

## CHAPTER 24: STRUCTURE OF THE SUN

1) What "fuel" does the sun consume?

**Hydrogen**

2) What happens to the matter that is consumed in nuclear fusion?

**Hydrogen is being converted into Helium**

3) List the layers of the Sun from inside out.

**Core, radiation zone, convective zone, photosphere, chromosphere, corona**

4) **photosphere**: the layer that radiates most of the light we can see

5) **solar flares**: cloudlike structure consisting of gases, sometimes rising explosively from the sun's surface.

6) Explain sun spots. **Dark, cooler spots on the photosphere. Solar flares happen in cycles of highs and lows**

7) Which property of a star can be determined by its color?

**Color indicates the temperature of the star**

8) What is parallax?

**Determine the distance to nearby stars based on their shift**

9) Compare and contrast apparent magnitude and absolute magnitude.

**Apparent- how bright the star appears due to its distance away**

**Absolute- the actual brightness of a star when viewed at the same distance**

10) What type of stars end their lives as a supernova?

**Massive star**

11) More distant galaxies have greater red shifts. What does this indicate about the universe?

**Red shifts indicate the universe is continuing to expand**

12) What is cosmic background radiation?

13) Compare and contrast the different types of telescopes.

**Reflecting telescope- uses mirrors to reflect the image; can be larger than refracting; easier to maintain**

**Refracting telescope- uses a lens instead of a mirror to view an image**

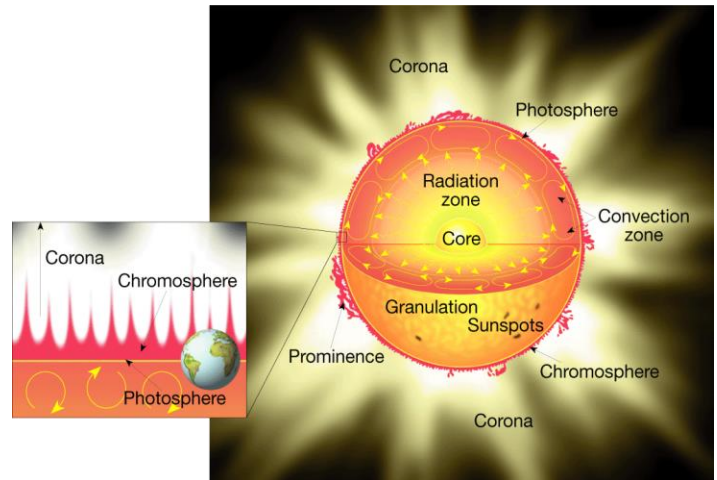
14) Compare and contrast space and earth based telescopes.

**Space telescope- no interference from the atmosphere**

**Earth telescope- can repair easier than in space, less cost**

15) Nuclear fusion within a star does not succeed in blowing the star apart because:

**Gravity is pulling it inwards**





34) The life span of a star depends on:

