Next….

- Now that we know that lifting the air causes cloud formation. Let's find out more about the processes that actually lift the air.

4 Processes that lift the air:

- Note: Air tends to resist vertical movement. Therefore, air that is near the surface tends to stay near the surface.

1) Orographic lifting

- Mountains act as barriers to air flow.
- Any air that moves up the windward side of a mountain slope will cool adiabatically.
- As that air **cools** it will **condense** and then form **clouds** and precipitation.
- This will cause the leeward side of the mountain to experience something called a rainshadow.
- **Rainshadows -** are areas of drier weather. They occur because most of the moisture in the air is trapped on the windward side of the mountain and barely reaches the leeward side.

2) Frontal Wedging

- When a cold air mass and warm air mass collide, the cooler, denser air turns into a barrier (like a door stop) and forces the warmer, lighter air upwards.
- As that warmer air is lifted, it will **cool, condense,** and then **clouds** will form.

3) Convergence

- Sometimes a cool air mass and a warm air mass will flow together and mix.
- The entire air mass is now warmer and will therefore rise.
- As this warm air rises, it will **cool, condense,** and then **clouds** will form.

4) Localized Convective Lifting

- The unequal heating of Earth's surface may cause pockets of air to be warmed more than surrounding air.
- Example: On a sunny day, the air above a large walmart parking lot is warmer than the air above a nearby forest.
- The air above the parking lot will rise.
- Once the warm air rises, it will **cool, condense,** and form **clouds.**