UNIT 7 Key

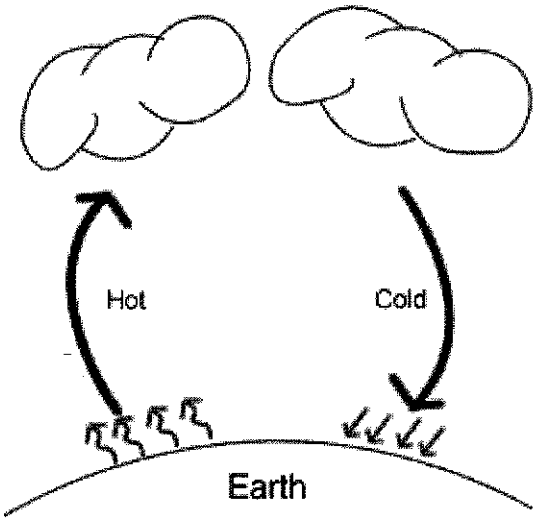
Grade 6 Science EOG Quiz Answer Key

Hydrology and Meteorology - (S6E4.a.) Land/water Heat Absorbtion, (S6E4.b.) Unequal Heating Land/water, (S6E4.c.) Moisture Evaporating, (S6E6.a.) Sun Energy Wind Water

Student Name: _____ Date: _____

Teacher Name: BRITTANY DUDEK Score: _____

1)



The heat transfer depicted in the image is MOST likely

A) circulation.
B) conduction.
C) convection.
D) radiation.

Explanation:
Convection is the circulation due to different areas of temperature or heat density. The surface air is heated and then rises and cools. Once cool it circulates back to the surface to be heated in this convection cycle.

2) _____ currents are responsible for circulating hot and cold air in the atmosphere and causing local weather systems.

A) Oceanic
B) Radiation
C) Conduction
D) Convection

Explanation:
Convection currents are when hot air rises because of its density to be replaced by the cold, denser air that is falling down from the atmosphere. This cyclical pattern gives rise to distinct weather patterns.

3) The Sun is the source of _____ that heats the tropical waters to fuel _____ in the Atlantic ocean.

A) heat, waves
B) wind, tsunamis
C) light, tornadoes
D) energy, hurricanes

Explanation:

The Sun is the source of **energy** that heats the tropical waters to fuel **hurricanes** in the Atlantic ocean.

4) When warm air from a large body of water moves quickly into a land area of cold air, we can expect _____ to occur where the two air masses meet.

A) fog
B) low humidity
C) thunderstorms
D) a gentle sea breeze

Explanation:
When warm air from a large body of water moves quickly into a land area of cold air, we can expect **thunderstorms** to occur were the two air masses meet. The ingredients for a thunderstorm are moisture, unstable air and lift. You need moisture to form clouds and rain. You need unstable air that is relatively warm and can rise quickly, and you need lift. This can form from fronts, sea breezes or mountains.

5)

Change in Temperature

Temperature light on °C			Temperature light off °C		
Time (min)	Sand	Water	Time (min)	Sand	Water
Start	22	22	Start	58	30
1	26	24	1	52	30
5	36	26	5	46	30
10	44	28	10	36	28
15	58	30	15	26	26

Mr. Kline's earth science class set up an experiment to compare the heating and cooling rates of land and water. They filled cups with sand and water and then recorded the temperature change while (a) a light was shining directly on the cups and (b) the light was turned off. The data one group collected is presented in the data table. Based on this data, we would expect _____ to have the LEAST changes in temperatures during a 24-hour period.

A) cities
B) deserts
C) the oceans
D) mountainous areas

Explanation:
Based on the data table, we would expect **oceans** to have the least changes in temperatures during a 24-hour period. The data shows that the water cup changes temperature at a slower rate than the sand. On Earth, this would be any body of water. It may take a longer time to heat up, but it also takes longer to cool down. Therefore, it would have the least variation in daily temperature.

6) The ability of water to hold more heat than land keeps the temperature on Earth

A) moderate.
B) the same.
C) very low.
D) very high.

