

Have you ever wondered how the beautiful colors of autumn leaves happen? Read “Why Leaves Change Color” to understand more about this yearly event and answer the questions that follow.

Why Leaves Change Color

by Stephen Caney

Have you ever wondered why the leaves on trees turn from green to shades of red, yellow, and brown each fall? Why the colors are better some years than others? Or even why leaves are green in the first place? Once each year during the fall season the trees of many regions in America, and especially of New England, produce a spectacular color show that signals the death of the leaves and a dormant winter period for the tree.

Trees, like all living things, need food and energy to live and grow. Leaves are a tree’s food factories. Water and minerals are supplied to the leaves through the tree’s root system and through a series of veins that go up the tree trunk, out the branches, and into each leaf. All leaves contain a green pigment called chlorophyll, which has the ability to absorb energy from sunlight and turn the water and minerals into a starch food for the tree.

Leaf Food

During the summer months when there are long days and warm temperatures, the leaves are busy making food, but as the days of sunlight grow shorter and the weather becomes cooler, the leaf-factories begin to slow down until the process of making food stops completely. The green chlorophyll is no longer needed and slowly disappears from the leaves. The reds, yellows, and browns of fall foliage appear. Where do the colors come from? They were there all the time. Leaves contain yellow,

orange, and brown pigments that are always present in the leaf but remain hidden by the strong chlorophyll green in summer. The colors appear only when the green chlorophyll fades.

As the leaves turn color, the tree pulls any remaining food out of them, storing it to survive during the winter months. The red shades of some fall leaves appear when the sugar produced by the leaves gets trapped in them rather than returning to the tree. The sugar dissolves in the sap of the leaf and turns it red, orange, or purple. Some leaves have no color pigments except for the chlorophyll and just turn a dull shade of brown before drying up.

Subtle Shedding

Trees called evergreens—such as pines and spruces—don’t drop all their needle-like leaves during the fall but shed some of them continuously throughout the year. They grow back new “leaves” during the warmer months. Evergreens, as their name implies, appear green all year round. In very warm climates, many broad-leaved trees drop only some of their leaves at a time and also appear green all year round.

The intensity of the fall colors varies from year to year depending on fall weather conditions. With frosty weather, the colors may not be as varied. Cloudy, rainy weather produces dull shades of red. Warm, humid conditions produce brightly colored but speckled leaves. Dry, sunny, fall weather produces the most spectacular colors of all.

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1. What is the **main** reason a tree's leaves change color in fall?
- A The tree freezes in colder weather.
 - B The leaves stop making food.
 - C The leaves store up water and minerals.
 - D The tree begins to die in the winter.
2. What is the **most likely** reason the author asked several questions in the first paragraph?
- A because he does not know the answer to them
 - B because he wants the reader to think about them
 - C because he is trying to fool the reader with them
 - D because he wants the reader to look them up
3. What does chlorophyll do for a tree's leaves?
- A Chlorophyll makes leaves green.
 - B Chlorophyll makes leaves red, gold, and brown.
 - C Chlorophyll makes leaves drop from the tree.
 - D Chlorophyll makes leaves taste sweet.
4. What is the **most important** job of a tree's leaves?
- A to provide shade for people
 - B to turn colors in fall
 - C to make food for the tree
 - D to make seeds for new trees
5. In "Why Leaves Change Color," what is the purpose of the two subtitles in bold print?
- A to make the reader slow down while reading
 - B to describe leaves in different parts of the country
 - C to define the words that are contained in each section
 - D to give the reader an idea of what each section is about

6. During the fall, how does cloudy, rainy weather affect leaf color?
- A It creates brighter-colored leaves.
 - B It creates more orange and yellow leaves.
 - C It creates more dull leaves with speckles.
 - D It creates more leaves that are dull and red.

End of Set

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Answers to
Grade 4 Reading Comprehension Sample Items

| Selection Title | Question Number | Correct Answer | Category | Thinking Skill | Objective Number |
|-------------------------|------------------------|-----------------------|-----------------|-----------------------|-------------------------|
| Why Leaves Change Color | 1 | B | Interpretation | Analyzing | 2.04 |
| Why Leaves Change Color | 2 | B | Critical Stance | Analyzing | 2.02 |
| Why Leaves Change Color | 3 | A | Interpretation | Analyzing | 2.04 |
| Why Leaves Change Color | 4 | C | Cognition | Analyzing | 2.05 |
| Why Leaves Change Color | 5 | D | Cognition | Analyzing | 2.02 |
| Why Leaves Change Color | 6 | D | Cognition | Knowledge | 2.02 |