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Vocabulary Words

cirrus (sir' əs): white wispy or feathery clouds made of ice crystals high in the troposphere

cumulus (kyü' myə ləs): puffy, white clouds that look like heaps of cotton

fog: a type of stratus cloud that forms just above the ground

nimbus (nim' bəs): any type of rain cloud

stratus (strā' təs): gray clouds occurring in low, broad layers

△ Pronounce these words to someone.

Clouds are made of billions or trillions of tiny water droplets. In fact, if ten thousand droplets were placed side by side, they would cover only an inch. Yet even these small drops give the clouds density and shape.

When air is cooled below its dew point, water vapor condenses to form water droplets. These water droplets gather together and form the fleecy, feathery, or foggy clouds you see trailing across the sky. Clouds come in all sizes and shapes. They are constantly changing shapes because of air movement. No two clouds are exactly the same, yet there are certain similarities that help us identify certain cloud groups. There are three basic types of clouds—**cumulus**, **cirrus**, and **stratus**.

Cumulus

Cumulus clouds are easy to identify. *Cumulus* means “heaps,” and these clouds look like a pile of cotton or a mound of soapsuds. The bottom of cumulus clouds are usually flat.



Cumulus clouds are puffy and white.

These clouds form on vertically rising air masses. As air rises vertically, it expands and cools. If it cools enough, it will reach the dew point and the moisture in the air will condense and form clouds. The flat bottoms of the cumulus clouds indicate the height at which the rising air reaches the dew point.

Fair-weather cumulus clouds travel about a mile above the earth and have little height.

When cumulus clouds become dark rain clouds, they are called *cumulonimbus* clouds. Any type of rain cloud is called a **nimbus** cloud. Cumulonimbus clouds sometimes tower seven to ten miles up into the sky. Whenever you see tall dark cumulonimbus clouds, you can expect a thunderstorm.

Cirrus

Cirrus clouds are made of ice crystals because they form in the freezing temperatures of the upper atmosphere. *Cirrus* means “curl,” and these clouds are sometimes called “mares’ tails” because



Cirrus clouds form long streamers across the sky.

Lesson 7

of the streamers that the troposphere's strong winds create. Other times they spread across the sky like feathers or wisps of gauze.

Stratus

Stratus clouds are usually lower than cumulus and cirrus clouds. They look like broad layers or sheets of gray cotton. *Stratus* means "spread," and that is just what they do. Often they cover the whole sky with one great gray mass. These clouds form when one air mass is slowly lifted above another air mass. When stratus clouds form, air movement is mainly horizontal.

Stratus clouds sometimes become heavy and dark and bring long periods of rain or snow. When stratus clouds bring precipitation, they are called *nimbostratus* clouds.

Fog is a kind of stratus cloud that sometimes forms on the ground, wrapping everything in an eerie, damp blanket.



Fog is a stratus cloud that forms on the ground.

Study Exercises

 **Circle the letter of the answer.**

1. Why do cumulus clouds often have flat bottoms?
 - a. the bottom of the cloud is where the air reaches its dew point
 - b. the air is too cold to allow droplets to form below the cloud
 - c. rising air currents keep the droplets from raining down
 - d. none of the above
2. What is a cloud that brings rain called?
 - a. cirrus
 - b. stratus
 - c. nimbus
 - d. cumulus
3. What makes cirrus clouds different from other cloud types?
 - a. they spread across the sky like wisps of gauze
 - b. they form in the high troposphere
 - c. they are made up of ice crystals
 - d. all of the above

 **Match each cloud type with its description.**

4. ____ look like heaps of cotton
5. ____ look like feathers or gauze
6. ____ look like a layer of gray cotton

- a. cirrus
b. cumulus
c. stratus

 **Complete the statements.**

7. Clouds are made of billions of tiny _____.
8. The word _____ means “heaps.”
9. Tall dark cumulonimbus clouds usually bring _____.
10. “Mares’ tails” is another name for _____ clouds.
11. A type of stratus cloud that forms on the ground is _____.

 **Answer the questions.**

12. Why are clouds always changing their shape? _____
13. How are fair-weather cumulus clouds different from cumulonimbus clouds? _____

14. How are stratus clouds formed? _____

 **Number the steps in the order that clouds form.**

15. a. ____ water vapor condenses
- b. ____ water drops gather together
- c. ____ air is cooled below dew point
- d. ____ clouds form

Looking Back

 **Match the symbols and their descriptions.**

16. ____ cold, dry
17. ____ cold, moist
18. ____ warm, dry
19. ____ warm, moist

- a. cP
b. mT
c. mP
d. cT

Lesson 7



Write *true* if the statement is *true* and *false* if it is *false*. Correct any false statements.

20. _____ *Polar* air masses are warm.
21. _____ Maritime air masses tend to be *dry*.
22. _____ *Maritime* air masses form over water.
23. _____ Continental air masses form over *land*.
24. _____ The word *polar* means “of or near the sea.”
25. _____ Air masses are classified by temperature and *pressure*.



Circle the letter of the answer.

26. What is an air mass?
 - a. warm moist air from the poles
 - b. a large body of water covering a certain area
 - c. a large body of air with various types of weather
 - d. a large body of air with the same weather conditions
27. What gives an air mass its characteristics?
 - a. its size
 - b. wind currents
 - c. the region it forms over
 - d. the amount of air pressure it contains

Did You Know?

- ▶ Most cirrus clouds are found above twenty thousand feet.
- ▶ Clouds can float in the atmosphere because moist air is less dense than dry air.
- ▶ Cirrus clouds have been found in the atmospheres of the planets Mars, Jupiter, Saturn, Uranus, and possibly Neptune.
- ▶ An average-sized cumulus cloud weighs around 1.1 million pounds. That is about the same as one hundred elephants.
- ▶ The line-shaped clouds left behind jet planes, called “contrails,” are made of ice crystals, just like cirrus clouds. They form when water vapor freezes around smoke particles from the plane’s exhaust.