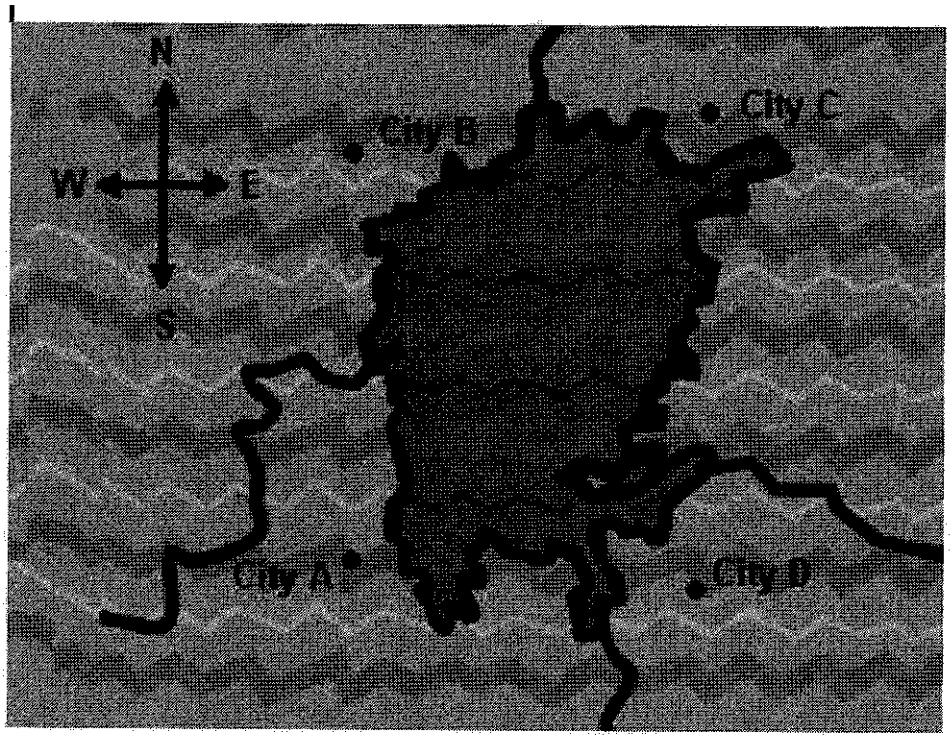
Explanation:
The ability of water to hold more heat than land keeps the temperature on Earth **moderate**. Human beings can survive on most areas of Earth no matter the season due in part to the heat capacity of water.

7) What process is a method of heat transfer but does NOT contribute significantly to heating the surface or atmosphere of the earth?

A) conduction
B) convection
C) insulation
D) radiation

Explanation:
Conduction is a method of heat transfer, where two objects exchange heat by touching, but does not contribute to moving heat through earth's atmosphere, because the atmosphere is so sparse it does not transmit heat through conduction effectively. Insulation is not a method of heat transfer.

8)



With a strong easterly wind pushing a snowstorm across the region, the cities that should receive the MOST snow because of the lake effect are

A) cities C and D.
B) cities B and C.
C) cities A and B.
D) cities D and A.

Explanation:
A snowstorm pushed by an easterly wind will move from east to west, picking up moisture as it crosses the lake and dropping that moisture in the form of snow on **cities A and B** as it passes over them.

9) Why does a desert have a dramatic change in temperature during the day and at night? Because

A) of the lack of water.
B) of the lack of vegetation.
C) sand is such a poor insulator.
D) of the lack of nitrogen in the soil.

Explanation:
The lack of water in the desert means that no heat can be stored up during the day and released during the night. This causes the day to be unseasonably hot and the night to be unseasonably cold.

10)

Take a look at the weather map. The front seen there causes short periods of storms and heavy rains. What type of front is this?

