

## Study Guide: Heat Transfer, Winds, and Water

### \*\*Test: Wednesday, October 22, 2014\*\*

1. List, describe, and give one example of the 3 types of heat transfer.

Conduction: transfer of heat between substances in direct contact w/ each other EX: pot on a hot burner, touching a metal spoon that was in a boiling pot

Convection: heated gases/liquids expand & rise, as they cool they condense & sink, cycle starts again EX: wind currents, hot air balloon

radiation: electromagnetic waves travel through space, EX: sun's rays, camp fire, light bulbs

2. What drives our weather patterns?

Sun

3. Describe the role that the Sun's energy has in creating wind.

- Causes uneven heating of Earth's surface which causes wind

4. Compare and Contrast a sea breeze to a land breeze.

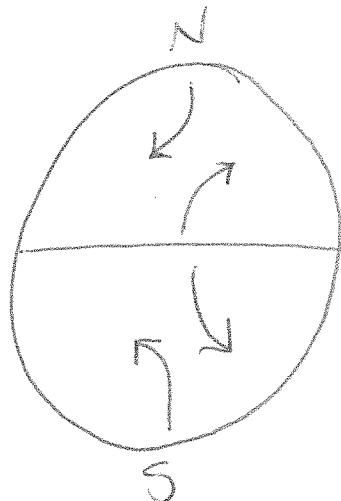
Land breeze: land cools more rapidly than water over land to cool & move out over the water & the warm air over water to rise



Sea Breeze: Created during the day b/c solar radiation warms the land more than the water

5. Define Coriolis Effect: the apparent deflection of free flowing objects like wind & water due to Earth's rotation

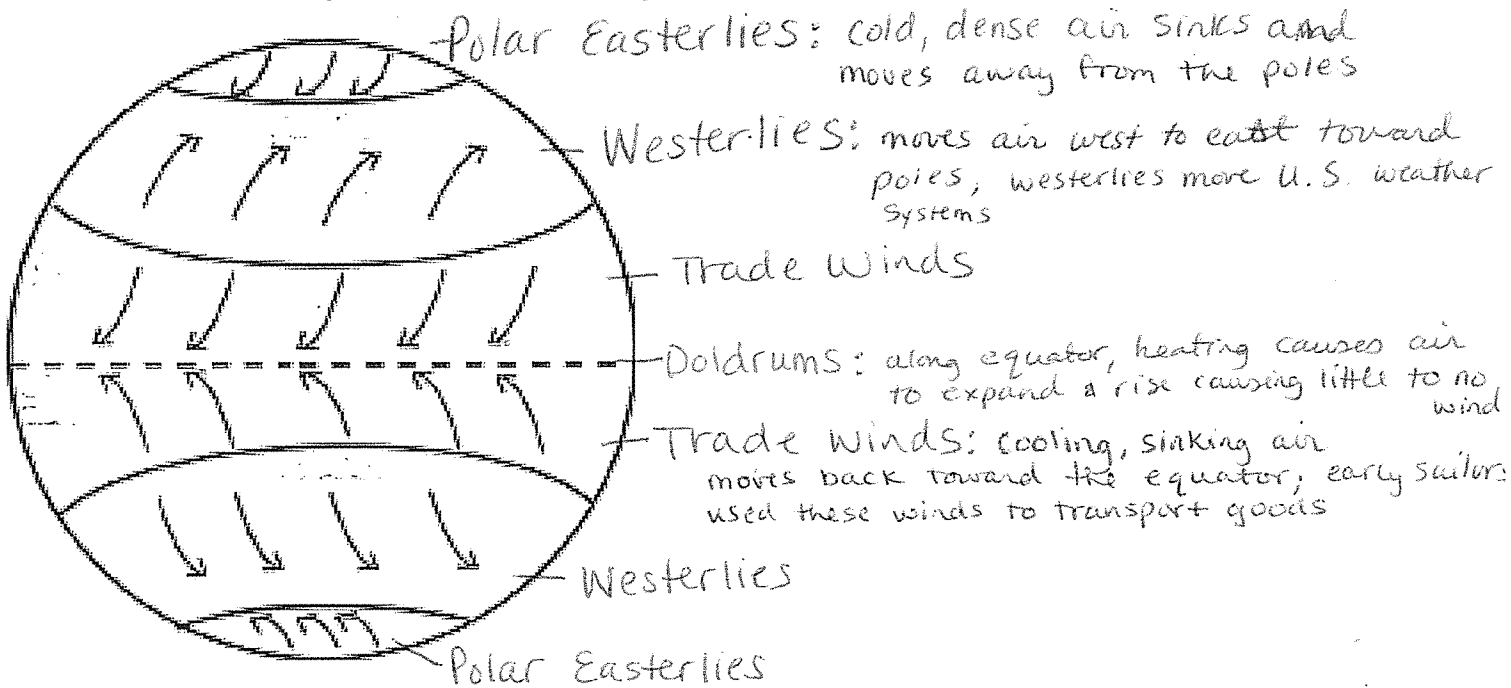
Draw a globe to model the Coriolis Effect in the Northern and Southern Hemispheres.



