

Earth Science Quiz: Weather and Climate

Name: _____

Date: _____

Section: _____

_____ 1. Which of the following is NOT true about tropical cyclones, such as typhoons and hurricanes, and the interactions between the ocean currents and air masses that produce them?

- a. They require warm temperatures to form.
- b. They have an eye that is an area of low pressure.
- c. They strengthen when they move on land.
- d. Their direction of rotation depends on the ocean in which they form.

_____ 2. A city transforms a parking lot with dark pavement into a park with trees and grass. How will the temperature of the area change? It will _____ because the new surface _____ more sunlight.

- a. increase; absorbs
- b. increase; reflects
- c. decrease; absorbs
- d. decrease; reflects

_____ 3. A sixth-grade class is studying ocean gyres. One of the students takes notes but forgets to label the gyres with their names. The notes about one gyre include: moves counter clockwise, carries warm water south, carries cold water north, located between Africa and Australia. Which ocean gyre is described in these notes?

- a. Antarctic Circumpolar Gyre
- b. Indian Ocean Gyre
- c. North Atlantic Gyre
- d. South Pacific Gyre

_____ 4. Currents constantly carry water from one place to another in the ocean. Energy must be added to cause this motion of large masses of water. What is the main source of the energy that keeps the ocean currents moving?

- a. the rotation of Earth on its axis
- b. thermal energy from solar radiation
- c. greenhouse gases in the atmosphere
- d. heat rising from the molten core of the planet

_____ 5. Which statement **best** explains the relationship between a thunderstorm off the coast of Africa and a hurricane in the Gulf of Mexico?

- a. Thunderstorms are local weather conditions not related to the formation of a hurricane.
- b. Thunderstorms produce a storm surge that moves across the Atlantic and into the Gulf of Mexico.
- c. Ocean currents move thunderstorms across the equator, giving them the energy to strengthen.
- d. Trade winds blow storms from east to west, and warm ocean waters provide energy for them to strengthen.

_____ 6. An increase in the levels of greenhouses gases is causing climate change due to global warming. What is most likely to occur if the amount of greenhouses gases were reduced to zero?

- a. Earth's climate would return to what it was before global warming.
- b. Earth would be cooler overall because more heat would radiate into space
- c. Global warming would continue because it cannot be reversed after it has started.
- d. The climate would show no change because the greenhouse effect would not exist.

_____ 7. Tierra del Fuego is a group of islands off the southernmost tip of South America. They are the closest land mass to Antarctica (**latitude: 54° S**). Which **best** explains why Tierra del Fuego has never been hit by a tropical cyclone?

- a. The water is not warm enough for a tropical cyclone to form.
- b. There are no ocean currents to drive a cyclone toward the islands.
- c. Tropical cyclones are called typhoons in the Souther Hemisphere.
- d. The Coriolis effect is not strong enough to create a cycle of swirling air that far south.

_____ 8. The weather map shows the predicted location of the jet stream in the coming weeks. Which city is **most likely** to experience colder than normal temperatures?

- a. Atlanta, GA
- b. Dallas, TX
- c. Nashville, TN
- d. San Francisco, CA

_____ 9. Richmond, VA and San Francisco, CA lie at nearly the same latitude. Neither CA nor VA has experienced a direct hit by a major hurricane. A student makes the claim that because CA is warmer than VA on average, it is at greater risk for a major hurricane event. Is the student's claim correct? Use the data in the table to support or refute his claim

State	Average Temperature (°C)	Dominant Ocean Current	Average Water Temperature (°C)
California	17.8	California Current	13.3
Virginia	15.6	Gulf Stream	20.1

- a. It's correct because the California Current is a cold-water current.
- b. It's correct because higher average air temperature is a major hurricane risk.
- c. It's incorrect because hurricane formation depends on warm ocean water.
- d. It's incorrect because both states are equally at risk for a major hurricane.

_____ 10. Clouds form when water changes from a

- a. gas to liquid
- b. liquid to gas
- c. solid to gas
- d. solid to liquid

_____ 11. Condensation involves

- a. loss of heat
- b. gain of heat
- c. Neither loss nor gain of heat; it is spontaneous

_____ 12. Which term refers to the atmospheric conditions of a certain place at a certain time?

- a. wind pressure
- b. climate
- c. humidity
- d. weather