A) cold front

B) warm front
C) occluded front
D) stationary front

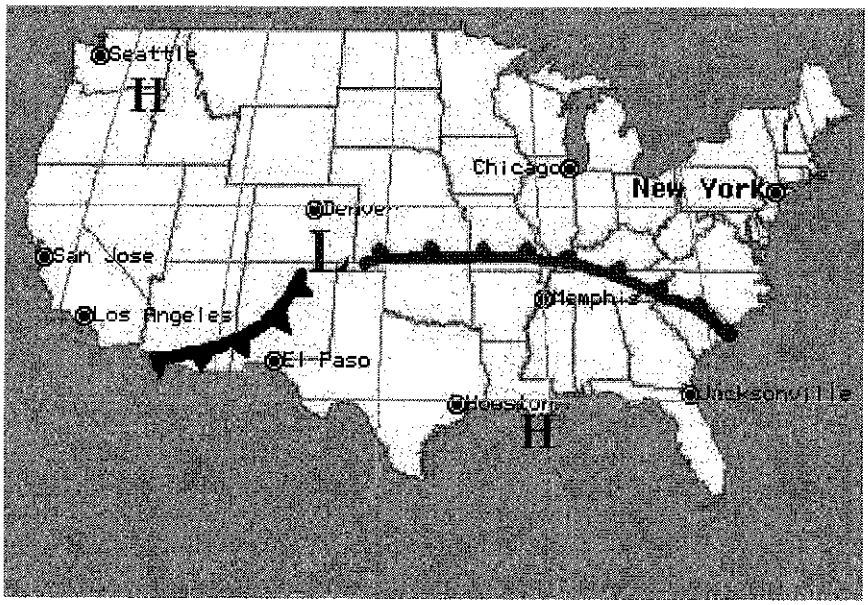
Explanation:
A **cold front** causes short periods of storms and heavy rains by lifting up less dense, warm air. This causes a line of thunderstorms and heavy rains.

11) Air mass thunderstorms occur because of unequal heating of Earth's surface within one air mass. Where would an air mass thunderstorm MOST LIKELY occur?

A) along coastal areas
B) over warm ocean waters
C) over large expanses of flat land
D) in the area of a continental air mass

Explanation:
Air mass thunderstorms most likely occur **along coastal areas.** The water and land warm and cool at different rates.

12)



According to the weather map seen here, we could expect weather conditions in El Paso to include

A) cold temperatures, sunny skies.
B) cold temperatures, cloudy, some precipitation.
C) warm temperatures, sunny skies, and no rain.
D) warm temperatures, increasing clouds, and showers.

Explanation:
As the cold front approaches, we would expect weather in El Paso to be **warm temperatures, increasing clouds, and showers.** Behind the front or west of El Paso, the temperatures would be lower.

13) Typical United States weather patterns show the continental polar air mass moving south toward the Gulf of Mexico. Why does this air mass movement happen?

A) Colder air masses move from north to south.
B) Continental air masses always move in the direct of the nearest body of water.
C) The polar air mass moves south to replace the rising maritime tropical air mass.
D) The continental polar air mass is blocked in by maritime air masses on all sides.

