Name_____ Class _____ Date _____

Skills Worksheet

Directed Reading

Section: Air Masses

Use the terms from the following list to complete the sentences below. Each term may be used only once.

high pressure	poles	low pressure
equator	wind patterns	air pressure

1. Differences in_____ are caused by unequal heating of Earth's surface.
2. The region along the_____ receives more solar energy than the polar regions do.
3. Heated equatorial air rises and creates a belt of_____.
4. Cold air near the poles sinks and creates a belt of_____.
5. Differences in air pressure at various locations on Earth create_____.

HOW AIR MOVES

_____ 6. Air moves from
   a. east to west.
   b. west to east.
   c. areas of high pressure to areas of low pressure.
   d. areas of low pressure to areas of high pressure.

_____ 7. There is a general world-wide movement of air from the
   a. equator toward the poles.
   c. Northern Hemisphere to the Southern Hemisphere.
   d. Southern Hemisphere to the Northern Hemisphere.

FORMATION OF AIR MASSES

8. What happens to air when the air pressure differences are small?

_____

_____

_____

Name_____ Class _____ Date _____

Directed Reading *continued*

9. What is an air mass?

_____

_____

_____

10. What are the characteristics of air masses that form over polar areas?

_____

11. What are the characteristics of air masses that form over tropical oceans?

_____

TYPES OF AIR MASSES

_____ 12. Air masses are categorized according to their
   a. destination region.
   b. source region.
   c. polar region.
   d. tropical region.

_____ 13. Cold air masses come from
   a. polar areas.
   b. tropical areas.
   c. equatorial areas.
   d. temperate areas.

_____ 14. Warm air masses come from
   a. arctic areas.
   b. temperate areas.
   c. tropical areas.
   d. polar areas.

_____ 15. What are air masses that form over the ocean called?
   a. oceanic
   b. maritime
   c. continental
   d. dry

_____ 16. Air masses that form over land are called
   a. wet.
   b. maritime.
   c. grounded.
   d. continental.

17. Name three large land masses over which continental air masses form.

18 What weather conditions do continental land masses generally bring when they move into a region?

19. Name and describe the two types of continental air masses.

20. How do air masses that form over the ocean differ from continental air masses?

21. What weather conditions do maritime air masses generally bring when they travel to a new location?

22. Name and describe the two types of maritime air masses.

NORTH AMERICAN AIR MASSES

23. List the four types of air masses that affect the weather of North America with their six source regions.

24. What type of weather does an air mass usually bring?

25. What may happen to an air mass as it moves away from its source region? Give an example.

26. What develops when cold, dry air turns warm and moist?

27. Describe the weather created by maritime tropical air masses that form over the tropical Atlantic Ocean.

Name_____ Class _____ Date _____

Directed Reading *continued*

28. How does the weather created by maritime tropical air masses that form over the tropical Pacific Ocean differ from that created by air masses that form over the tropical Atlantic?

29. Explain where continental polar air masses generally originate and move and the type of weather they bring.

30. Describe maritime polar air masses that form over the North Pacific Ocean and the type of weather they create.

31. How do continental polar Canadian air masses differ from the polar air masses that form over the North Pacific Ocean?

32. How do maritime polar Atlantic air masses differ in movement and weather creation from the maritime Pacific air masses?

Name_____ Class _____ Date _____

Skills Worksheet

Directed Reading

Section: Fronts

_____ 1. When two unlike air masses meet, what usually keeps them separate?
a. temperature differences
b. moisture differences
c. differences in density
d. differences in pressure

_____ 2. The boundary that forms between two air masses when they meet is called a
a. front.
b. storm line.
c. squall line.
d. midlatitude.

TYPES OF FRONTS

In the space provided, write the letter of the definition that best matches the term or phrase

_____ 3. cold front

_____ 4. warm front

_____ 5. stationary front

_____ 6. occluded front

a. a front of air masses that moves either very slowly or not at all
b. the front edge of a moving mass of cold air that pushes beneath a warmer air mass like a wedge
c. the front edge of an advancing warm air mass that replaces colder air with warmer air
d. a front that forms when a cold air mass overtakes a warm air mass and lifts the warm air mass off the ground and over another air

7. Describe the storms that form along a cold front.

8. How does a slow-moving cold front differ from a fast-moving cold front?

9. How does a warm front form?

10. What kind of weather does a warm front generally produce?

11. Describe how a stationary front forms.

12. Compare the weather produced by a stationary front to the weather produced by a warm front.

POLAR FRONTS AND MIDLATITUDE CYCLONES

Use the terms from the following list to complete the sentences below. Each term may be used only once. Some terms may not be used.

midlatitude cyclone	warm front	anticyclone
waves	polar front	wave cyclones

13. The boundary where cold polar air meets the tropical air mass of the middle latitudes, especially over the ocean, is called the_____.

14. Bends that form in a stationary or cold fronts that are the beginnings of low-pressure storm centers are called_____.

15. Also known as midlatitude cyclones, _____are low-pressure storm centers.

16. An area of low pressure that is characterized by rotating wind that moves toward the rising air of the central low-pressure region is called a_____.

17. Unlike the air in a midlatitude cyclone, the air of a(n)_____sinks and flows outward from a center of high pressure.

18. Summarize the four stages of a midlatitude cyclone.

19. Describe how midlatitude cyclones travel and move in North America.

20. Describe an anticyclone.

21. What kind of weather does an anticyclone bring?

Name _____ Class _____ Date _____

Directed Reading *continued*

SEVERE WEATHER

22. List five weather events that are considered severe weather.

_____

_____

_____

_____

_____

In the space provided, write the letter of the description that best matches the term or phrase.

_____ 23. thunderstorm

_____ 24. lightning

_____ 25. mature stage

_____ 26. dissipating stage

_____ 27. cumulus stage

_____ 28. thunder

a. the first stage of a thunderstorm, in which warm moist air rises and water vapor in the air condenses to form a cumulus cloud

b. electricity that is discharged during a thunderstorm

c. an effect created when electricity heats the air, and the air expands rapidly

d. a usually brief, heavy storm that consists of rain, strong winds, lightning, and thunder e. the third stage of a thunderstorm, in which strong downdrafts stop air currents from rising and the storm dies out as water vapor decreases

f. the second stage of a thunderstorm, in which condensation continues as the cloud rises and becomes a dark cumulonimbus cloud, perhaps producing torrential rain and hail

29. Describe how lightning forms and explain what it is.

_____

_____

_____

_____

_____

Name _____ Class _____ Date _____

Directed Reading continued

Use the terms from the list below to complete the sentences that follow. Each term may be used only once. Some terms may not be used.

Safir-Simpson scale tornado storm surge
cumulonimbus cloud bands eyewall eye
water vapor hurricane latent heat

30. A severe storm that develops over tropical oceans and whose winds of more than 120 km/h spiral in toward the intensely low-pressure storm center is called a(n)._____

31. During a hurricane, large amounts of_____are released, increasing the force of the rising air.

32. A fully developed hurricane consists of a series of thick that spiral upward around the center of the storm.

33. Winds increase toward the calm, clear_____of the storm and may reach speeds of 275 km/h.

34. The most dangerous aspect of a hurricane is a rising sea level and large waves, called a_____.

35. Every hurricane is categorized on the_____by using several factors, including central pressure, wind speed, and storm surge.

36. Define tornado.

_____

_____

_____

_____

37. Explain how a tornado forms.

_____

_____

_____

_____

_____

Name_____ Class _____ Date _____

Directed Reading *continued*

39. When and where do most tornadoes occur?

_____

_____

_____

40. What makes a tornado so destructive?

_____

_____

_____