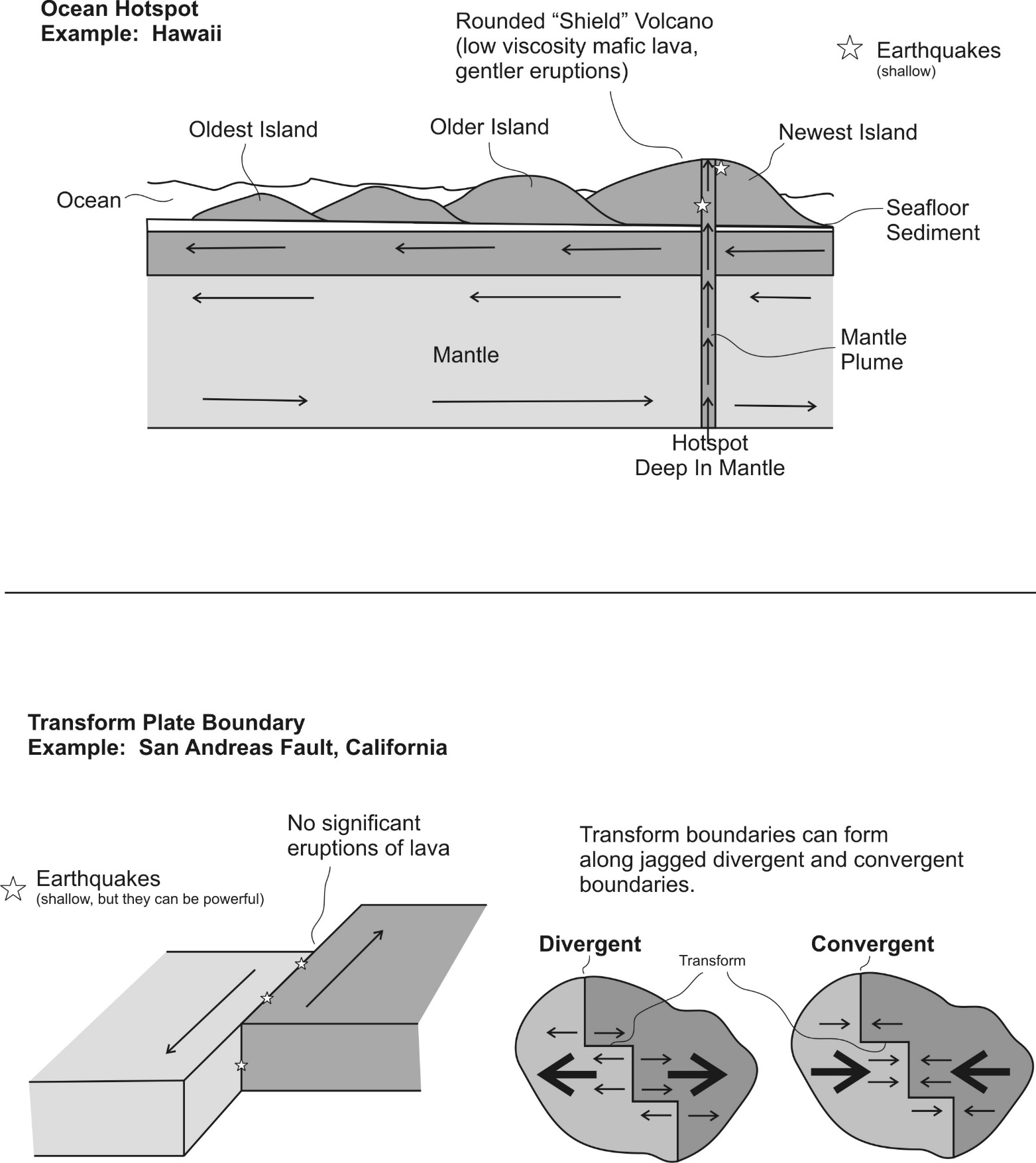
**Seafloor Sediment:**

* Classified as Felsic
* Similar to Continental Crust
* Thicker over older ocean crust. Thinner over younger ocean crust.
* Contains water; when it turns to magma, water in seafloor sediment turns into steam. The steam produces pressure and can cause explosive eruptions.

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**Practice**

**PLEASE DARKEN THE CORRECT ANSWER CHOICES.**

Match each description to the appropriate crust type. Choices: **A= Continental Crust B = Ocean Crust**

1. A B Relatively light in color/shade

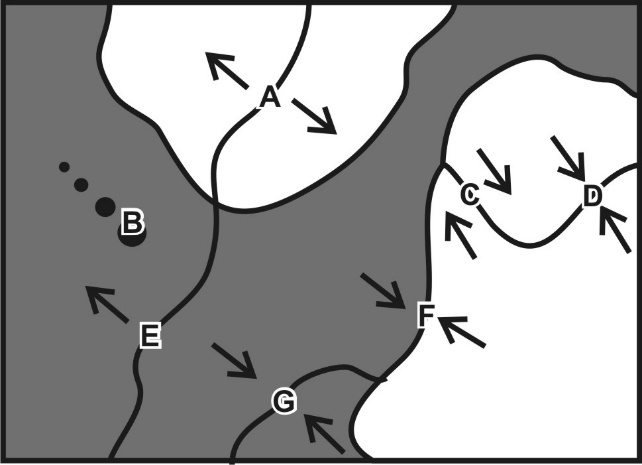
2. A B Relatively high viscosity (runny) when molten

3. A B Similar to the material in the mantle

4. A B The most explosive volcanoes have this type of rock.

5. A B When this type of lava creates volcanoes, those volcanoes are steep.

6. A B An example of this rock type is called basalt.



Match each feature name to the corresponding feature on the plate map on the right.

7. A B C D E F G Ocean/Continent Convergent

8. A B C D E F G Transform Boundary

9. A B C D E F G Continent/Continent Convergent

10. A B C D E F G Hotspot

11. A B C D E F G Ocean/Ocean Divergent

12. A B C D E F G Ocean/Ocean Convergent

13. A B C D E F G Continent/Continent Divergent

Each of the real-world locations below forms in an area that is similar to one of the lettered locations on the map. Match each real-world location to its corresponding map location.

14. A B C D E F G Mid-Atlantic Ridge

15. A B C D E F G San Andreas Fault, California

16. A B C D E F G East Africa

17. A B C D E F G Andes Mountains (South America)

18. A B C D E F G Himalayas (Mt. Everest)

19. A B C D E F G Japan

20. A B C D E F G Hawaii

For each lettered feature on the map above, darken all of the descriptions below that apply. [Suggestion: start with letter A. Darken that letter for all of the descriptions that apply to location A on the map. Continue the process one map feature at a time.]

15. A B C D E F G Steep, *composite cone* volcanoes

16. A B C D E F G *Relatively* violent eruptions of lava *can* occur.

17. A B C D E F G *Relatively* gentle eruptions of lava *can* occur.

18. A B C D E F G Shallow earthquakes (in lithosphere – crust)

19. A B C D E F G Deep earthquakes (in mantle)

20. A B C D E F G Situated over a relatively cool part of the mantle

21. A B C D E F G New ocean crust is being created here.

22. A B C D E F G Situated over a relatively hot part of the mantle

27. A B C D E F G Tall mountains that are not volcanoes

23. A B C D E F G Rounded, *shield* volcanoes