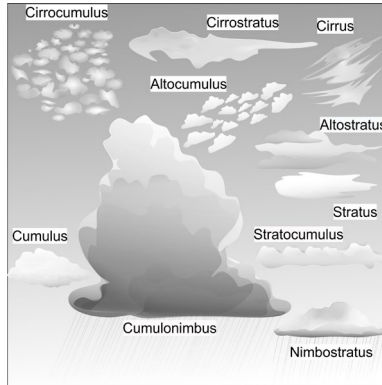


Name \_\_\_\_\_

# Clouds



**In the spaces, below, in the 1<sup>st</sup> Column, write what you already KNOW about clouds. In the 2<sup>nd</sup> column, write what you WANT to learn about clouds. The last column will be completed at the end of the lesson (what you've learned).**

**K**

**W**

**L**

# Clouds



Discuss what you already know about how clouds form.

## Cloud Formation and Classification

Clouds form when water vapor in the air condenses. Moist air cools and sticks to solid matter, such as dust or salt particulates, forming water droplets or ice crystals (if very cold).



Clouds form when the air in the atmosphere reaches its dew point.



The temperature at which the air can no longer hold water is called: (bubble in answer)

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| <input type="radio"/> water vapor   | <input type="radio"/> humidity stop |
| <input type="radio"/> melting point | <input type="radio"/> dew point     |

Clouds can be an indicator of weather to come.



Clouds are classified by their height and appearance.

The prefixes and suffixes of cloud types can help you to identify the altitude of the cloud and the weather associated with it.

- cirro- : high
- alto- : middle
- strato- : layer (associated with low-level clouds)
- nimbo- and -nimbus: produce precipitation



Draw an arrow to match each prefix with the appropriate meaning.

- |         |                        |
|---------|------------------------|
| cirro-  | layer                  |
| alto-   | high                   |
| strato- | produces precipitation |
| nimbo-  | middle                 |

# Clouds

**Cirrus  
(thin and wispy)**

- located **very high** in the sky, greater than 6,000 m.
- come in a variety of shapes and sizes and **usually occur in fair weather**
- mainly indicates a **change in weather is coming soon**, usually within 24 hours, and can be a precursor to thunderstorms
- most common form of high-level clouds
- originate from the freezing of water droplets and are made of ice crystals



Cirrus clouds are made of:  
(bubble in answer)

- |                                      |                            |
|--------------------------------------|----------------------------|
| <input type="radio"/> dust particles | <input type="radio"/> snow |
| <input type="radio"/> ice crystals   | <input type="radio"/> rain |

**Stratus  
(low gray clouds)**



- low, flat, and cover a **large portion of the sky** - because of this, they are harder to recognize as clouds
- gray clouds that can sometimes be **precipitation-free** or can produce a **drizzle or light rain**
- similar to fog except that they do not reach the ground
- do not always remain stratus clouds - possible for them to change and become cumulus clouds
- can bring snow if it is cold

**Fog  
(cloud on the ground)**

- essentially **stratus on the ground**
- occurs when tiny **droplets of water are suspended in the air**
- common near bodies of water and in valleys



Circle the correct answer.

Fog only occurs near bodies of water and in valleys.

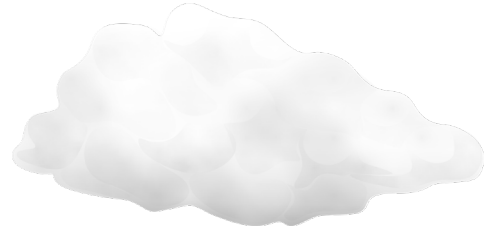
True

False

# Clouds

## Cumulus (white, puffy clouds)

- usually means good weather
- look like cotton candy
- flat at the bottom and at the top, have rounded towers
- low to mid-level clouds, usually located less than 2,000 m. in altitude
- may appear alone, in lines, or in clusters
- often called **fair weather clouds**
- can grow upward and develop into **large cumulonimbus clouds** that produce thunderstorms if the air is really unstable



Circle all that apply.

Cumulus clouds

are fair weather clouds

can grow upward to cumulonimbus clouds

look like cotton candy

are high-level clouds

## Cumulonimbus (thunderstorm clouds)



- also known as **thunderheads**
- associated with instability in the atmosphere that produce thunderstorms
- one end could be shaped like an anvil
- progress from cumulus clouds
- **largest type of cloud**
- span all the way from low-level to high-level
- can bring **heavy rain, hail, and even tornadoes**