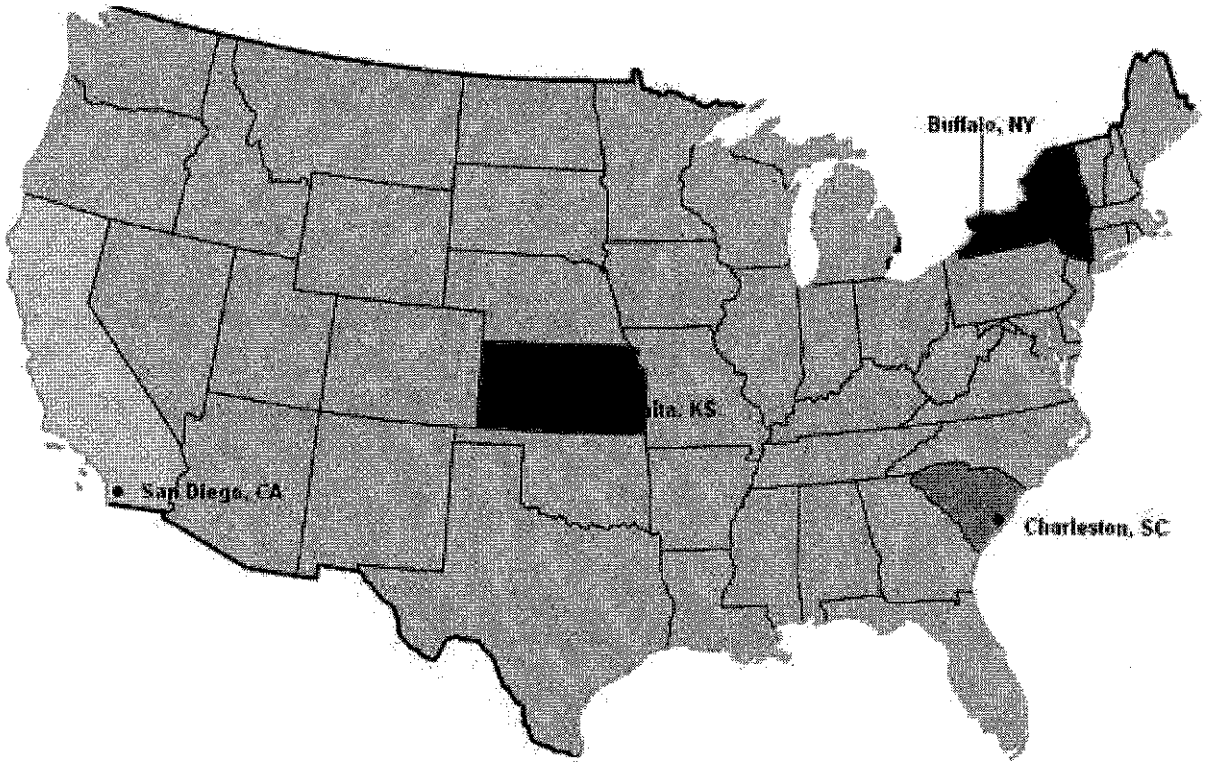
Explanation:
The polar air mass moves south to replace the rising maritime tropical air mass. This is a typical convection current. The warm gulf air mass rises and cold air moves in from across the United States, usually from the continental polar air mass.

14) The _____blow from east to west, in both the southern and northern hemispheres, and move warm tropical air toward the equator.

A) doldrums
B) westerlies
C) trade winds
D) polar easterlies

Explanation:
The **trade winds** blow from east to west, in both the southern and northern hemispheres, and move warm tropical air toward the equator. The east - west movement is caused by the Coriolis Effect.

15)



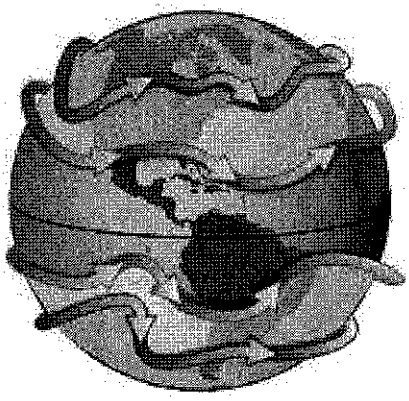
A cold air mass that moves through the United States and reaches New York, Kansas, and even South Carolina is air that came from the

A) polar convection region.
B) arctic convection region.
C) Canadian convection region.
D) temperate convection region.

Explanation:
Frigid air masses moving down from Canada into the United States, even down as far as South Carolina and Georgia, originated in

the **polar convection region.** This is where the polar jet stream originates.

16)

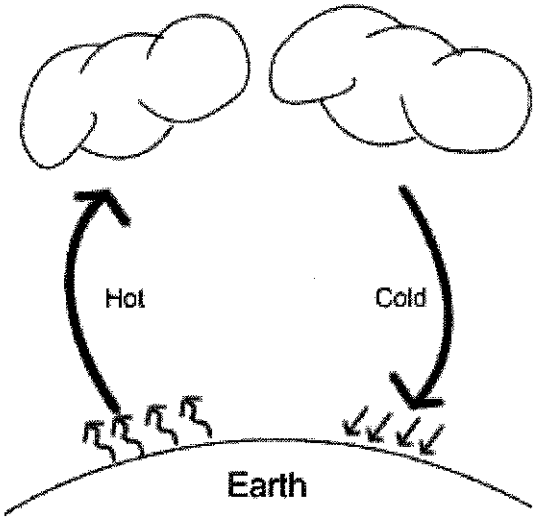


This cold river of air travels from west to east in the northern hemisphere. Last winter, it dipped far south to bring cold air and snow to many southern states. This is the

A) Hadley wind.
B) polar jet stream.
C) Arctic jet stream.
D) tropical jet stream.

