

# 8<sup>th</sup> grade Week 21 Notes- Complete

# How do clouds form?

## Ingredients

**C-notes**

Radiation (from sun)

Water vapor

Tiny dust particles

Low/colder

temperature

Lower Air pressure

Evaporation

Condensation

Convection

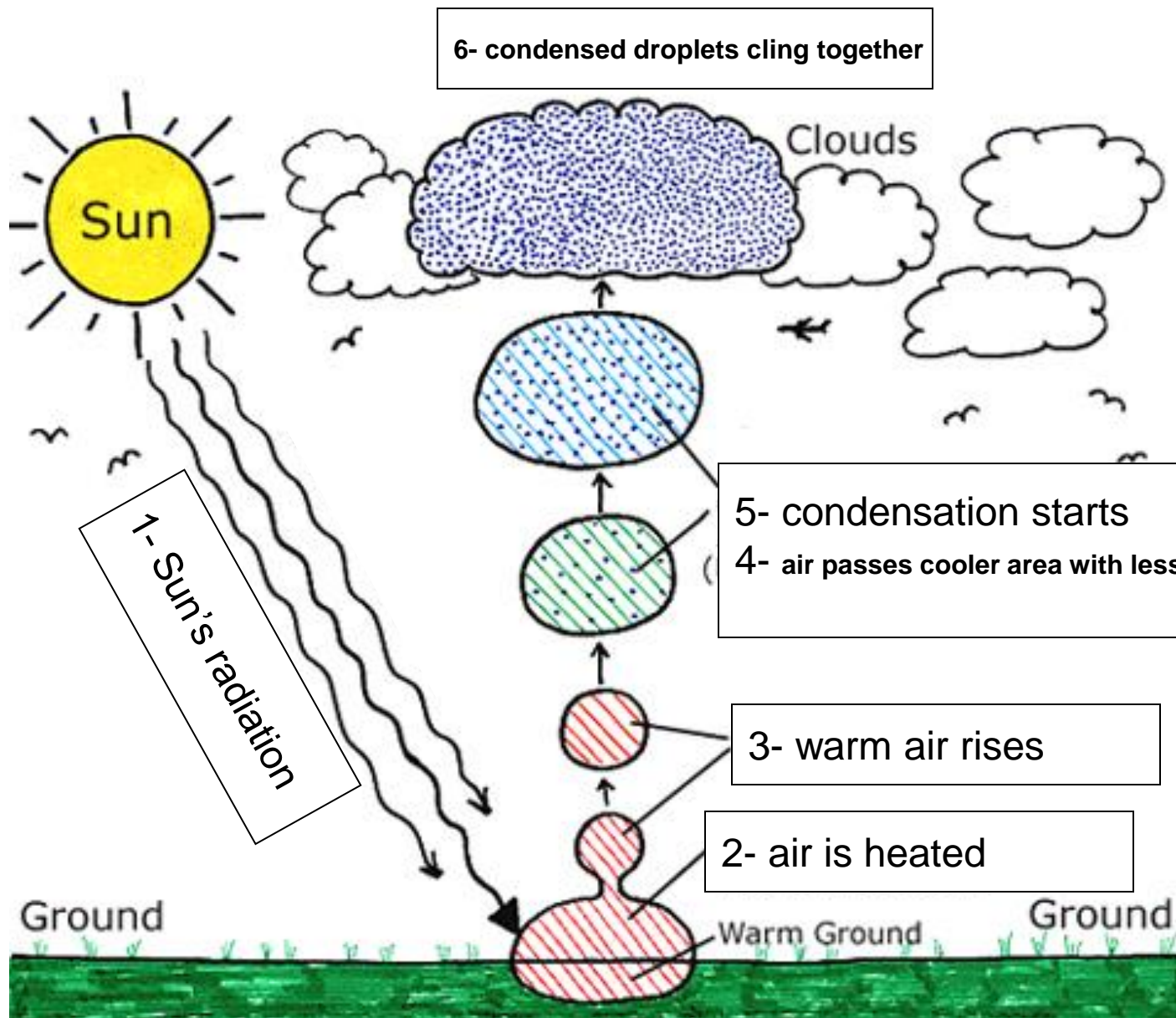
Conduction

# **How do clouds form? Recipe**

- 1- Sun's radiation makes water evaporate**
- 2- Air (near ground) is heated by conduction**
- 3- Warm air rises, taking heat with it (convection)**
- 4- As air rises in the atmosphere the air goes through cooler temperatures and lower pressure**

# How do clouds form? Recipe

- 5- Once the air and water vapor reach a certain altitude, the water vapor condenses on tiny dust particles
- 6- That forms tiny droplets that cling together to form a cloud



