

Dynamic Planet Tryout Test



Score: /108.5

By JT
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Name: _____

Grade: _____

There is a guessing penalty for questions where you are given clear choices. If you were to guess on every one of those questions, you should theoretically get 0 on those sections. I don't care about spelling

True/False (1 point for correct answers, -1 points for incorrect answers)

- _T_ 1. Oceanic crust is younger than continental crust.
- _F_ 2. Continental shelves can only be found on passive continental margins.
- _F_ 3. Island arcs are created on a convergent plate boundary.
- _T_ 4. The hot liquid water emitted by hydrothermal vents can reach temperatures of 350 °C.
- _T_ 5. Calcareous ooze is a kind of pelagic sediment.
- _F_ 6. Water from the poles is often saltier than water from the tropics.
- _F_ 7. The California current is a warm current.
- _T_ 8. Sand builds up in beaches more in the summertime.
- _F_ 9. Oceanic trenches are found on divergent plate boundaries.
- _T_ 10. Gyres are clockwise in the northern hemisphere.
- _F_ 11. In subtropical waters, differences in salinity are the largest factor in creating density gradients.
- _T_ 12. Coastal upwelling is most common on the west coasts of continents.
- _F_ 13. Neap tides have the highest tidal range.
- _F_ 14. Ekman transport causes water to spiral downwards clockwise below the equator.
- _T_ 15. Nutrient levels in the surface water are the lowest in the summer.

Multiple Choice (1 point for each correct answer, -1/3 for each incorrect answer)

16. Which of the following oceans has the fewest passive continental margins?
- A) Pacific**
 - B) Atlantic
 - C) Indian
 - D) Southern

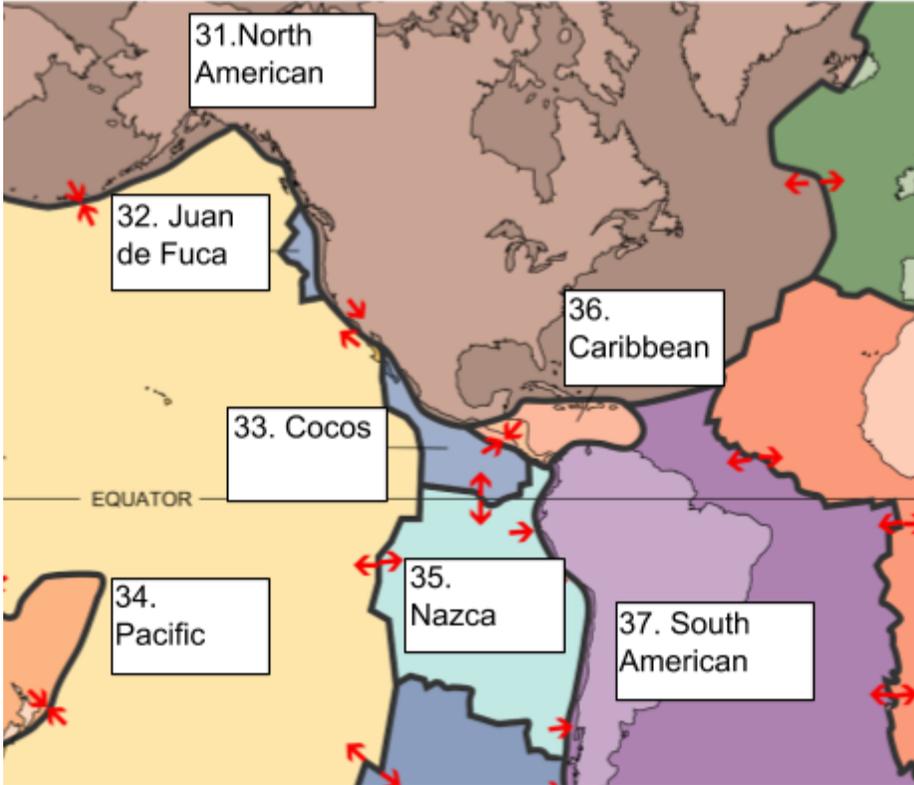
17. Which of the following rocks is the oceanic crust mostly made up of?
- A) Rhyolite
 - B) Granite
 - C) Andesite
 - D) Basalt**
18. Which of the following is most likely to contain an accumulation of sediment?
- A) Continental shelf
 - B) Continental slope
 - C) Continental rise**
 - D) Oceanic ridge
19. Which of the following areas would a volcanic island most likely be nearby?
- A) Continental rise
 - B) Deep ocean trenches**
 - C) Oceanic ridge
 - D) Oceanic plateaus
20. Which of the following oceans is the saltiest?
- A) Pacific
 - B) Atlantic**
 - C) Indian
 - D) Southern
21. Which of the following is not a hydrogenous sediment?
- A) Quartz sand**
 - B) Manganese nodules
 - C) Calcium carbonates
 - D) Metal sulfides
22. Which of the following elements are you least likely to find in the black smoke of a hydrothermal vent?
- A) Copper
 - B) Zinc
 - C) Calcium**
 - D) Lead
23. Which of the following sea currents are cold currents?
- A) Gulf Stream
 - B) Brazil Current
 - C) Agulhas Current
 - D) Canary Current**