Northern Hemisphere: appears to curve to the right

Southern Hemisphere: appears to curve to the left

6. Label and Define the global wind belts on the globe below.



7. All winds travel west with exception of the Westerlies.

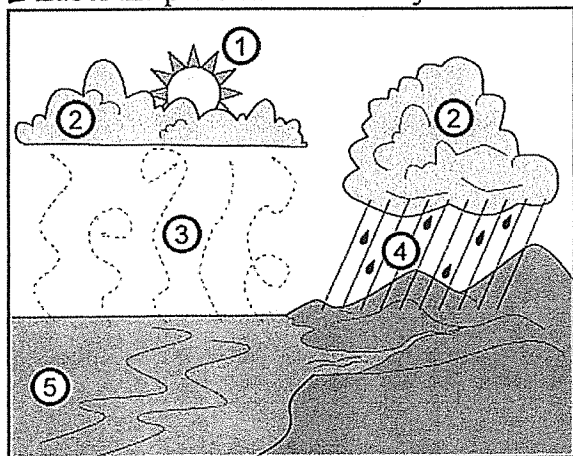
8. The Trade winds is the area located 30°N to 30°S latitude where ships once sailed to export their goods.

9. The Polar Easterlies are located at the North and South Poles.

10. There is little wind at the doldrums, along the equator.

11. The United States is located in which wind belt? Westerlies

12. Label the parts of the water cycle and describe how water moves through the cycle.



1. Sun: drives evaporation
2. Condensation: water condenses from a gas to a liquid to form clouds
3. evaporation: water is heated & becomes a gas
4. precipitation: saturated clouds can't hold moisture, falls as rain/snow, etc
5. Lake/Ocean: large body of water, where runoff & ground water feed into cycle

13. Why is the sun an important part of the water cycle?  
drives evaporation

14. What is the hydrosphere?  
all the water on earth

15. Define evaporation, condensation, and precipitation.

evaporation: water is heated to change from a liquid to a gas

condensation: clouds form from moisture in the air

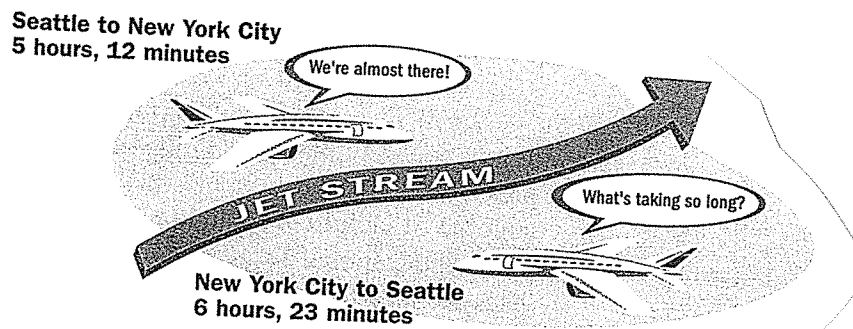
precipitation: clouds become saturated or full of moisture and then it's released as rain, sleet or snow

16. What is the jet stream, and how does it affect weather patterns?

① narrow belt of strong winds that blow near the top of the troposphere

② helps move storms across the U.S.

17. Observe the picture closely, and then explain why it takes longer to get from New York City to Seattle than it does to get from Seattle to New York. (Hint: use complete sentences.)



The jet stream helps push the plane east (Seattle to N.Y.) but the plane has to fight against the jet stream when it travels west (N.Y. to Seattle).