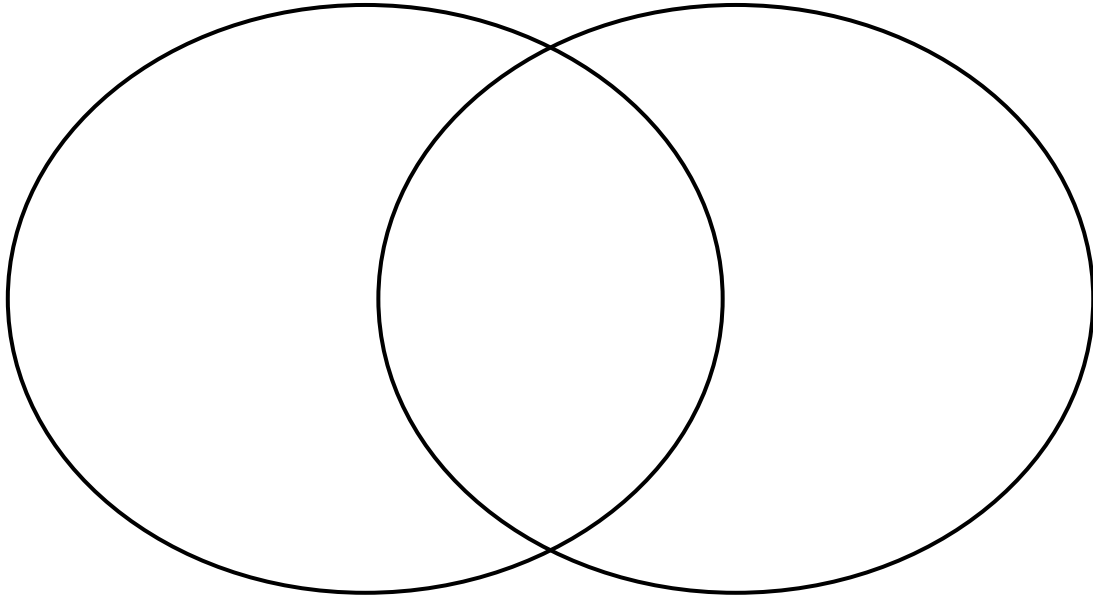
# Clouds



In the diagram below, compare cumulus and cumulonimbus clouds.

cumulus

cumulonimbus



**Alto cumulus**  
(white, gray  
puffy masses)

- puffy cloud fragments that usually are **associated with changing weather**
- considered to be a **warning cloud**, meaning they are associated with potential rain or thunderstorm formation
- see these clouds on a summer morning; can predict that there is a high chance for an afternoon thunderstorm
- usually white with gray shading



**Cirrocumulus**  
(small, white  
masses)



- **high in the sky** and consist of small white masses that are found in groups
- made of a tiny amount of **liquid water droplets**
- generally occur at higher altitudes than alto cumulus clouds
- do not produce rain but can be a **sign that rain is approaching soon**
- usually seen in winter in fair weather
- tropical areas: could indicate an approaching hurricane

# Clouds



Circle the correct answer.

**Cirrocumulus clouds can be a predictor that rain could be approaching soon.**

**True**

**False**

**Stratocumulus  
(large, dark rounded masses)**

- rain usually does not come from these; however, nimbostratus clouds are formed from them (produce rain)
- may see **light drizzle**
- form in rows, and you can see the sky in between them
- view of sky expands, and weather improves
- **low clouds** and are a combination of stratus and cumulus clouds



**Cirrocumulus  
(very thin, made of ice crystals)**

- often covers the entire sky
- **smooth sheets** of ice crystal
- if spread over the sky - could mean that a storm is approaching
- **usually appear 12-24 hours before rain or a storm**
- Sun or Moon can shine through and appear to have a halo



**Altostratus  
(gray to bluish-green sheet)**

- usually cover the **whole sky**
- Sun or Moon may appear blurry behind them
- **usually form before a continuous rain or snow, but sometimes rain will fall**
- if rain makes it to the ground, cloud is called nimbostratus
- made of ice crystals and water droplets



# Clouds



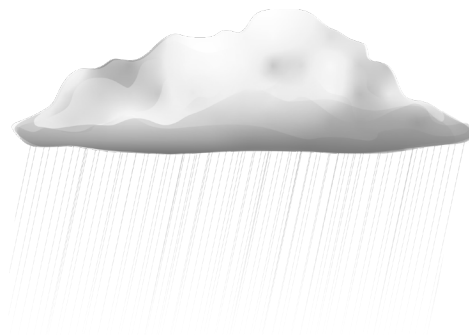
Altostratus clouds are considered:  
(bubble in answer)

**\*Hint\*:** Look at the prefix.

- low-level clouds       high-level clouds  
 mid-level clouds       multi-level clouds

**Nimbostratus**  
(dark, grey,  
featureless)

- usually thick enough to **block out the sunshine**
- produce **steady rain or snow**
- often associated with fronts
- rain from these clouds can bring **hours of precipitation**
- no lighting and thunder are associated
- common in temperate latitudes



Explain how clouds can help predict the weather.

Write in the weather associated with each cloud type.

Type of Cloud	Weather Associated
cirrus	
stratus	
fog	
cumulus	
cumulonimbus	
altocumulus	
cirrocumulus	
stratocumulus	
cirrostratus	
altostratus	
nimbostratus	

# Clouds



**DON'T FORGET TO REVISIT THE KWL CHART!**

**SUMMARY**