

LESSON

How do clouds form?

22

You cannot see water vapor. But you can change water vapor into liquid water which you can see.

This is how to do it: Pour some water into a pitcher. Add ice. Let it stand. Soon the pitcher is covered with a thin layer of water. You can see this in Figure B on the facing page.

The water on the outside of the pitcher comes from the air. The cold pitcher cools the air around the pitcher. Now the air can hold less water vapor. In fact, it has more water vapor than it can hold.

The extra water vapor comes out of the air. It changes to liquid water and settles on the pitcher.

The change from a gas to a liquid is called **condensation** [kahn-dun-SAY-shun].

The temperature at which condensation takes place is called the **dew point**.

Now let us use these facts to learn how clouds are formed.

A cloud starts out as moist air. Moist air is lighter than dry air. It rises into the sky.

As the air rises, it cools. When it cools enough, it reaches its dew point. Some of the water vapor in the air condenses. It changes to tiny droplets of water. The water droplets and ice form around dust and other small particles in the air.

These droplets are very light. They are so light that air currents keep them from falling to earth.

As more humid air rises, more water vapor condenses. Little by little, billions and billions of droplets build up. These countless numbers of droplets form what we call a cloud.

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As more humid air rises, more water vapor condenses. Little by little, billions and billions of droplets build up. These countless numbers of droplets form what we call a cloud.

UNDERSTANDING CONDENSATION

Study Figures A and B. Then choose the correct term for each statement. Write your answers in the spaces provided.

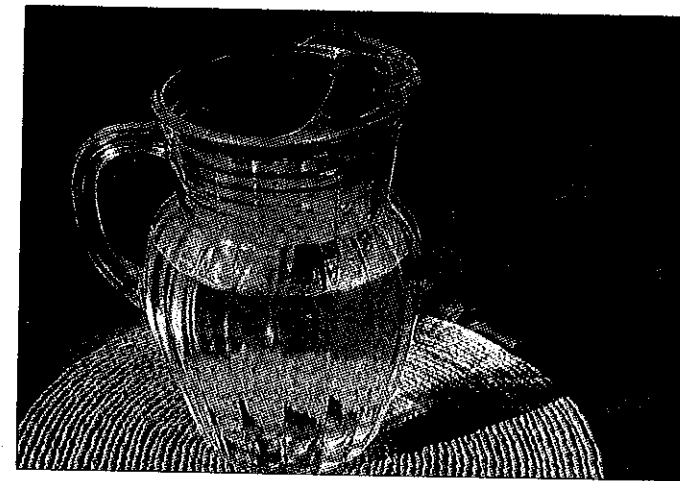


Figure A

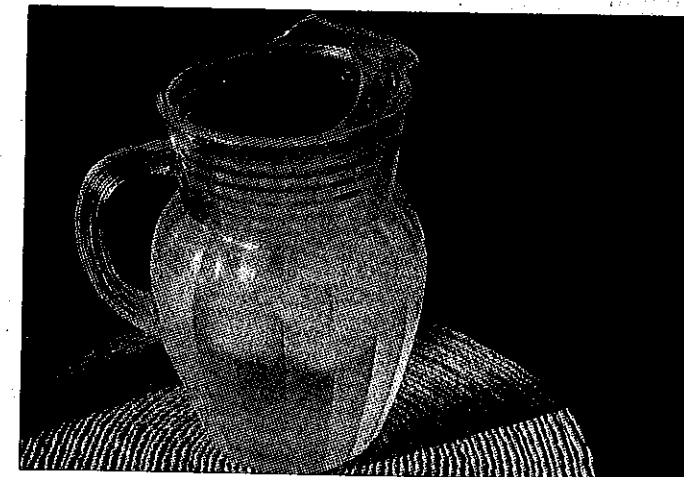


Figure B

- The pitcher in Figure B is _____ than the air.
warmer, cooler
- The pitcher in Figure B _____ the air close to it.
cools, warms
- The air next to pitcher B now can hold _____ water vapor.
more, less
- Some water vapor in the air touching this pitcher has _____.
evaporated, condensed
- Condensation changes _____.
a liquid to a gas, a gas to a liquid
- What do we call the temperature at which condensation takes place?

TRACING THE MAKING OF A CLOUD

Match the letters in the diagram with the descriptions. Write the proper letters on the blank lines. Some of these letters may be used more than once.

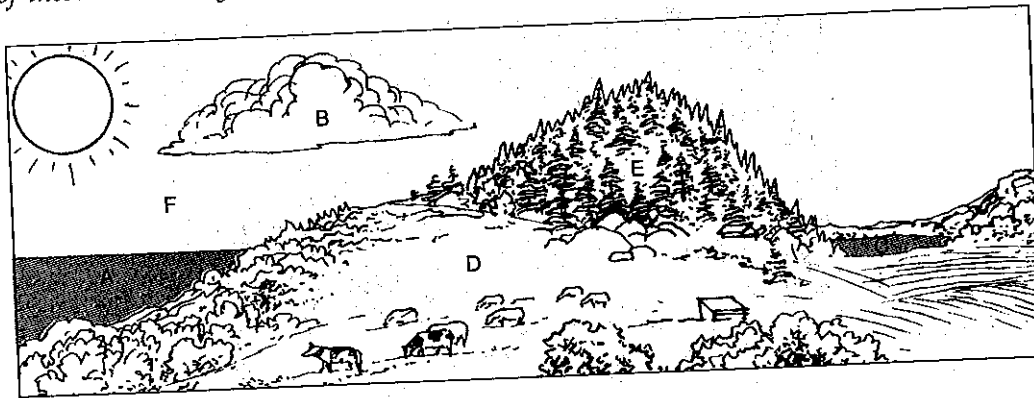


Figure C

1. Water evaporated from _____, _____, _____, and _____.
2. The air is cooling at _____.
3. Condensation has happened at _____.
4. Water is changing to a gas at _____, _____, _____, and _____.
5. Water vapor is changing to liquid water at _____.

