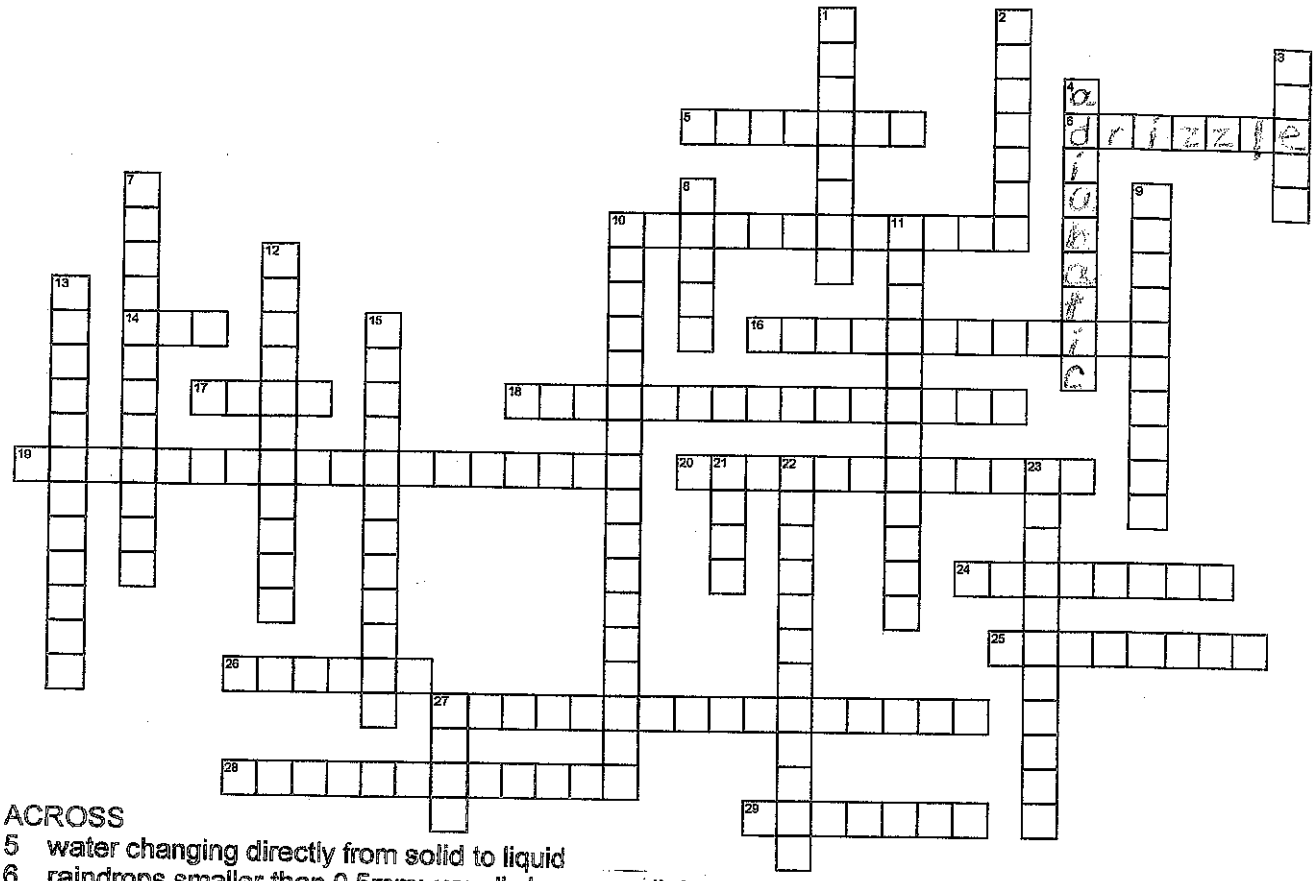
Chapter 24: Water in the Atmosphere

Earth Science–Mr. McNamara



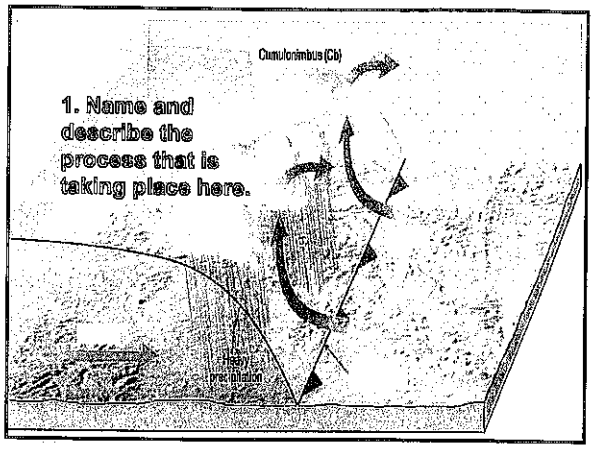
ACROSS

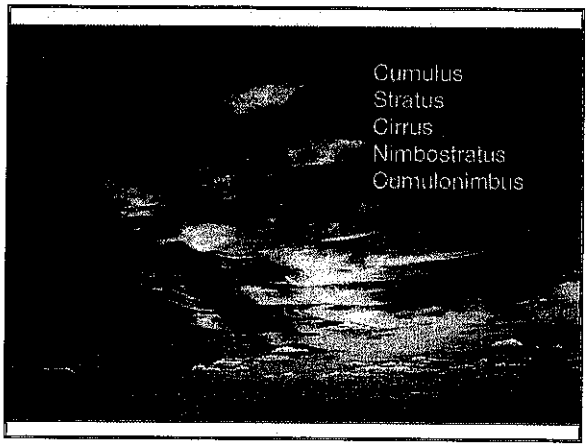
5 water changing directly from solid to liquid
6 raindrops smaller than 0.5mm; usually known as light rain
10 high, thin clouds that blanket sky
14 forms on grass when condensation occurs
16 water changing directly from gas to liquid
17 form as frozen raindrops get repeatedly carried up into clouds until becoming too dense
18 when a mountain or wedge of colder air forces warm air to rapidly rise
19 dust particles that water vapor can condense onto
20 an instrument that measures relative humidity
24 how much water vapor could be held at a certain temperature
25 water changing directly from liquid to solid
26 upper level thin, wispy clouds
27 how much water vapor the atmosphere is holding compared to how much it could possibly hold
28 after sunset the warm air is cooled quickly below dewpoint by the colder ground