- a. How much hydrogen it contains
- b. Its mass

- c. Its diameter
- d. Its gravitational force

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## CH. 17: THE ATMOSPHERE

35. What is the most abundant gas in the atmosphere? \_\_\_\_\_ **Nitrogen** \_\_\_\_\_ <Ps. It's not Oxygen>

36. Which of the following terms best describes air?

- Element
- Compound
- Mixture**

37. What is the most important gas for understanding WEATHER??? \_\_\_\_\_ **Water Vapor** \_\_\_\_\_

### Height and Structure of the Atmosphere

38. What is the ozone?

**A gas that protects us from the Sun's radiation located in the stratosphere**

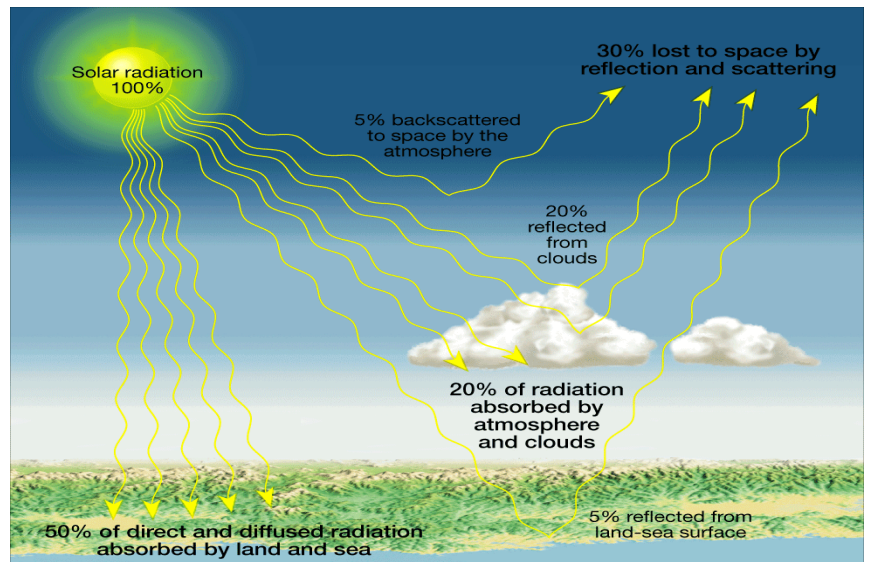
39. If you climb a mountain, what happens to the temperature as you climb?

**Temperature decreases**

40. June 21 is referred to as the \_\_\_\_\_ **summer solstice** \_\_\_\_\_.

41. Days and nights are equal in length everywhere on Earth during \_\_\_\_\_ **spring and fall equinox** \_\_\_\_\_.

42. Fill in the percentages below.



### Temperature Controls

43. Contrast land heating to water heating.

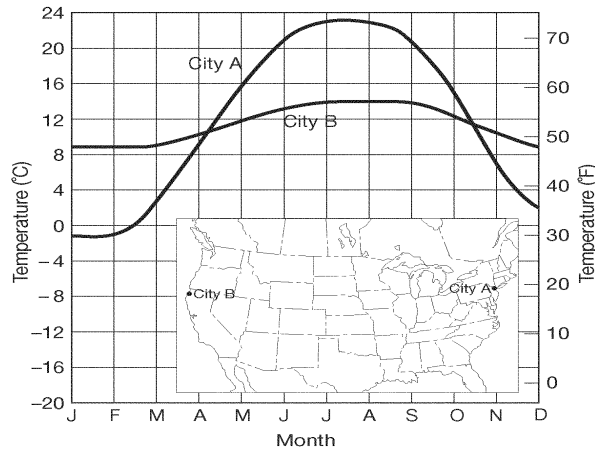
**Land heats up and cools down faster than water.**

44. Contrast temperatures for low and high altitudes.

**High altitudes are colder than lower altitudes**

45. What does cloud cover do to the day and night temperatures?

**Clouds keep temperatures colder during the day but warmer at night**



46. Compare/ Contrast leeward and windward.

Windward- rainy

Leeward- fair weather; warmer

47. Compare/Contrast the two city's temperatures.

City A has more extreme temperatures than city B

48. City B has warmer winters and

colder summers.

### CHAPTER 18: CLOUDS, MOISTURE, AND PRECIPITATION

49. **Condensation** is gas to liquid Energy **Released** or Absorbed?

50. **Evaporation** is liquid to gas Energy Released or **Absorbed**?

51. **Sublimation** is solid to gas Energy Released or **Absorbed**?

52. **Deposition** is gas to liquid Energy **Released** or Absorbed?

53. Fill in the meaning of each root word

Alto: <b>Mid Level Cloud</b>	Stratus: <b>Flat Cloud</b>
Cirro: <b>High level cloud</b>	Cumulus: <b>Puffy Cloud</b>
Nimbo: <b>Cloud with precipitation</b>	Cirrus: <b>Wispy cloud</b>

