

REVIEW FOR WEATHER AND CLIMATE TEST

1. Describe 3 types of heat transfer. Give an example of each.

2. Would you expect convection in a lake? Why or why not?

3. What part of the world receives the most insolation? (What is the relationship between angle of insolation and latitude?)

4. Why does the air near the equator average higher temperatures than air near the poles? Draw a diagram to illustrate your point.

5. How does the tilt of the Earth cause the seasons?

6. Compare Summer vs. Winter (day length, angle of insolation, tilt toward or away, amount of atmosphere)

7. Why does pressure decrease with increasing altitude?

8. Name/describe the layers of the atmosphere.

9. Explain how the troposphere is warmed.

10. Describe how the troposphere differs from the other layers of the atmosphere.

11. Where is the ozone layer located?

12. Why do certain layers of the atmosphere increase in temperature with an increase in altitude?

13. What is a temperature inversion and why could it be bad for your health?

14. Where in the country would you expect the most variation in temp? Why?

15. Describe the temperature and movement of air that results in high Pressure systems.

16. What part of the Earth experiences consistent high pressure? Consistent low pressure?

17. Winds always blow from _____ to _____.

18. What causes the Coriolis effect? How does it affect Climate?

19. Which is less dense humid air or dry air? Explain.

20. Over which of these would you expect low pressure, moist air to form? Circle the correct terms.

Maritime/ Continental **Polar/ Tropical**

21. What type of air mass is most likely to result in thunderstorms?

22. The upward movement of air in the atmosphere generally causes the temperature of that air to _____.

23. At temperate latitudes, the prevailing westerlies drive surface ocean currents _____.

24. The amount of water vapor the air can hold depends on air temperature. At higher temperatures the air can hold _____ water vapor than it can at cooler temperatures.

25. As air rises, it **expands/compresses** and **warms/cools**. (circle the correct terms)

26. Compare:	Tahoe	Bay Area
Temp		
Pressure		
Water boiling		
Bag of chips		

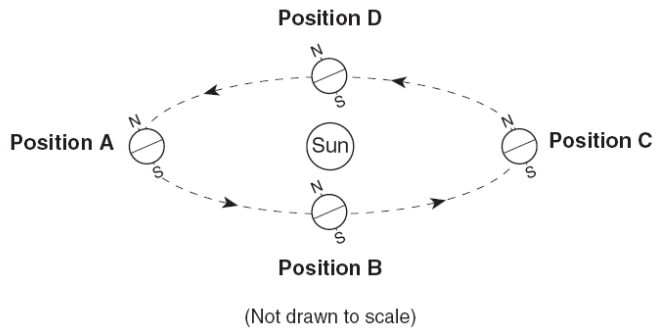
27. Another name for the leeward slope is

28. What causes the wind to blow?

29. Compare the climate in NY and SF. Why are they different?

30. Location C most likely experiences **low/high** pressure and **low/high** precipitation (circle the correct terms) Explain why.

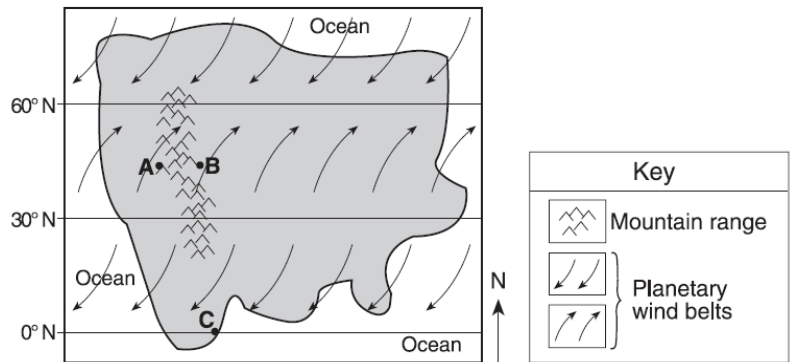
31. The diagram above shows Earth in its orbit around the Sun. Positions A, B, C and D represent Earth at the beginning of each season. Label the first day of spring (vernal equinox), first day of fall (autumnal equinox), the first day of winter (winter solstice), and the first day of summer (summer solstice).



32. Which ocean current transports warm water away from Earth's equatorial region? Use the Map of Surface Ocean Currents to answer this question.

