



Name _____

Why Leaves Change Color

Leaves erupt into beautiful colors as fall arrives, but why does this happen? Read all about how and why leaves change color and answer the questions that follow.

Inside a leaf there are millions of little color packages of green, yellow and orange chemicals. The green packages contain chlorophyll. The yellow packages contain xanthophyll and the orange packages contain carotene.

In the summer, the green chlorophyll packages are very busy. The green packages catch sunlight and use it to change water from the ground and carbon dioxide from the air into sugar. This sugar is the food for the tree. All summer long the green chlorophyll produces food for the trees. Because the green chlorophyll is so busy, the green color covers up all of the other colors in the leaves. The green packages must have water from the ground to do their job. The water is soaked up by the tree's roots, travels up the trunk and enters the leaves through tiny tubes in the leaf's stem.

As fall approaches, the weather grows colder and it isn't so sunny. The tree realizes that winter is near and begins to get ready. A thin layer of cells will grow over the water tubes in the leaves and closes them up in preparation for the winter. No more water can get into the leaf. Without the water, the green chlorophyll starts to disappear and the yellow and orange packages can finally be seen.

That explains yellow and orange, but why are some leaves red, purple or brown? The sugar or sap that the trees make uses the same water tubes to feed the tree. When that thin layer of cells grows over the tubes sometimes this sap gets stuck in the tubes. Sometimes sap turns red or purple which makes the leaves look red or purple! When the leaves stop getting food and water they start to die. The green chlorophyll dies first, but the yellow and orange packages die too. When all of the packages are gone, the leaf is dead and brown leaving them dry and crunchy.

Questions

1. What chemical makes leaves orange? _____
2. What chemical makes leaves yellow? _____
3. What 3 things does the chlorophyll packages use to make sugar? _____

4. What makes leaves turn red or purple? _____
5. What do the leaves lose that makes them change color? _____