### CHAPTER 19: AIR PRESSURE AND WIND

Use the following vocabulary and match them with the answer

54. D Air Pressure

55. A Cyclones

56. F Anticyclones

57. G Wind

58. C Barometer

59. B Isobar

60. E Isotherm

A. Name associated with a center of low pressure

B. Line on a map indicating equal air pressure along it

C. Instrument for measuring air pressure

D. Force exerted by air above

E. Line on a map indicating equal temperature along it

F. Name associated with a center of high pressure

G. Variations in air pressure from place to place

### 61. Fill in Blanks: High Pressure vs. Low Pressure

Pressure	High	Low
Weather (Good/Bad)	Good/Fair	Bad/Stormy
Movement of Air (Rising or Sinking)	Sinking	Rising
Official Name (Cyclone/Anti-cyclone)	Anticyclone	Cyclone
Direction of Movement (Draw with arrows)	Clockwise	Counter-clockwise
Air moves Inward (toward the system) or Outward (away from)?	Outward	Inward

### Air Pressure

62. Explain air pressure.

Weight of air above you

63. The ultimate energy source for most wind is the \_\_\_\_\_.

Sun

64. The Coriolis Effect influences Wind Direction or Wind Speed? (circle your answer)

Wind direction

65. What are the lines on this map called?

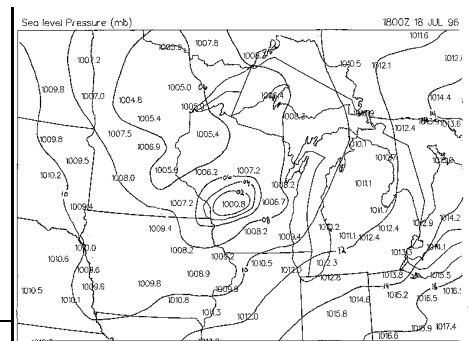
Isobars

66. Lines are closest together in which state?

Wisconsin

67. What do close lines indicate about air pressure?

Fast winds



\*\*You may use one answer more than once or even not at all

68. C High-altitude, high-velocity winds

69. F Steep air pressure gradient causes this

70. D Mountain and valley breezes are example of

71. A Precipitation is associated with this type of system

72. C Fast moving rivers of air that travel West to East in US

73. B This system produces air that sinks

74. A This system rotates counter-clockwise

**A.** Low Pressure System

**B.** High Pressure System

**C.** Jet Streams

**D.** Local Winds

**E.** Stable Winds

**F.** Strong Winds

# CHAPTER 20: WEATHER PATTERNS AND SEVERE STORMS

## Classifying Air Masses

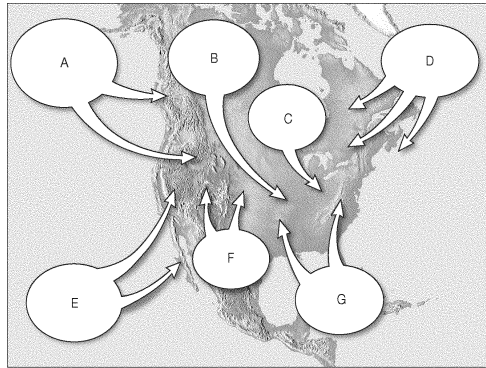


Figure 20-1

75. Define Maritime = Humid

76. Define Continental = Dry

77. Define Polar = Cold

78. Define Tropical = Warm

79. Identify each air mass

B. **cP**

C. **cP**

G. **mT**

80. Weather in North America (east of the Rocky Mountains) is most affected by which two air masses?

**mT and cP**

81. What is the name of a boundary that separates two air masses? Front

82. Fill in the blanks

### **Warm Front**

### **Cold Front**

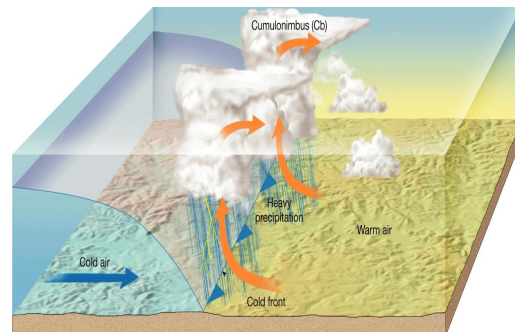
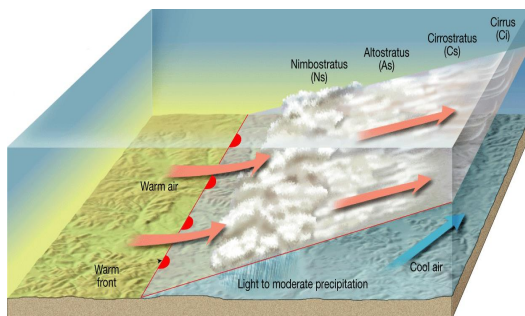
Warm air moves into an area of cooler air

