

EVAPORATION

Stomata (or pores) in the leaves or pine needles absorb carbon dioxide. As the stomata open to take in carbon dioxide, excess water is released as vapor.

CONDENSATION

Absorbed water combines with carbon dioxide and energy from sunlight to make food for the tree in the form of sugars. This process of photosynthesis also produces oxygen, which is evaporated along with excess water through transpiration.

PRECIPITATION

Leaves and needles catch rainwater, breaking the force of the rain before it hits the ground; some of the water is absorbed and some evaporates, helping to cool the air.

Roots anchor the tree in the ground, gripping the soil and preventing it from washing away during rain events. The network of roots beneath the ground also helps filter excess nutrients or pollutants from the water as it soaks downward.

Shade from trees helps keep water cool in streams, rivers, and ponds for cold-water species of fish and other wildlife.

Trees absorb water from the ground through tiny hair-like roots, bringing minerals from the soil up through the tree trunk and out the length of its branches to leaves or needles and helping the tree to grow.

Forest Trees: A Natural Water Filter

Our forests provide us myriad benefits, but none more critical to life than the way they interact with water. Trees collect and absorb water through branches, leaves, and roots, and then release it slowly to the surrounding environment. This allows the water table to recharge, provides water for other plants nearby, and prevents erosion along stream edges and riverbanks. Absorbed water also is critical to the process of photosynthesis, which contributes the oxygen we need to breathe. Unlike deciduous trees, pine trees and most other conifers keep their needles year-round so they can photosynthesize whenever conditions are favorable.