Explanation:
The **polar jet stream** dips low over the Northern United States during the winter to bring cold air. In the summer, the jet stream retreats and brings cool air to the Northern United States.

17)



In the northern hemisphere, convection creates _____ large convection cells that produce _____ winds.

A) one; global
B) six; global
C) three; global
D) four; westerly

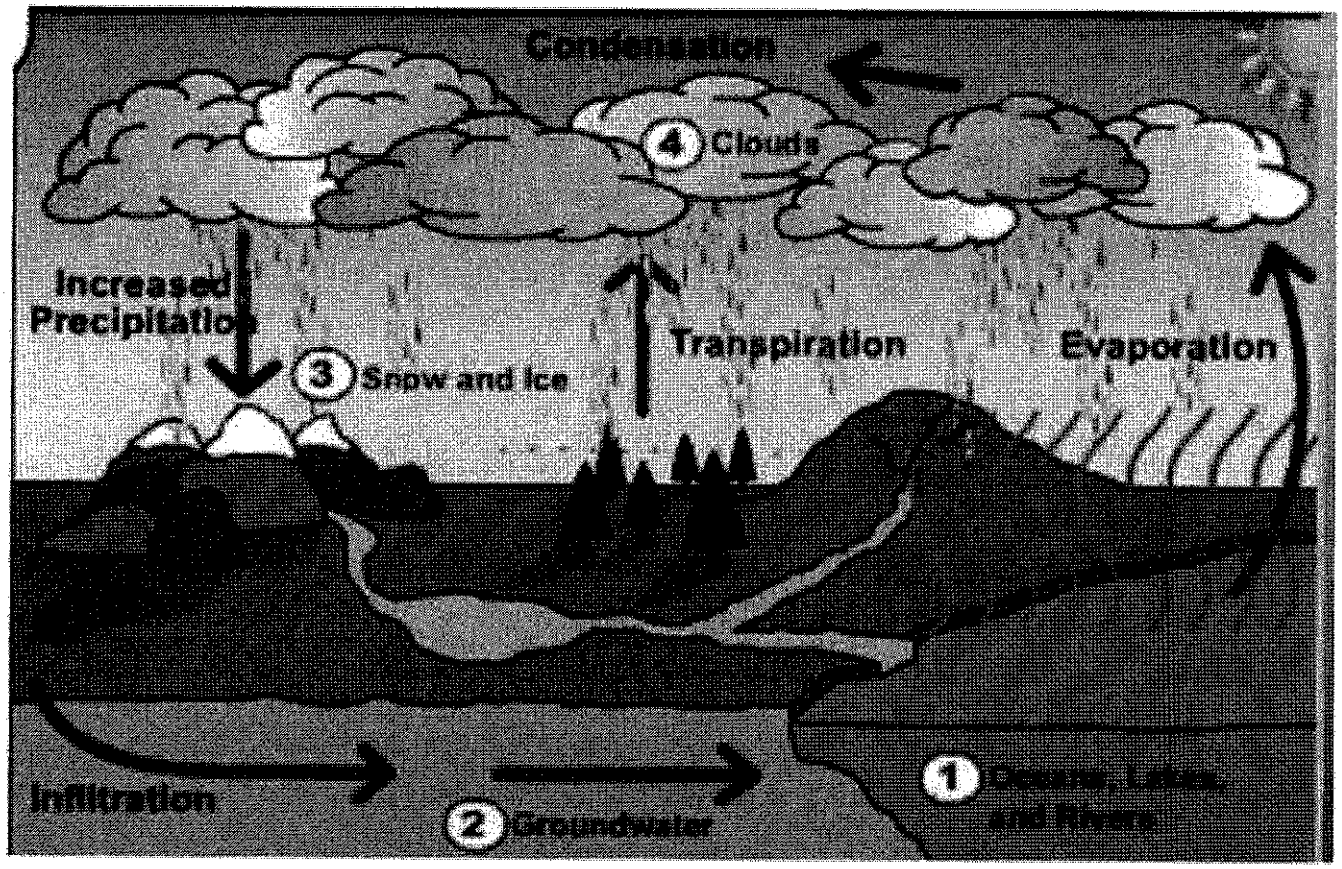
Explanation:
In the northern hemisphere, convection produces **three** large convection cells that produce **global** winds. The three cells are tropical, temperate, and polar. Three large cells are also produced in the southern hemisphere.