29 classic-looking white puffy cloud

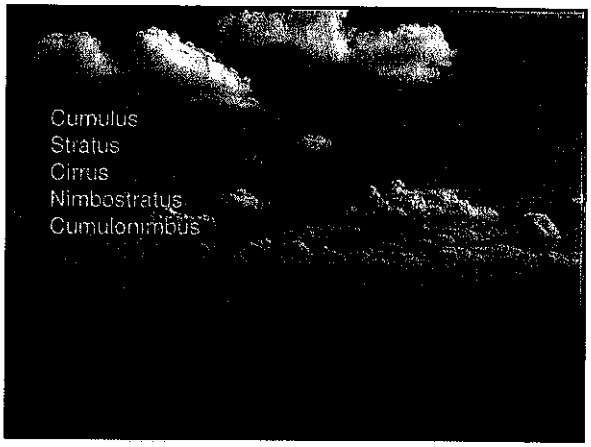
DOWN

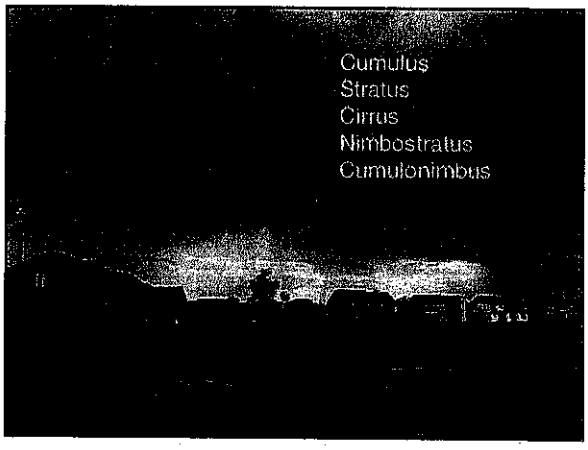
1 the amount of water vapor the atmosphere is holding
2 layered, horizontal clouds that blanket sky
3 rain falls through a layer of freezing air near the ground
4 changes in temperature that result from rising or sinking air
7 method of injecting condensation nuclei into atmosphere to create precipitation
8 water vapor that cools diectly to ice on grass
9 stored energy found in the atmopshere
10 what happens when moist air rises and expands
11 forms when warm moist air moves over cooler ground
12 water changing directly from solid to gas
13 severe storm clouds that can produce hail and tornadoes
15 darker, layered clouds that can produce light, steady precipitation
21 form as ice crystals within clouds
22 thin puffy clouds that are high in the troposphere
23 water changing directly from liquid to gas
27 liquid water precipitation