## Clouds Wrap Up: FOG

**Clouds form when warm air rises and cools to a point where water vapor condenses**

**What about fog?**

**This is a special situation:  
IT IS COOLER OVER THE  
LAND**

**The air above is WARMER**

# C-notes

## Clouds Wrap Up: FOG

### Fog Formation



### Temperature Inversion:

Is when usual temperatures in the atmosphere is “flipped”

**Clouds are  
classified in two  
major ways:**

**By shape**

**By altitude**



# Cloud Types

**C-notes**

Shape:

Cumulus- cotton balls

Cirrus- feathers or horsetails

Stratus- flat, sheet

Altitude:

Cirrus- extremely  
high altitude

Alto- high to  
medium altitude

Stratus- low altitude

Special:

Nimbus- is a dark grey cloud, indicative of rain.

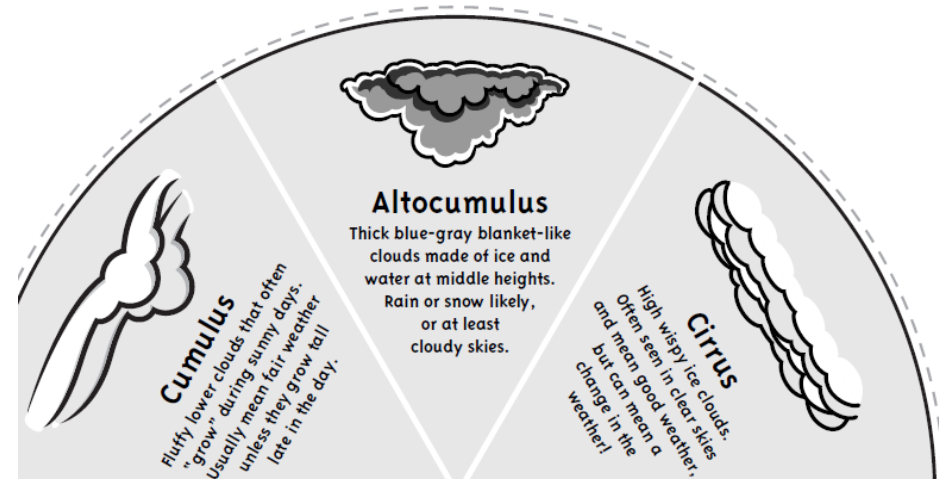
**Example:**

cumulonimbus- clouds associated with severe weather like thunderstorms, tornadoes