MATCHING

Match each term in Column A with its description in Column B. Write the correct letter in the space provided.

Column A

- _____ 1. evaporation
- _____ 2. condensation
- _____ 3. dew point
- _____ 4. air currents
- _____ 5. cloud

Column B

- a) the temperature at which a gas changes to a liquid
- b) keep droplets from falling
- c) the change from a liquid to a gas
- d) made up of billions of water droplets
- e) the change from a gas to a liquid

TRACING THE MAKING OF A CLOUD

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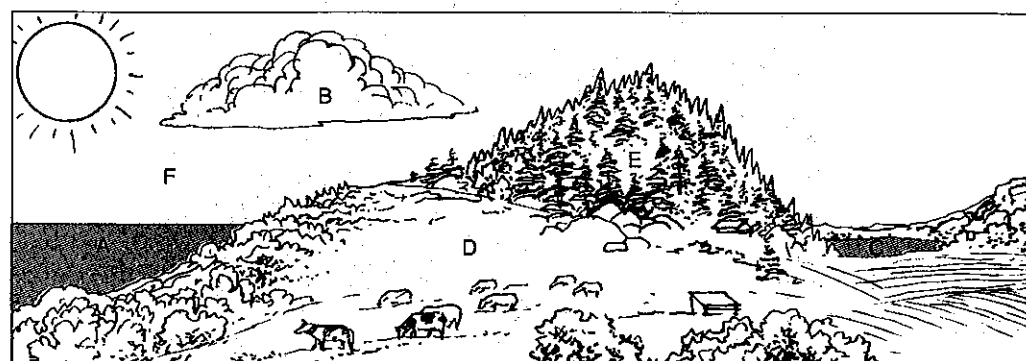


Figure C

1. Water evaporated from _____, _____, _____, and _____.
2. The air is cooling at _____.
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4. Water is changing to a gas at _____, _____, _____, and _____.
5. Water vapor is changing to liquid water at _____.

MATCHING

Match each term in Column A with its description in Column B. Write the correct letter in the space provided.

Column A	Column B
_____ 1. evaporation	a) the temperature at which a gas changes to a liquid
_____ 2. condensation	b) keep droplets from falling
_____ 3. dew point	c) the change from a liquid to a gas
_____ 4. air currents	d) made up of billions of water droplets
_____ 5. cloud	e) the change from a gas to a liquid

FILL IN THE BLANK

Complete each statement using a term or terms from the list below. Write your answers in the spaces provided.

saturated
evaporation
dew point
droplet

cloud
condensation
water vapor

more
liquid water
invisible

1. Water in the gas form is called _____.
2. The change from liquid water to water vapor is called _____.
3. Water vapor is _____.
4. Warm air can hold _____ water vapor than cool air can.
5. Air that holds all the water vapor that it can is said to be _____.
6. When saturated air cools, extra water vapor changes to _____.
7. The change from water vapor to liquid water is called _____.
8. The temperature at which condensation takes place is called the _____.
9. A very tiny drop is called a _____.
10. Many, many billions of droplets make up a _____.

TRUE OR FALSE

In the space provided, write "true" if the sentence is true. Write "false" if the sentence is false.

- _____ 1. You can always see water.
- _____ 2. Water vapor is invisible.
- _____ 3. Water vapor is a gas.
- _____ 4. Evaporation is the change from a gas to a liquid.
- _____ 5. Saturated air cannot hold any more water vapor.
- _____ 6. Cold air can hold less water vapor than warm air.
- _____ 7. Evaporation happens at the dew point.
- _____ 8. When warm air rises, it cools off.
- _____ 9. Condensation happens when air cools.
- _____ 10. A cloud is made up of water vapor.

REACHING OUT

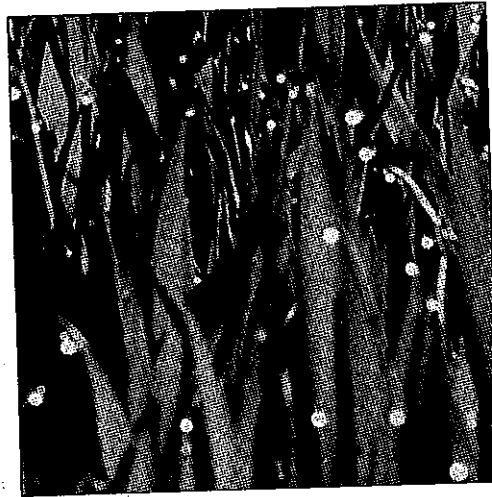


Figure D

Everyone has seen dew. We see it on the morning grass. We have seen it cover automobiles. The sentences below tell how dew is formed. But the sentences are not in the proper order. Rewrite these sentences in proper order on the blank lines below.

1. After the sun goes down, the air and earth cool off.
2. Some water vapor condenses. It changes to drops of dew.
3. During the daytime, the sun evaporates water.
4. The air reaches its dew point.
5. The air becomes moist.