24. Which of the following is the warmest layer of the ocean?
- A) Thermocline
 - B) Halocline
 - C) Epilimnion**
 - D) Hypolimnion
25. Which of the following currents completely encircle the Earth?
- A) North Atlantic drift
 - B) North Equatorial current
 - C) Kuroshio current
 - D) West wind drift**
26. Which of the following is not a depositional feature?
- A) Spit
 - B) Baymouth Bar
 - C) Sea Arch**
 - D) Tombolo
27. During which of the following seasons the concentration of nutrients in surface waters is the highest?
- A) Winter**
 - B) Spring
 - C) Summer
 - D) Fall
28. Which of the following is not true of the oceanic ridge?
- A) It's the longest topographic feature on Earth.
 - B) It's created when a divergent plate boundary exposes upwelling from the mantle.
 - C) Not all of the oceanic ridge is a mid-ocean ridge.
 - D) Its average width is about 100m.**
29. Which of the following places would you find a diurnal tide pattern?
- A) The coast of California
 - B) The Atlantic coast of South America
 - C) The Bay of Fundy
 - D) The Gulf of Mexico**
30. Which of the following places would you find a submerging coast?
- A) Delaware bay**
 - B) The coast of California
 - C) Hudson bay
 - D) The coasts of Scandinavia

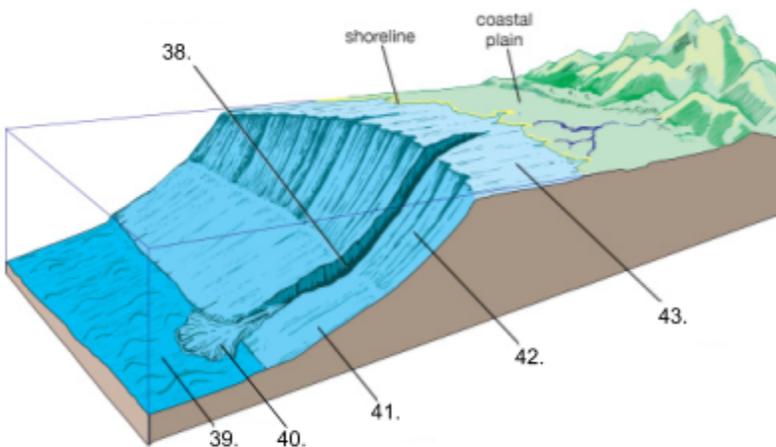
Fill in the diagram blank

Name the tectonic plates. You don't have to write "plate" after the name. (This is kind of just trivia; it won't count for much)

(½ point for each correct answer)



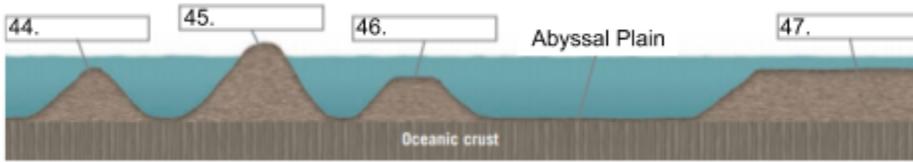
Name these features of the continental plate boundary.



- 38. Submarine_Canyons
- 39. Abyssal_Plain
- 40. Deep-Sea_Fan
- 41. Continetal_Rise
- 42. Continental_Slope
- 43. Continetal_Shelf

(1 point per)

Name these features of deep ocean basins.

