

Chapter 11 Atmosphere

Part 2 Review Guide

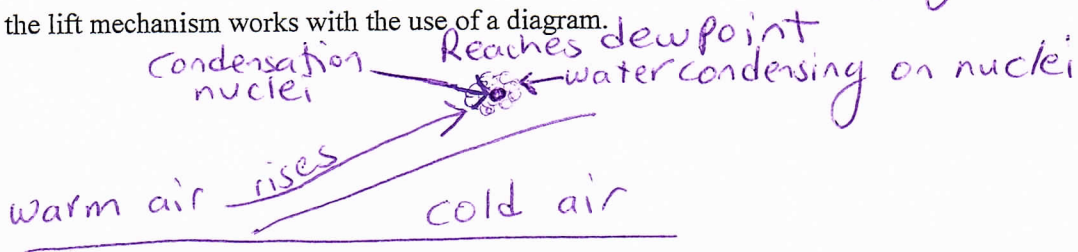
Key

1. Fill in the table below regarding cloud formation.

Ingredients to form clouds	How they help to form clouds
water vapor	Must have so it can condense to water droplets & form cloud. (Cloud is made of water droplets)
condensation nuclei	Water won't condense unless it has something to stick to → condensation nuclei provide a surface to condense on
lift mechanism	Lifts air faster & higher than convection, so that air cools to its dewpoint & water vapor condenses

2. What lifting mechanism do we have to make clouds in Iowa? Frontal wedging

3. Explain how the lift mechanism works with the use of a diagram.



4. Relate the following terms to cloud formation by filling out the table below:

Term	What is it? (Definition)	How does it relate to clouds?
Latent Heat	Energy absorbed or released during phase changes	Heat energy is released when water condenses to form cloud. The released energy warms the surrounding air & it keeps rising & makes taller clouds
Dew Point	Temperature air must be cooled to before water vapor can condense	Air must be lifted & rise high enough to get to this temperature to condense & make clouds
Relative Humidity	Ratio of the actual amount of water in the air compared to the amount it can hold	At dew point the air is saturated & at 100% relative humidity so that condensation begins
Humidity	The actual amount of water in the air	

Key

5. Explain how you get rain from clouds using the following terms:
- a. Condensation
  - b. Condensation Nuclei
  - c. Precipitation

When air is lifted & reaches its dewpoint, the water vapor condenses (condensation) into liquid water droplets around condensation nuclei. When the droplets are large & heavy gravity pulls them down as precipitation (rain).

6. Fill in the table below regarding latent heat.

Phase Change	Particle Speed (Speeding up or Slowing down)	Energy (Do you need to ADD energy or LOSE energy)	Absorbing or Releasing Latent Heat
Melting	↑	Add	Absorb
Freezing	↓	Lose	Release
Evaporation	↑	Add	Absorb
Condensation	↓	Lose	Release

7. What is the water cycle? The continual movement of water between Earth's surface & atmosphere - through different phases & places.
8. Fill in the table below regarding the water cycle.

Name of Step	Initial Phase of Matter (Solid, Liquid, or Gas)	Final Phase of Matter (Solid, Liquid, or Gas)	Example from life	Latent Heat (Release or Absorb)
Evaporation	Liquid	Gas	Puddles of water after rain, evap & disappear	Absorb
Condensation	Gas	Liquid	Vapor turning to liquid on outside of cold glass	Release
Precipitation	Liquid in a cloud	Liquid falling to earth	Rain, sleet, snow	N/A

9. Label the water cycle steps in the picture below.