Cold air moves into an area of

warmer air

Shown as a line with half circles

Shown as a line with triangles



83. What are middle-latitude cyclones?

- fast-moving cold fronts
- heavy snowstorms that form on the leeward sides of lakes
- low-pressure systems that cause stormy weather**
- warm air masses that move across the middle of the United States

84. Tornadoes are most frequent from spring and summer, afternoon hours, and by cold fronts.

85. Tornadoes are classified according to intensity using the Fujita Scale.

86. The eye of a hurricane has the \_\_\_\_.

- Highest wind speeds
- Warmest temperatures**
- Most intense rainfall
- Highest air pressure

87. What type of front forms when the surface position of the front does not move?

**Stationary front**

88. What is a hurricane?
- a. **a tropical cyclone**
  - b. a middle-latitude anticyclone
  - c. a middle-latitude cyclone
  - d. a tropical anticyclone
89. A hurricane's energy comes from what?
- Warm oceans**
90. Which of the following is NOT a characteristic of the eye of hurricane?
- a. **has the storm's strongest winds**
  - b. is at the storm's center
  - c. has no precipitation
  - d. is warm because of descending air

#### Ch 4: Earth's Resources

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91. Nonrenewable resources are those that
- a. will never run out.
  - b. take one or two decades to replace.
  - c. **have finite supplies.**
  - d. are contaminated by pollution.
92. Which of the following is a fossil fuel?
- a. Uranium
  - b. **Coal**
  - c. Wood
  - d. Ozone
93. Hydroelectric power produces electricity using
- a. the sun's rays.
  - b. wind.
  - c. **moving water.**
  - d. storms.
94. Which of the following substances is a fuel used in nuclear power plants?
- a. sulfur dioxide
  - b. **uranium**
  - c. petroleum
  - d. carbon dioxide
95. Which one of the substances listed below is a fossil fuel?
- a. Uranium
  - b. **Petroleum**
  - c. carbon dioxide
  - d. granite

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96. Describe nonrenewable energy sources. What is a benefit of this type of energy source?  
**Sources that can be replenished in a short period of time. There is not a concern of depleting their availability. Some of these sources typically don't let of harmful emissions.**

97. List 3 examples of fossil fuels.

**Petroleum, Natural Gas, Coal**

98. Describe the process in forming petroleum and natural gas.

**The remains of plants and animals buried in seas long ago**

99. What substance is necessary to fuel nuclear power plants?

**Uranium**

100. Describe renewable energy sources.

**A source of energy that can be replenished in a short period of time.**

101. Describe the relationship between recycling and resource consumption.

**The more material is recycled, the less amount of a resource will be consumed.**

102. What is a major negative impact of the use of fossil fuels?

They give off harmful gasses into the atmosphere in the form of Co<sub>2</sub>

103. What energy resource is number one in Illinois?

Coal

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## Ch 21 Climate

104. An unnatural warming of the atmosphere near Earth's surface is called

- a. solar wind.
- b. ozone accumulation.
- c. acid precipitation.
- d. global warming.**

105. Which of the following is true?

- a. Climates at high latitudes are very warm.
- b. A nearby lake causes a climate to be colder.
- c. Vegetation can increase the amount of precipitation that falls over an area.**
- d. Places at lower elevations generally have lower temperatures.

106. Humid tropical climates always experience

- e. severe winters.
- f. dry summers.
- g. low humidity.
- h. warm temperatures.**

107. In a dry climate, yearly precipitation is

- i. less than the rate of evaporation.**
- j. greater than the rate of evaporation.
- k. greater in a desert than a steppe.
- l. less than that in a polar climate.

