

The background of the slide is a close-up photograph of a blue surface covered in numerous small, clear water droplets. Some droplets are larger and more prominent, while others are tiny specks. The overall effect is a textured, moist appearance. The text is overlaid on this background.

# Evaporation, Condensation and Freezing

# Evaporation

The surface of the Earth is warmed by the Sun. As a result, water on the surface of the Earth is constantly turning from a liquid form into a gas called water vapour. These tiny molecules of water vapour escape into the air. You can't see them but they are in the air all around you. This process is called *evaporation*.

The presence of water vapour in the air is called *humidity*. On a *humid* day there is a lot of water vapour in the air. The amount of moisture in the air can be measured using a *hygrometer*.

Have you noticed how quickly a wet pavement will dry when the sun is shining? Water will evaporate faster when it is hot day. Evaporation will still occur on a cool day, it will just take longer.



# Condensation

Heat makes water change state from a liquid to gas (water vapour) through the process of *evaporation*. But when water vapour cools, it changes state from a gas to a liquid or a solid. This process is called *condensation*.

Water vapour itself is not visible in the air. The cloud of steam you see rising from a boiling kettle or a cup of tea is the warm water vapour in the air condensing back into tiny water droplets as it meets the cooler air around it.

You might see water condensing on the inside of the windows of your car or house on a cold day. This happens when the air inside is warm and the glass is very cold. When the water vapour meets the cold window the vapour condenses into a liquid state. Eventually vapour molecules collect together, forming water droplets that might run down your windows!



# Precipitation

Clouds form in the sky due to condensation. Warm air rises, taking water vapour higher into the air where it is cooler. The warm water vapour molecules begin to cool and return to their liquid state (water droplets). As more and more droplets develop, they clump together and get bigger. Eventually these *rain* droplets will fall to the ground as *precipitation*.

Water droplets that get carried high into storm clouds may alternately freeze and melt a little as they circulate in the air. Eventually the frozen droplets may gain more and more moisture from the humid air in the cloud, freezing in additional layers, forming large *hailstones*.

When water vapour meets very cold air it may freeze into ice crystals. If enough ice crystals clump together and the surface air of the Earth is very cold, precipitation may fall as *snow*.



# Freezing

Some parts of our planet are colder than others. When the temperature of the air in these places is very low water molecules will freeze.

Sometimes the surface of rivers and lakes may freeze over during the winter months. Water that is found in the coldest parts of our planet, near the poles, may stay frozen all year. In fact, nearly 70% of the Earth's fresh water is frozen, found in the ice caps and glaciers.

