

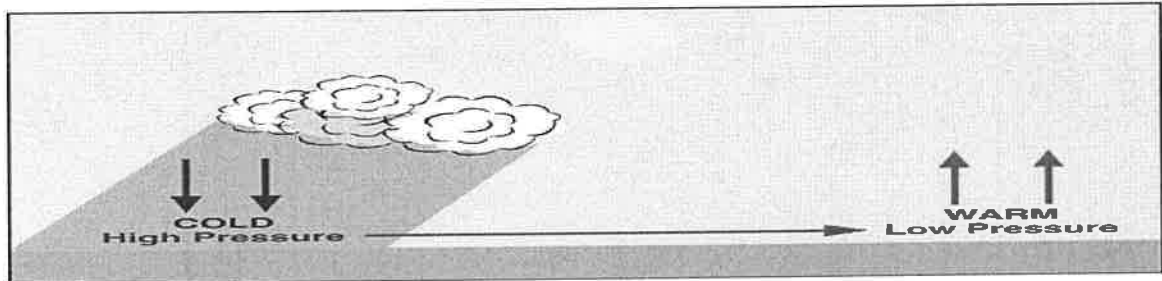
Name: _____

Per: _____

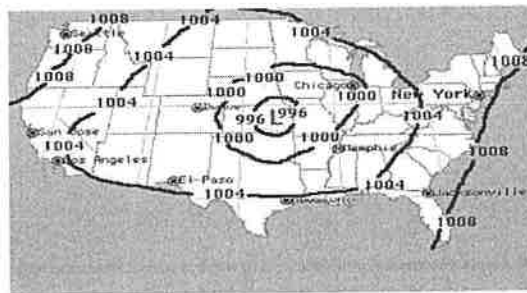
Earth Science- WHAT CAUSES THE WIND?

Definitions

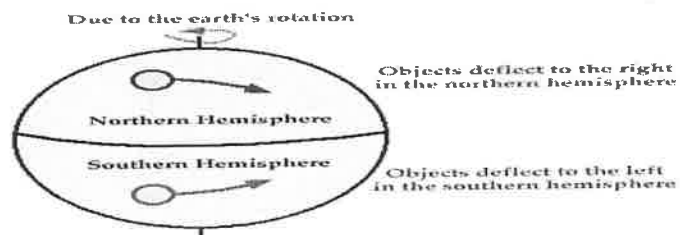
1. **What is wind?**



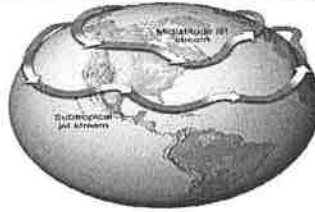
2. **Isobar:**



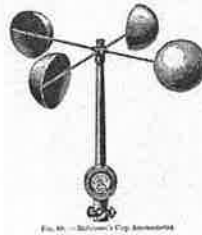
3. **Coriolis Effect (ESRT 14):**



4. Jet Stream:



5. Anemometer:



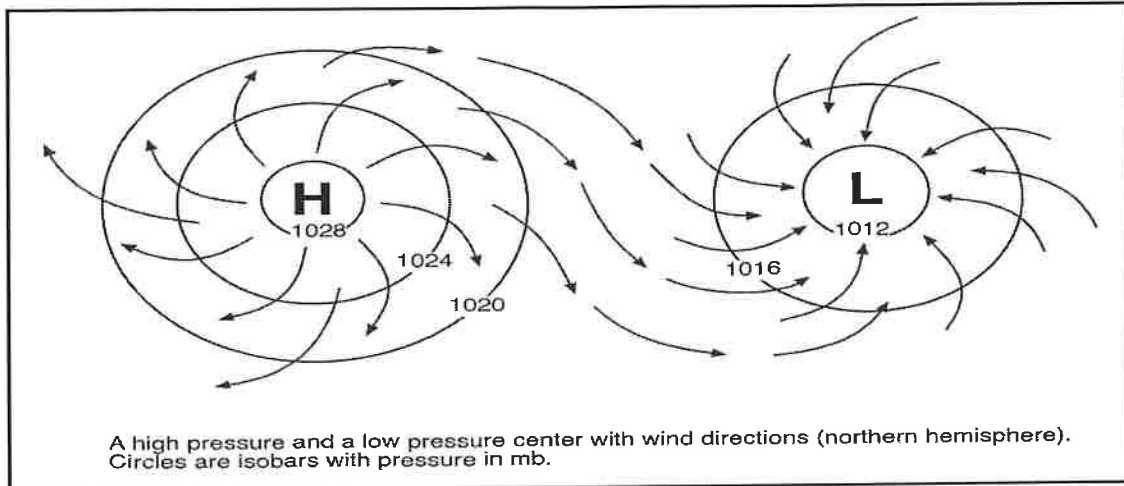
6. Pressure gradient:

7. Planetary Wind Belts (ESRT 14):

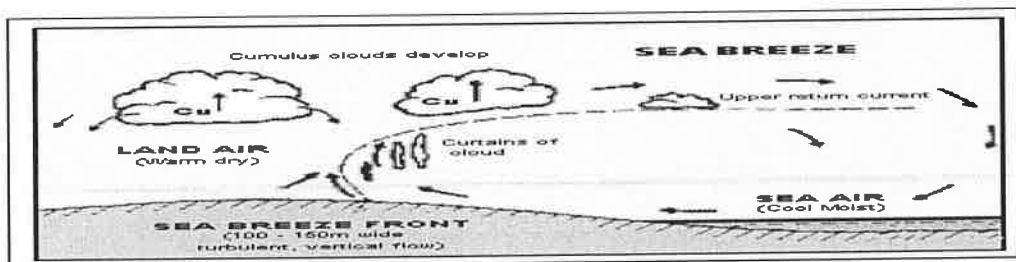
8. Prevailing Winds:

MAIN CONCEPTS:

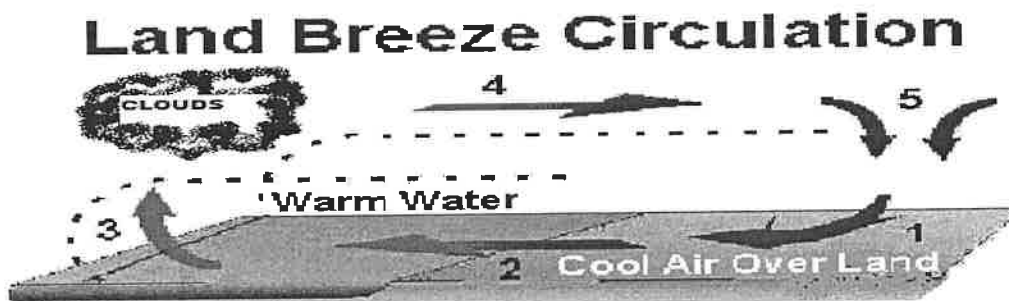
1. Cool places usually have relatively _____ air pressure and warmer places have _____ air pressure
2. ****KEY IDEA**** Winds always blow from areas of _____ to areas of _____



3. Winds always blow fastest where the isobar lines are _____ together
4. The wind direction is influenced by _____
5. During the day, land heats up _____ than water
6. Warm air rising over land _____
over the land. This happens during the day.



7. Warm above slowly cooling water at night creates _____ over the
water. This happens at night. (diagram on next page)



8. Without rotation, winds would blow straight from areas of _____ pressure (North Pole) to areas of _____ pressure (equator)

9. In the Northern Hemisphere, winds blowing out of a high pressure area

_____.

10. The winds blowing into a low-pressure area

_____.

11. Winds that _____ into a low at the surface and

_____ must result in winds that

_____.

12. Low pressure systems are also called _____

13. High pressure systems are also called _____

14. Jet streams blow from _____

15. Why are jet streams important?

16. Like winds, ocean currents _____

17. *****KEY CONCEPT***** Winds are named for _____

18. Example: A north wind in NYS usually brings _____ because it

comes _____.

PREVAILING WINDS

- Difference in air pressure and prevailing winds can often mean different weather conditions
- Example: In the winter, the northern portions of the US often get cold weather conditions from Canada caused by northerly prevailing winds. In the summer, the same regions usually have more southerly prevailing winds
- Monsoons: A regular and extreme weather change caused by the shift of wind and pressure belts, which is directly related to the changes in seasons
- Example: India- when winds are off the land, India experiences a drought. When winds are off the water, India experiences high amounts of rain
- Much of the contiguous US is affected by planetary winds that blow from the southwest to the northeast
- As a result, weather changes in the US generally move from a southwesterly direction to a northeasterly direction
- Surface ocean currents are caused by wind blowing over the oceans and transferring energy to the water
- The directions of the surface ocean currents are also affected by blocking by landmasses and the rotation of Earth through the Coriolis effect
- Since ocean currents result from the transfer of energy from prevailing winds, they can seasonally shift their positions. These changes follow the motions of the vertical rays of the sun

PREVAILING WIND MAP (in ESRT)

Planetary Wind and Moisture Belts in the Troposphere

The drawing on the right shows the locations of the belts near the time of an equinox. The locations shift somewhat with the changing latitude of the Sun's vertical ray. In the Northern Hemisphere, the belts shift northward in the summer and southward in the winter.

(Not drawn to scale)