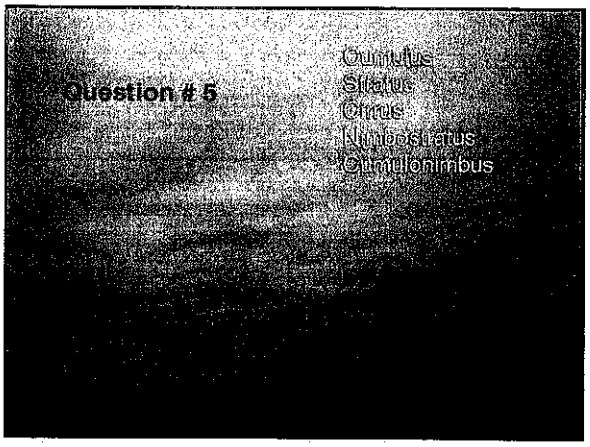
Cloud Quiz


Cumulonimbus (Cb)
1. Name and describe the process that is taking place here.
Heavy precipitation


Cumulus
Stratus
Cirrus
Nimbostratus
Cumulonimbus


Cumulus
Stratus
Cirrus
Nimbostratus
Cumulonimbus


Cumulus
Stratus
Cirrus
Nimbostratus
Cumulonimbus


Question # 5
Cumulus
Stratus
Cirrus
Nimbostratus
Cumulonimbus

Chapter 24 Review

Earth Science

NAME_____

DATE_____ HR___

1. H_2O can go through 6 phase changes (processes). In this chapter we focused on H_2O going from:
   - liquid → gas: _____ where energy is _____(absorbed/released) by H_2O.
   - gas → liquid: _____where energy is _____(absorbed/released) by H_2O.

2. (Use BLUE capacity graph) How many grams of water vapor can evaporate into the air at:

   4°C: ____ g 16°C: _____ g 21°C: _____ g

   As **temperature** *increases*, the **capacity** for water vapor _____.

   Explain why it feels more humid during summer in Michigan than in winter.

3. (Use Table 24-1 on p. 481) Calculate relative humidity when the:
   a. *Dry Bulb Temp = 14 ℃, Wet Bulb = 10 ℃* _____
   b. *Dry Bulb Temp = 28 ℃, Wet Bulb = 21 ℃* _____
   c. *Dry Bulb Temp = 6 ℃, Wet Bulb = 1 ℃* _____

4. Explain how the term <u>dewpoint</u> relates to <u>condensation.</u>

5. Describe the **<u>job</u>** that each ingredient has in CLOUD FORMATION
   - Decreasing Temperature-
   - H_2O Vapor -
   - Low Pressure -
   - Condensation Nuclei -

6. Describe **cloud seeding** and why is it used.

7. Describe the cloud forming processes of:
   - **Convective Cooling**
   - **Frontal Wedging**
   - **Orographic Lifting**

Chapter 24 Review

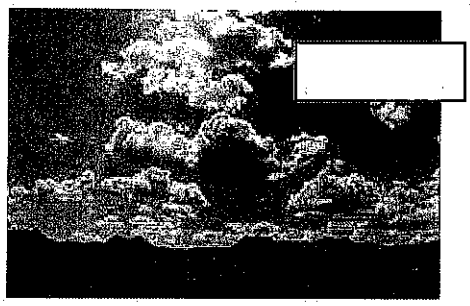
Earth Science

NAME_____

DATE_____ HR___

8. Describe how each type of fog forms (underline key differences between them).
   - Radiation Fog-
   - Advection Fog
   - Upslope Fog
   - Steam Fog

9. Be able to ID clouds visually using the simple classification system we learned.



10. Describe ONE key characteristic of each type of cloud
    - *Nimbostratus*
    - *Cumulonimbus*
    - *Cirrostratus*

11. Describe how each different type of precipitation forms.
    - Rain
    - Snow
    - Sleet
    - Frz Rain
    - Hail

12. Describe what causes lake effect snow storms and why they form along the eastern edge of the Great Lakes .