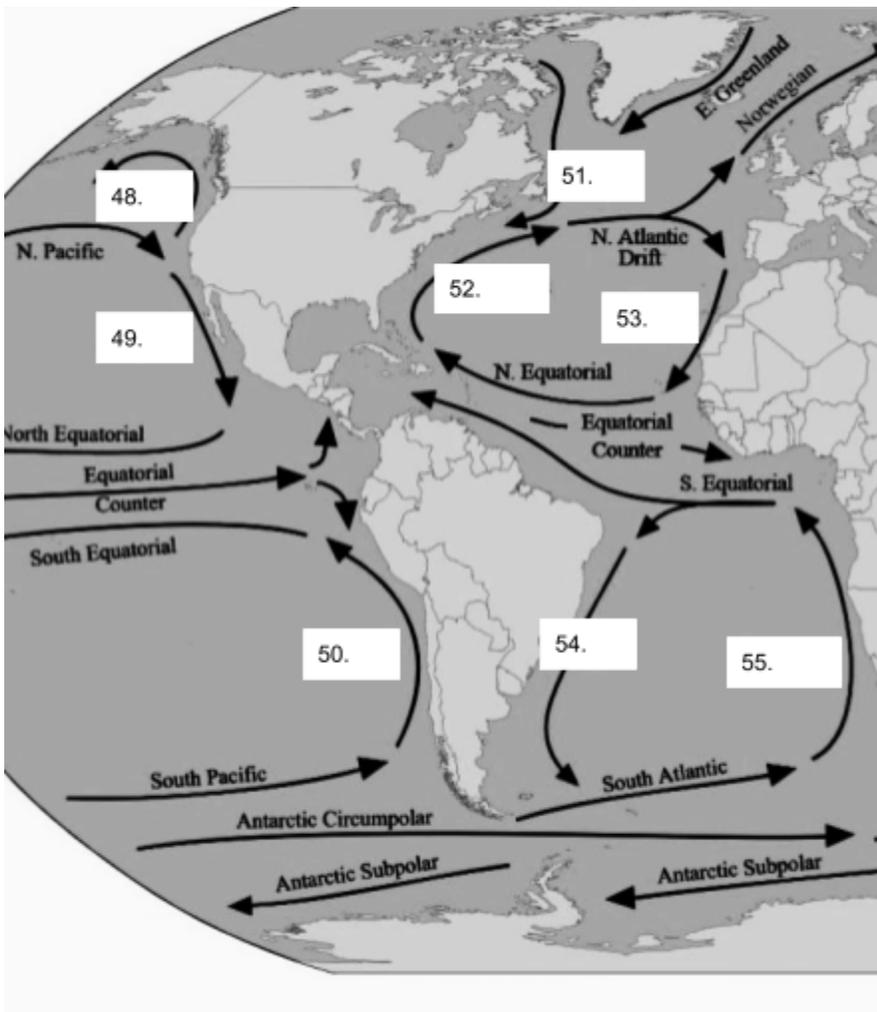


44. _____ Seamount _____ 45. _____ Island / Volcanic Island _____

46. _____ Guyot _____ 47. _____ Volcanic Plateau _____

(½ point per question, so ¼ point for correct name and temperature)

Name these currents. Then, circle whether they are warm or cold. (This is kind of just trivia; it won't count for much)



48. _____ Alaska _____
(Warm/Cold)

49. _____ California _____
(Warm/Cold)

50. _____ Peru _____
(Warm/Cold)

51. _____ Labrador _____
(Warm/Cold)

52. _____ Gulf Stream _____
(Warm/Cold)

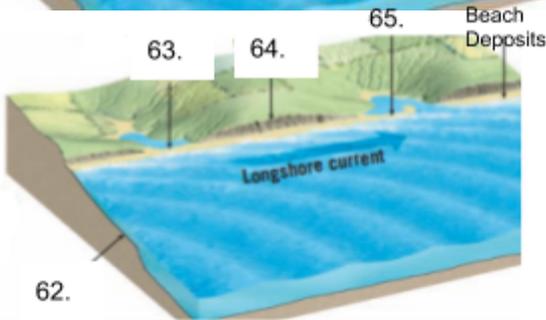
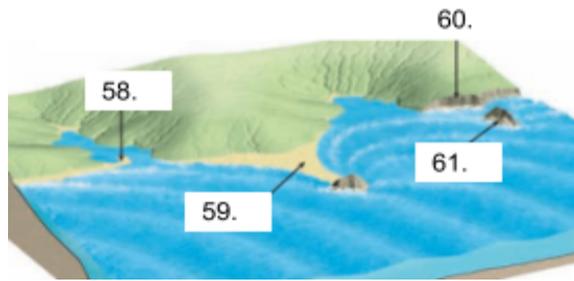
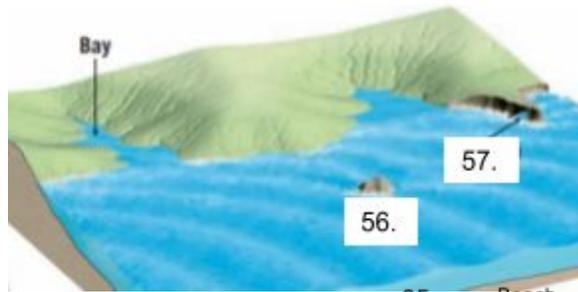
53. _____ Canary _____
(Warm/Cold)

54. _____ Brazil _____
(Warm/Cold)

55. _____ Benguela _____
(Warm/Cold)

(1 point per)

Name these coastal features. You may use terms more than once.



