# NATURE'S PURIFICATION SYSTEMS

## Evaporation / Transpiration:

Evaporation, changing of water in liquid form to water vapor, occurs directly from oceans, lakes, rivers and streams, earth surfaces and living organisms (plants give off large volumes of water vapor through transpiration; animals breath out water vapor in the process of respiration). Evaporation removes pure water from a source of impure water.

## Filtration:

Filtration occurs when water has to flow through a screen of some form. The screen can consist of the branches of a fallen tree or the fine grains of a soil. As contaminated water moves through the screen the impurities are trapped in the screening material.

## Settling:

Settling occurs in still water or areas where water movement has slowed (lakes, pools, dam ponds, etc.). Suspended particles respond to the pull of gravity settling to the bottom of the aquitic system.

## Aeration:

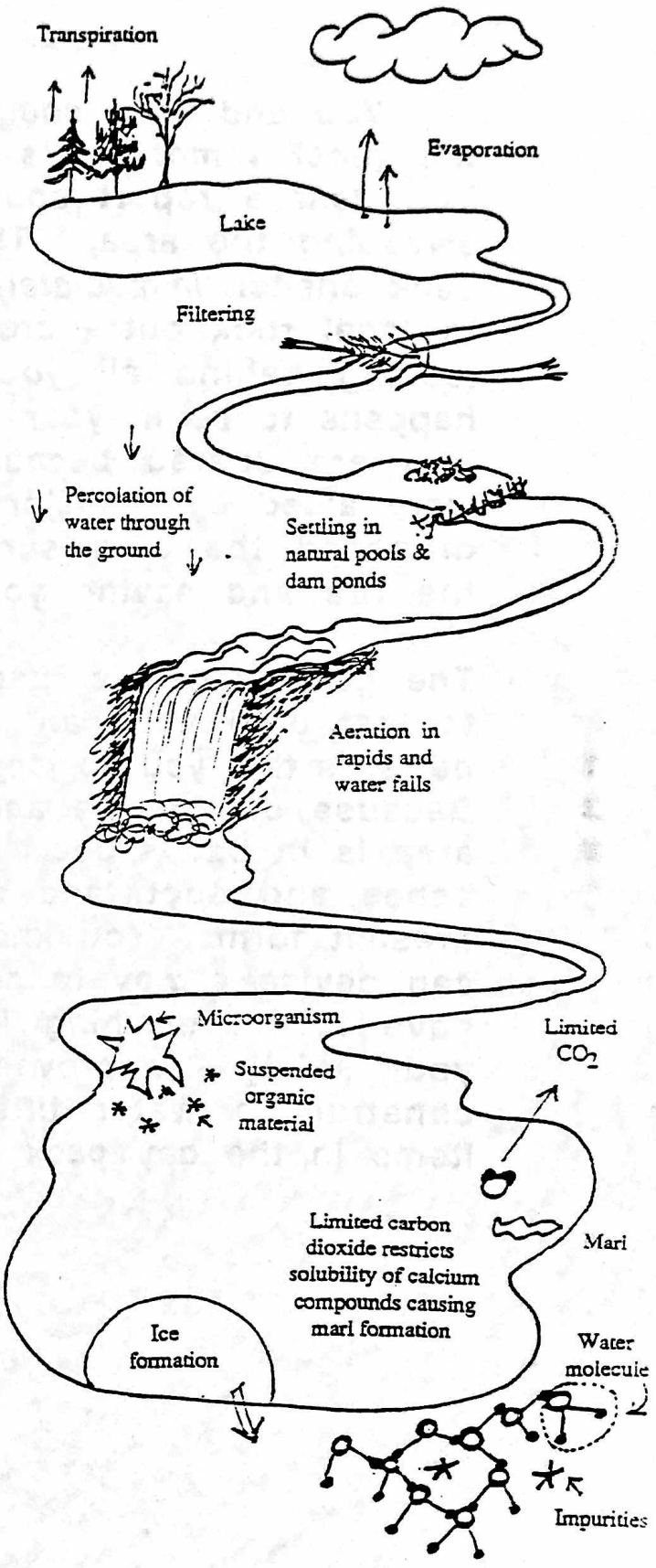
Aeration occurs in rapids and waterfalls. It is the exposure of impure water to air allowing gasses to be released from the water and oxygen to be absorbed (allowing increased biological activity).

## Biological Activity:

Organisms consume impurities such as suspended organic matter or other organisms.

## Chemical activity & Precipitation:

Dissolved chemicals are removed from the water. There are various causes: 1) physical or chemical bonding creates a heavy compound that precipitates out, 2) compounds can no longer stay in solution due to chemical changes in the water (as in marl formation - limited carbon dioxide cause a calcuim compound to precipitate out of the water).




## Freezing:

Pure water molecules physically bond together to form crystals. Impurities , such as salt, are washed out of the ice by water moving through the ice crystals.