18) Weather patterns are caused MAINLY by the

A) rotation of the Earth.
B) uneven heating of the Earth.
C) gravitational pull of the Moon.
D) distance of the Earth's from the Sun.

Explanation:
The **uneven heating of the Earth** causes weather patterns. The Sun's energy fuels weather on Earth.

19)



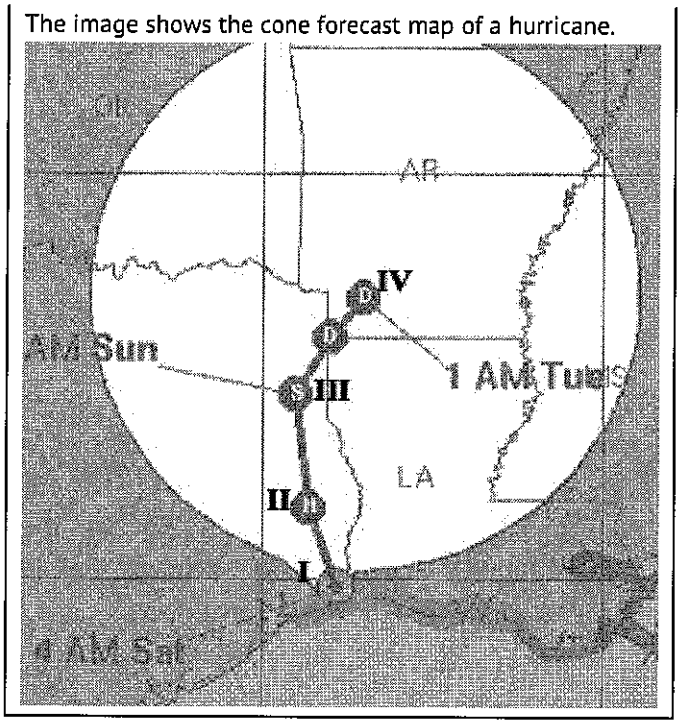
How would global warming change the water cycle and the climate around bodies of water, like oceans and lakes?

A) Warmer temperatures would cause in a drier, hotter climate.
B) Warmer temperatures would cause more precipitation and less run-off.
C) Warmer temperatures would cause more evaporation and more precipitation.
D) Warmer temperatures would cause more evaporation and much less ground water.

Explanation:
Warmer temperatures would cause more evaporation and more precipitation.
Remember, this is an area where there is already a lot of water, near oceans and lakes. In drier areas, the warmer air temperature would cause more water to evaporate and eventually the climate would become hotter and drier.

20)

The image shows the cone forecast map of a hurricane.



Four locations (I, II, III, IV) are labeled on the diagram. At which of the four locations is the hurricane predicted to be LEAST intense?

A) I
B) II
C) III
D) IV

Explanation:
The center position near location **IV** is marked with the predicted intensity "D". This indicates wind speeds less than 39 mph. "D" and "H" indicate higher wind speeds.

21) During the summer months, the sun warms an area of tropical ocean water and a large amount of water evaporates into the air. Which of these weather events will MOST LIKELY will occur?

A) blizzard
B) hurricane
C) tornado
D) tsunami

Explanation:
As the sun warms an area of tropical ocean water, a large amount of water to evaporate into the air and causes the development of a **hurricane.** Hurricanes are intense low pressure areas that form over warm ocean waters in the summer and early fall. Their source of energy is water vapor which is evaporated from the ocean surface.

