

Weather and Atmosphere Study Guide

Energy and Water cycle

1. Know the definition of convection currents.
2. What is the driving force of the water cycle?
3. How does heat energy move? (From _____ to _____)
4. What is the water cycle?
5. Name at least three important processes in the water cycle.

Wind

6. Name all of the global winds and the approximate latitudes they are in (or approximately their location)
7. Which global wind contributes to majority of the weather in the US?
8. What is wind?
9. What is the Coriolis Effect?
10. Name the local winds.
11. Which direction does sea breeze come from?
12. Which local wind happens during the day?

Air masses and Fronts

12. What is an air mass?
13. Do air masses move?
14. What is the source region of an air mass?
15. What is a front?
16. List the four types of fronts we discussed.
17. Draw the symbols for all four fronts
18. Compare and Contrast the weather at each front.

Severe Weather

19. Which type of severe weather is the largest?
20. Which moves the slowest?
21. Which is the most unpredictable?
22. What is "Tornado Alley"?
23. Name the four types of clouds and the weather that they bring.

Weather Forecasting

24. Which layer of the atmosphere does our weather occur in?
25. What does the Coriolis Effect have to do with winds and hurricanes?
26. On a weather map, what do H and L stand for?
27. Will fronts occur near an area of High pressure or an area of low pressure?
28. Which way do winds move: H to L or L to H? Why?
29. What instrument do we use to measure pressure? What are isobars?
30. Close isobars = _____ wind, far apart isobars = _____ wind
31. What happens to Humidity as you decrease/increase temperature? What is relative humidity?
32. What are isotherms?
33. What is the dew point?

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Answer Key

Energy and Water Cycle

1. A consistent flow of ocean water due to unequal transfer of heat.
2. The sun.
3. How does heat energy move? (From _____ to _____)
3. The way our water "recycles" itself; the flow of water through the atmosphere and the earth.
4. Evaporation, condensation, precipitation, runoff, infiltration.

Wind

5. Equatorial Doldrums (Equator), Trade Winds (up to 30* north and south lat.), Westerlies (30*-60* north and south lat) and Polar Easterlies (60* - 90* north and south lat.)
6. The westerlies
7. Movement of air due to unequal heating of the earth.
8. Winds and currents will curve (instead of going straight) due to the rotation of the Earth.
9. Sea breeze and land breeze.
10. From the sea to the land.
11. Sea breeze.

Air masses and Fronts

12. A large body of air that has relatively the same temperature and humidity.
13. Yes, usually slowly.
14. Where an air mass gets its characteristics from .
15. The leading edge of an air mass. It is where two fronts meet.
16. Cold Front, Warm front, stationary front, occluded front.
17. See weather booklets (Cannot draw them on here, but draw them out for students to see)
18. Compare and Contrast the weather at each front.

Severe Weather

19. Hurricane
20. Hurricane
21. Tornado
22. Area in the middle US that experiences many tornadoes.
23. Cirrus - fair weather; Cumulus - fair weather; Cumulonimbus - thunderstorms and rain; stratus - rain and overcast
24. Troposphere
25. Causes the wind to curve, which causes the hurricane to form.
26. High pressure and low pressure systems
27. LOW pressure
28. From High to Low. Recall demonstration/analogy from earlier this year.
29. We use a barometer. Isobars show the approximate air pressure, as well as the pressure gradient.
30. Close isobars = fast wind, far apart isobars = calm wind
31. But as you decrease temperature, actual humidity the air can hold decreases. As you increase temperature, the amount of water vapor (or actual humidity) the air can hold will increase. The Relative Humidity is given as a percent.
32. Shows temperature gradient on a weather map.
33. Dew point: the temperature at which the water vapor in a air condenses into liquid water at the same rate at which it evaporates. At temperatures below the **dew point**, water will leave the air. The condensed water is called **dew** when it forms on a solid surface.