- (a) Brazil Current
- (b) Guinea Current
- (c) Falkland Current
- (d) California Current

Base your answers to the next two questions on the map below, which represents an imaginary continent. Locations A and B are on opposite sides of a mountain range on a planet similar to Earth. Location C is on the planet's equator.



33. Compare the climate at location A to that at location B.

34. Gas laws: Which of the following have direct relationships?

Circle all that apply: volume and temp volume and pressure temperature and pressure

35. A sample of gas occupies a volume of 150 mL at 298 K, what volume will it occupy at 398 K?

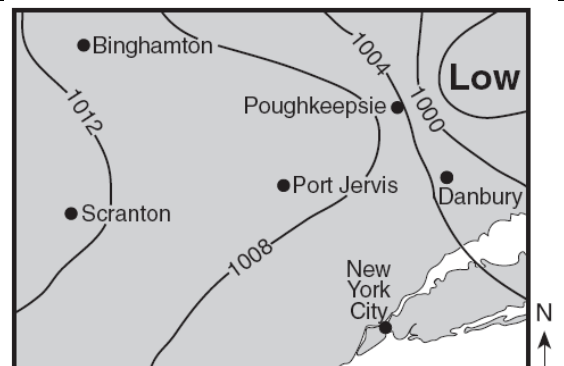
36. A balloon has a volume of 3 L at a temperature of 24°C. Give the volume if the temperature changes to -15°C?

37. The volume of a gas is 1 L when the pressure is 4 atm. Give the volume if the pressure changes to 8 atm?

Base your answers to the next couple questions the weather map below, which shows a low-pressure system located near Poughkeepsie. Isobars shown are measured in millibars.

38. Which city is most likely experiencing winds of the greatest velocity? Why?

39. Surface winds are most likely blowing from what direction?



40. What happens to air/water at the Poles? At the Equator?

41. If Earth's axis were tilted LESS than 23.5°, what would happen to the temperatures in California?

42. Draw a diagram of the surface wind pattern associated with high-pressure and low pressure systems in the Northern Hemisphere? Show how winds blow between the two systems.

High

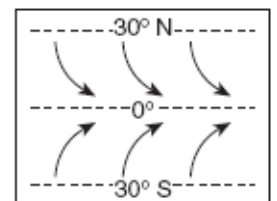
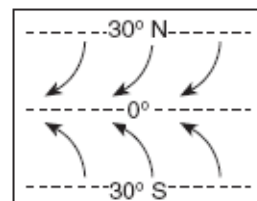
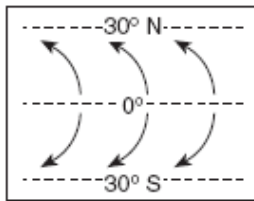
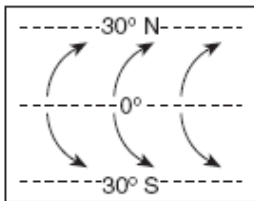
Low

43. Explain why large oceans moderate the climatic temperatures of surrounding coastal land areas.

44. What letters represent air masses that normally form just south of the United States over the Caribbean Sea?

Circle one: mT mP cT cP

45. Which map best shows the surface movement of winds between 30°N and 30°S latitude? Circle the correct one.



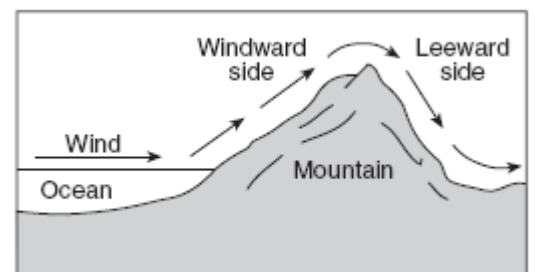
46. What are 3 major factors that cause/influence winds and their direction?

47. What is most important in determining the properties of an air mass?

48. Which type of air mass is associated with warm, dry atmospheric conditions?

Circle one: mT mP cT cP

49. The cross section to the right shows the flow of winds over a mountain ridge. The heaviest rainfall would most likely occur on which side of this mountain and in which type of air mass?



50. What causes ocean currents? What affects their direction?

51. What two variables are shown in a Climatogram?

