

## Hydrosphere Worksheet

1. Which of the following statements describes the impact of thermohaline circulation on climate?

- A) It regulates the world's climate
- B) It decreases the world's average temperature
- C) It increases the world's average temperature
- D) It has no notable impact on the world's climate.

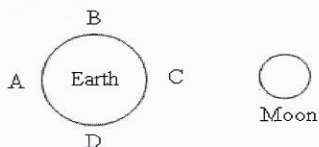
2. Tides are mostly caused by ...

- A) The spinning of the earth
- B) The orbiting of the earth around the sun
- C) The moon's pull of gravity on the earth
- D) The sun's pull of gravity on the earth

3. What is the role of thermohaline circulation?

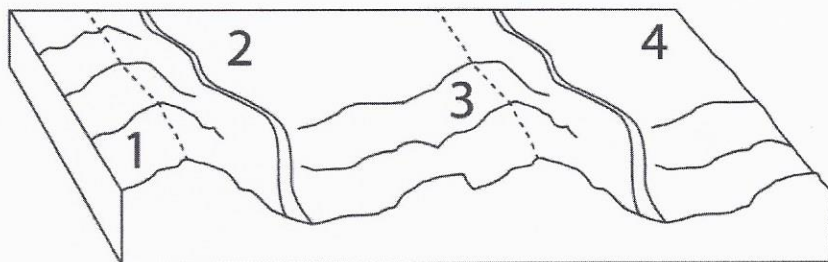
- A) It keeps the pH of oceans uniform.
- B) It captures atmospheric CO<sub>2</sub>
- C) It transports heat from the equator toward the poles.
- D) It controls the tidal cycle.

4. Which points on the Earth diagram would have low tides?



- A) A and C
- B) A and C
- C) B and D
- D) B and C

5. Which location is in the same catchment area?



- A) 1 and 2
- B) 1 and 3
- C) 2 and 3
- D) 2 and 4

6. What are the characteristics of ocean water which has a tendency to sink?

- A) Low temperature and low density
- B) High temperature and low density
- C) Low temperature and high density
- D) High temperature and high density



12. Which of the following statements concerning thermohaline circulation is true?

- A) Thermohaline circulation allows for the heat accumulated in ocean water at the Polar Regions to circulate to the Equatorial Region.
- B) Thermohaline circulation allows for the heat accumulated in ocean water at the Equatorial Region to circulate to the Polar Regions.
- C) Thermohaline circulation can be compared to a conveyor belt which moves warm and cold air masses around the Earth.
- D) Thermohaline circulation can be compared to a conveyor belt which moves warm and cold freshwater systems around the Earth.

13. True or false?

- a) Pack ice is found on land and glaciers float on the sea.
- b) Watersheds will be more polluted towards the bottom of the drainage basin.
- c) Having a flat land will produce a good watershed.
- d) Icebergs are formed from pack ice
- e) Both rocks and minerals are pure substances.
- f) Glaciers float on the sea
- g) Melting pack ice has no effect on sea level
- h) The Gulf Stream is a surface current
- i) Ocean salinity will decrease if glaciers continue to melt
- j) Surface currents can be driven by wind only

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14. Some scientists claim that global warming has caused Arctic pack ice (ice floes) and continental glaciers to melt more quickly. Answer the following three questions.

a- Explain if melting glaciers affect sea levels.

Yes, more water being added to the ocean.

b- Explain if melting pack ice (ice floes) affect sea levels.

No, all water from melting pack ice was already there + taking up volume. No new water added!

c- Explain how melting Arctic pack ice (ice floes) affects thermohaline circulation.

It reduces water's salinity which slows down thermohaline circulation because less dense water will not

15. Will the meltwater eventually arrive at the equator? Explain your answer. Sink.

Yes because all waters are connected to each other