# Clouds Sheet

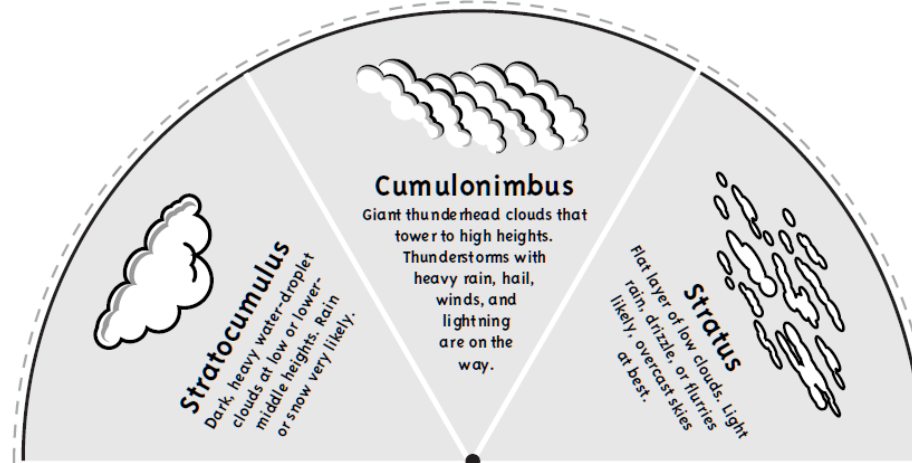
## Basic Shapes:

- Cumulus
- Stratus
- Cirrus



## ☁️ Cloud Chart ☁️

Cloud Group	Cloud Height	Cloud Types
High Clouds = <b>Cirrus</b>	Above 18,000 feet	Cirrus Cirrostratus Cirrocumulus
Middle Clouds = <b>Alto</b>	6,500 feet to 18,000 feet	Altostratus Alto cumulus
Low Clouds = <b>Stratus</b>	Up to 6,500 feet	Stratus Stratocumulus Nimbostratus
<b>Clouds with Vertical Growth</b>		Cumulus Cumulonimbus
<b>Special Clouds</b>		Mammatus Lenticular Fog Contrails



# **Water in the Air: Temperature and Water vapor**

- **Humidity is the amount of water vapor in the air.**
- **The amount of water vapor in the air depends on the TEMPERATURE of the air....**
- **Example: In Michigan there is more “humidity” in the summer than the winter**

# **Water in the Air: Temperature and Water vapor**

**The warmer the air temperature, the more water vapor that can be in the air. The cooler the air the less water vapor can be held.**

**Why? There are more spaces in-between the air molecules**

# Water in the Air: Temperature and Water vapor C-notes

**Why? There are more spaces in-between the air molecules:**

X = water molecules  
● = "air" molecules

Warm air



Cool air



Name \_\_\_\_\_

Hour \_\_\_\_\_

Internet Activity: Clouds

Go to [mrinchatolms.homestead.com](http://mrinchatolms.homestead.com)

Click on 8<sup>th</sup> grade Internet Activities (on the navigation links on the left)

Then click on the links under "Internet Activity: Clouds" to complete each part

USE THE BACK OF THIS PAPER TO ANSWER IF NECESSARY

**Clouds 1** List the names of all the low, middle and high clouds

High-

Middle-

Low-

**Clouds 2 Answer the questions below**

How are clouds formed?

Why are clouds white?

Why do clouds turn gray?

**Humidity & Relative Humidity- Watch Video**

**Humidity- Write down the explanation**

**Relative Humidity- Write down the explanation**

**Dew Point- Write down the explanation**



## 8<sup>th</sup> grade Anchor Questions Week 21 (Feb 2-6)

- 1. What is humidity?**
- 2. What is fog?**
- 3. Describe a cirrus cloud, a cumulus cloud and a stratus cloud and make a simple drawing of each one**
- 4. Explain how clouds are classified by altitude**
- 5. How does temperature affect the amount of water vapor in the air?**
- 6. CONSTRUCTED RESPONSE: How does the sun affect the water cycle?**
- 7. CONSTRUCTED RESPONSE: Explain how a cloud forms; include the "ingredients" and steps please**

**Review: fronts, air masses and pressure systems**

**Vocabulary:**

<b>Evaporation</b>	<b>Condensation</b>	<b>Precipitation</b>	<b>Humidity</b>	<b>Relative humidity</b>
<b>transpiration</b>	<b>Cirrus</b>	<b>Stratus</b>	<b>Cumulus</b>	<b>Nimbus</b>
<b>Dew point</b>				