

## **Why do plants need water?**

### **Answer 1:**

All living things need water to stay alive, and plants are living things! Plants, however, need much more water than many living things because plants use much more water than most animals. Plants also contain more water than animals - plants are about 90% water. The amount of water a plant needs depends on the type of plant, how much light the plant gets, and how old the plant is. When plants are not watered properly they wilt. This is because of something called turgor, which is water pressure inside the cells that make up the plant's skeleton. Water enters a plant through its stem and travels up to its leaves. When a plant is properly hydrated, there is enough water pressure to make the leaves strong and sturdy; when a plant doesn't get enough water, the pressure inside the stems and leaves drops and they wilt.

Plants also need water for photosynthesis. Photosynthesis is what plants do to create their food, and water is critical to this process. Water enters a plant's stem and travels up to its leaves, which is where photosynthesis actually takes place. Once in the leaves water evaporates, as the plant exchanges water for carbon dioxide. This process is called transpiration, and it happens through tiny openings in the plant's leaves, called stomata. The water from the leaves evaporates through the stomata, and carbon dioxide enters the stomata, taking the water's place. Plants need this carbon dioxide to make food. Transpiration - this exchange of water for carbon dioxide - only occurs during the day when there is sunlight. This is why you might find dew on plants in the morning. The plants contain a lot of water because all night long water has been entering through the stem and being pulled into the leaves where it can't evaporate. Since the water doesn't evaporate at night, the water has no where to go so it remains on the leaves as dew.

When water evaporates from a plant during transpiration it cools the plant, in the same way the humans sweat to cool off in the heat. A mature house plant can transpire its body weight daily. This means it gives off a lot of water! If people needed that much water, an adult would drink 20 gallons of water a day.

### **Answer 2:**

Actually, all living things need water because life requires a LOT of chemical reactions. The chemicals are usually dissolved in water. Also, plants put the water together with carbon dioxide to make sugar. This takes energy, which plants get from light. Water also helps plants stand up tall, even when they aren't made of wood. They don't have bones, but they do have cell walls and water pressure. Water comes up from the roots, but carbon dioxide doesn't. How do you think plants get carbon dioxide?