Describing the Movement of Water in Earthś Atmosphere

Objectives: How does water move into Earthś atmosphere though the water cycle

Earthś Atmosphere

Earthś atmosphere is made up of a mixture of gases - nitrogen carbon dioxide, oxygen and water

What evidence of water in the atmosphere can you see in the photo?

How water reaches the atmosphere

In the atmosphere water can be in the form of solid, liquid and gas

Water moves into the atmosphere by…

1. Evaporation: When water heats up and turns to a gas (water vapor). Most water evaporates from the ocean - 90%
2. Transpiration: the release of water vapor into the atmosphere by plants - 10%
3. Sublimation: solid water (ice) changes directly to water vapor without first becoming a liquid - <1%

Evaporation

Sublimation - only play 25 seconds

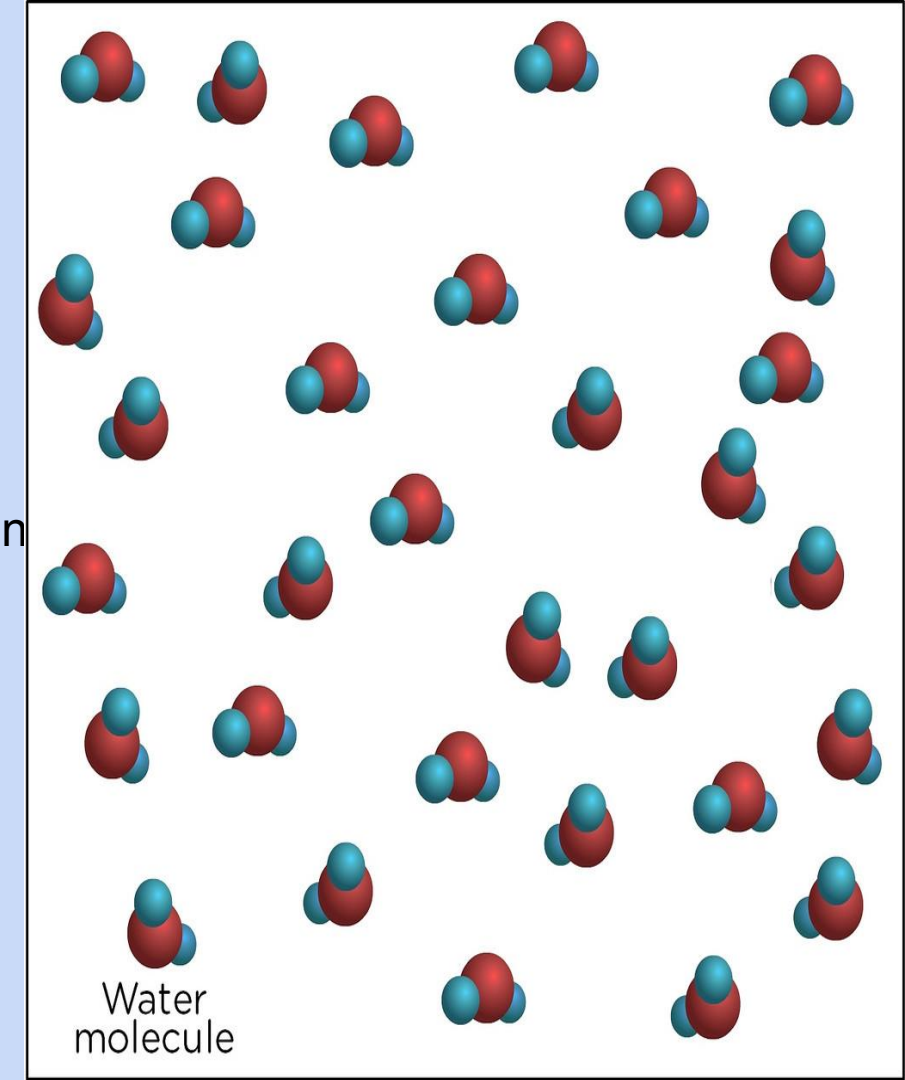
Transpiration Experiment

Water in the atmosphere

Water molecules in the atmosphere are constantly moving.

If a water molecule bumps into a warmer molecule that it it the water molecule will gain energy.