56. ___Island___ 57. ___Sea_Arch___

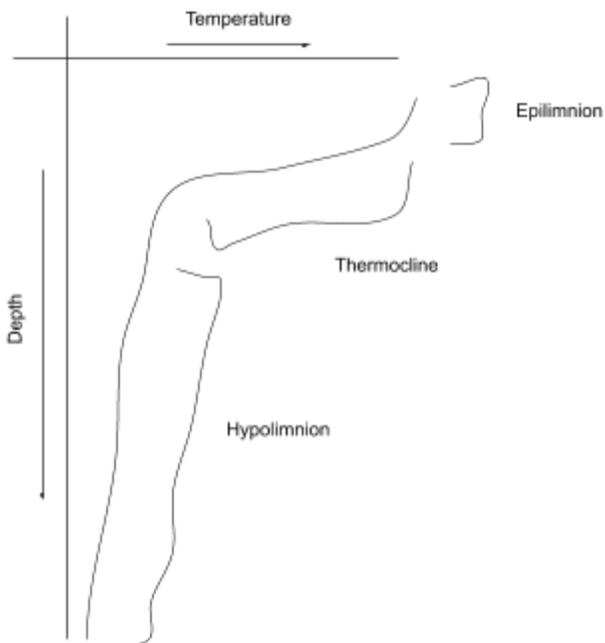
58. ___Spit___ 59. ___Tombolo___

60. Wave-Carved_Cliff_ 61. ___Sea_Stack___

62. Wave-Carved_Platform 63. ___Baymouth_Bar_

64. Wave-Carved_Cliff_ 65. ___Spit___

66. Draw a temperature vs depth graph. Label the 3 parts.



(2 points for shape, 1 point for each correct labeling)

Short Answer

(6 points) 67. Ocean sediments are a mixture of 3 kinds of sediments. Identify them, and explain how they form.

- (1) Terrigenous / Lithogenous - (1/2) Come from the land. (1/2) Rocks are weathered
- (1) Biogenous - (1/2) Come from organisms. (1/2) Consists of shells/skeletons of marine animals/algae
- (1) Hydrogenous - (1/2) Come from water. (1/2) Minerals are precipitated/crystalize directly

(9 points) 68. In order for a new coral reef to begin, one of the factors they require is warm, tropical water no more than 45m deep. However, coral atolls can be thousands of meters deep. Explain why this is, and the process form which atolls form, starting from a volcanic island.

- (1) Coral reefs can settle on the shallow waters surrounding the volcanic island, creating a (1) fringing reef
- (2) As the volcanic island is moved away from its heat source, the plate the volcano is on contracts and sinks.
- (2) As the coral reef sinks, it responds by building up on the dead remains of other corals to reach back up into the surface, forming a (1) barrier reef surrounding the partially sunken volcano.
- (1) Eventually the whole volcano sinks, and what's left is an (1) atoll

(6) 69. a. What is the average salinity of the ocean? Express in ‰. (1) 35

b. What does this symbol (‰) mean?

- (1) Parts per thousand

c. Name and explain two sources of salts in the ocean.

- (1) Chemical (1) weathering of rocks
- (1) Outgassing (1) from underwater volcanic eruptions

(9) 70. What is Ekman transport and how does it influence upwelling in the midlatitudes? Explain why this affects coastal upwelling mostly on the west coasts of continents.

(2) Ekman transport is the idea that water generally flows 90 degrees to the right/left of the wind in the northern/southern hemisphere.

- (1) This encourages upwelling in the midlatitudes.

(1) Wind flows toward the equator in the midlatitudes, so (1) water flows to the west. (2) Since water flows to the west, away from the west coasts of continents, (2) Water from lower layers of the ocean rises up to take the place of the water that left.

(8 points) 71. Sediment in beaches can be moved both perpendicular and parallel to the shoreline. Explain the processes that allow this to happen.

(1) Sand is moved perpendicularly from the back and forth of crashing waves.

(1) Waves can approach the beach at an angle, and (1) so sand is pushed up the beach at an angle.

(1) However, the backwash of the wave pushes the sand perpendicularly toward the shore, so (1) the sand moves in a zigzag pattern parallel to the shore.

(1) The angled waves create longshore currents, which are (1) parallel to the shore, and (1) this can move sediments parallel to the shoreline.

(13 points) 72. Compare and contrast the Pacific and Atlantic coasts of the United States. (Currents, coast structure, etc). Explain the differing reasons why both coasts are losing more and more sand each year.

Atlantic

Gulf stream is a (1) warm current.

(1) Barrier islands receive most of the force

(1) Beaches are more broad and gently slope

(2) Barrier islands are losing sand because people build structures on them that (2) disrupt the fluidity that makes them strong against storms.

Pacific

California current is a (1) cold current. (1) Exhibits coastal upwelling

(1) Narrow beaches with (1) cliffs

(1) Geologically active region, and it's an (1) emerging coast, so sea level rises are less noticeable.

(2) Beaches are supplied by rivers, and (2) these rivers are blocked by dams.