22) In order for a hurricane or tropical storm to develop, the temperature of the ocean surface must be

A) 20°F.
B) 40°F.
C) 60°F.
D) 80°F.

Explanation:
80°F. is the lowest ocean-surface temperature for hurricanes or tropical storms to develop because these storms are powered by evaporation of ocean water and humidity which increase with temperature.

23) Scientists say that conditions must be "just right" for a hurricane to start up. Which is the first step of "just right" in the development of a hurricane?

A) Cool ocean water replaces warmer surface water.
B) Very warm ocean water evaporates into the atmosphere.
C) Hot dry wind blows from land across the ocean surface.
D) Humid ocean air cools and condenses to form precipitation.

Explanation:
In order for a hurrican to begin, **very warm ocean water evaporates into the atmosphere.** At this stage, the hurrican may only be a tropical depression or tropical disturbance.

24) Why are coastal areas cooler during the day than inland areas?

A) It rains during the day in coastal areas.
B) A cool breeze blows from the sea during the day.
C) Coastal areas experience storms every other day.
D) The sea absorbs the heat of the air over coastal areas.

Explanation:
Land heats up faster than the ocean. It also loses heat faster than the ocean. During the day, the sea is cooler than the land. **A cool breeze blows from the sea during the day.** So coastal areas are cooler during the day than areas that are inland.

25) A storm that gets its energy from humid air at the ocean's surface is called a

A) cyclone.
B) hurricane.
C) thunderstorm.
D) tornado.

Explanation:
Hurricanes get energy from the humid air at the ocean's surface. The more humidity there is, the stronger the resulting hurricane.

26) Which continent never has hurricanes?

A) Asia
B) Europe
C) Antarctica
D) North America

Explanation:
Antarctica never has hurricanes because the oceans are covered in layers of ice that stop the evaporation of water.

27) A storm that gets its energy from warm, humid air at the ocean's surface is called a

A) blizzard.
B) hurricane.
C) thunderstorm.
D) tornado.

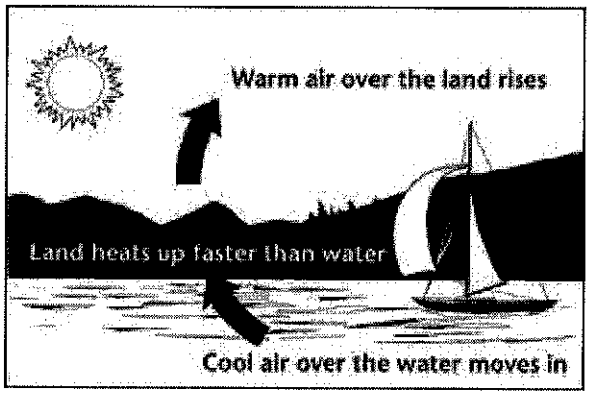
Explanation:
Hurricanes get energy from the humid air at the ocean's surface. The more humidity there is, the stronger the hurricane.

28) The large winds that circle the Earth occur because the equator

A) has less energy than the Sun.
B) is perpendicular to the Sun's rays.
C) is warmer than the north and south poles.
D) is the place where the Earth bulges slightly.

Explanation:
The large winds that circle the Earth occur because the **equator is warmer than the north and south poles.** The high amounts of energy from the Sun around the equator cause larger winds than at either of the Earth's poles.

29)



As shown in the diagram, winds are formed from the sun's uneven heating of the earth's atmosphere. The wind patterns are altered by bodies of water, different landforms, and plant cover. Because of this, the wind is considered a form of

A) solar power.
B) nuclear power.
C) chemical energy.
D) potential energy.

Explanation:
The answer is **solar power** because the sun's energy heats the atmosphere. The winds are formed when the land masses, bodies of water and vegetation cause uneven heating.

30) What causes the wind?

A) The earth's orbit around the sun
B) The earth's rotation on it's axis.
C) The layers of the earth's atmosphere.
D) Uneven heating of the earth's surface by the sun.

Explanation:
The land and water absorb the energy from the sun at different rates. This difference causes the air above the water and land to heat up at different rates as well, causing high pressure and low pressure. Therefore, **the uneven heating of the earth's surface by the sun** causes wind.