I a water molecule collides with a molecule that is cooler, the water molecule will lose energy

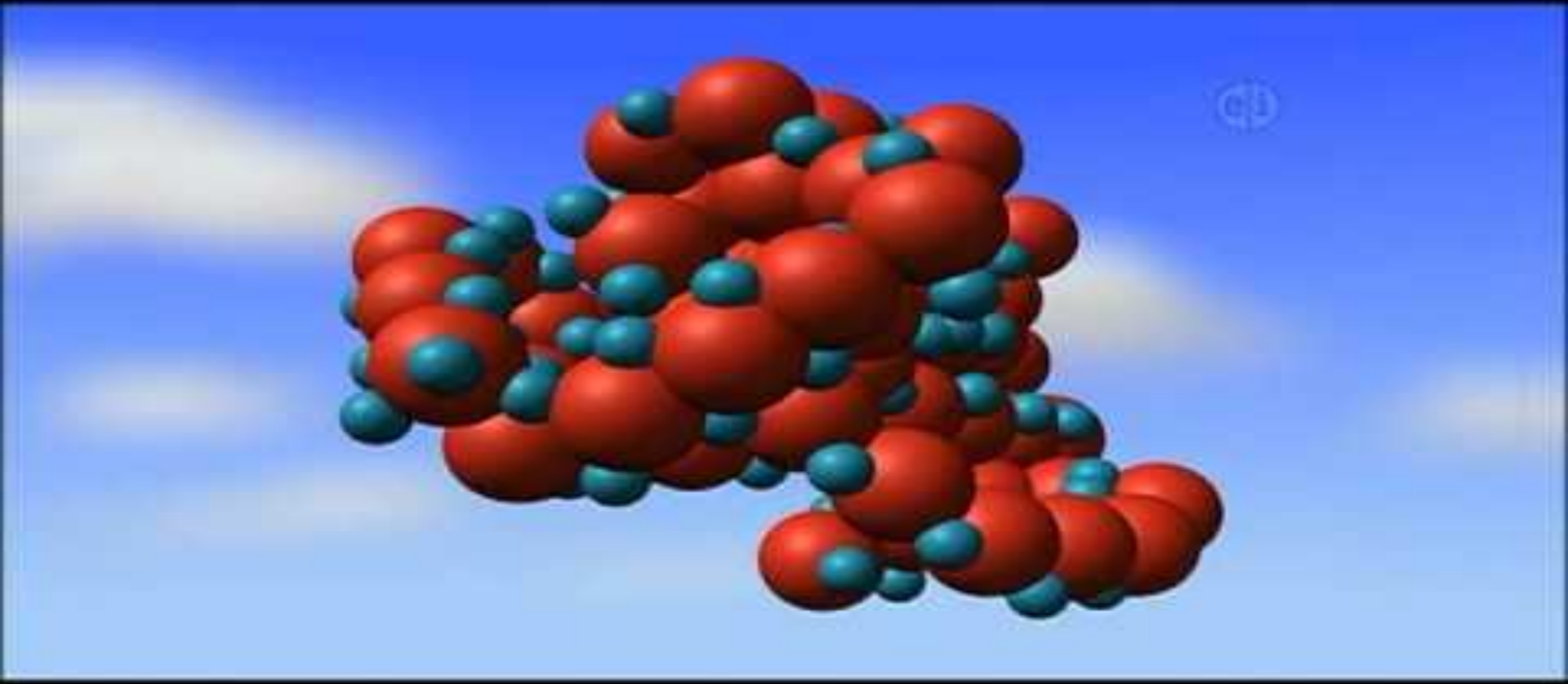


Clouds and condensation

Condensation: Gas becoming a liquid. As air cools, water vapor in the air may change into a liquid.

The process of condensation:

As water molecules cool and sink together they form small water droplets or water crystals. At first these tiny particles form around particles in the air (dust, pollen, or salt). As more and more water molecules collect in the water droplets the droplets become larger. Eventually those water droplets become big enough to see - clouds, fog or mist.



Precipitation

When gravity pulls water towards Earthś surface.

Rain: water

Snow: forms when the water in clouds freeze; 6 part frozen crystals

Hail: forms when the water in clouds freeze; frozen balls of precipitation

Deposition

Occurs when water vapor changes state directly from a gas to a solid. Happens high on mountains where the temperature is so low. Water vapor forms snow without becoming a liquid first.


Sublimation
and
Deposition