108. The greenhouse effect is best described as

- m. an increase in Earth's surface temperature.
- n. A natural warming effect of the atmosphere.**
- o. a result of global warming.
- p. any short-term change in climate.

109. Recent global warming appears to be the result of

- q. changes in global wind patterns.
- r. a decrease in the greenhouse effect.
- s. increase in greenhouse gases in the air.**
- t. changes in Earth's revolution around the sun.

110. Melting ice caps can result in which of the following?

- u. a rise in sea level**
- v. a fall in sea level
- w. colder temperatures
- x. less precipitation

111. What powers Earth's climate system?

The Earth's climate is powered by the sun. The climate system is a complex exchange of energy and moisture among Earth's atmosphere, biosphere, hydrosphere, and lithosphere.

112. Why can two places at the same latitude have different climates?

Proximity to bodies of water and the amount of vegetation in a given area.

113. What climate data are needed in order to classify a climate using the Köppen climate classification system?

Mean monthly and annual values of temperature and precipitation.

114. Explain the greenhouse effect caused by Earth's atmosphere.

Natural warming of Earth's lower atmosphere and its surface. This is caused by complex reactions between gases and particles in the air. Heat trapping gases absorb solar energy and are heated. These gases then send energy back into space or radiate it towards the Earth to warm it.

115. How have humans contributed to the increase in the levels of carbon dioxide in the atmosphere?

Burning fossil fuels and clearing forests have contributed to increased levels in carbon dioxide in the air.

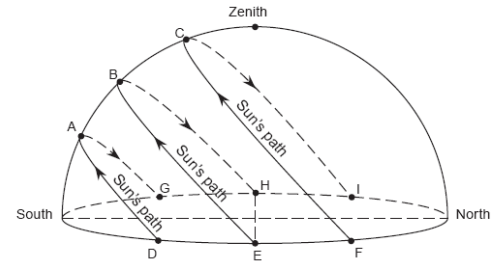
116. What is global warming?

An increase in Earth's average surface temperature over time.

117. How might global warming affect global precipitation?

Warmer surface temperatures will increase evaporation rates, which will put more water vapor into the atmosphere. Water vapor is a powerful absorber of radiation emitted by Earth and will magnify the effect of carbon dioxide and other gases. Temp increase will cause sea ice to melt, causing more solar energy to be absorbed by the surface. This will then magnify the increase in temperatures, causing higher levels of greenhouse gases.

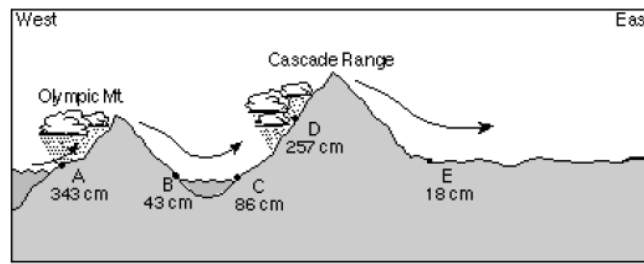
The diagram below represents a plastic hemisphere upon which lines have been drawn to show the apparent paths of the Sun at a location in Kentucky on the first day of each season. Letters A through I represent points on the paths.



118. Which point represents the sunrise location on the first day of winter?

A

The diagram below shows the average yearly precipitation, in centimeters, at locations A through E across the State of Washington. Arrows indicate the direction of prevailing winds.



(Not drawn to scale)

119. Which statement best explains why location B and location E receive relatively low average yearly precipitation?

**y. These locations are on the leeward side of mountain ranges.**

- z. These locations are on the windward side of mountain ranges.
- aa. These locations receive more sun than the other locations.
- bb. These locations receive less sun than the other locations.

Base your answers to questions 29 and 30 on the graph below, which shows the average monthly temperature of two cities, A and B.

120. The temperature in city B is highest in January and lowest in July because city B is located

- cc. on the side of a mountain
- dd. on an island
- ee. in the Southern Hemisphere**
- ff. at the North Pole

