



and by the end of autumn only a few fragile threads of fluid-carrying xylem³ hold leaves to their stems. **B**

A turning leaf stays partly green at first, then reveals splotches of yellow and red as the chlorophyll gradually breaks down. Dark green seems to stay longest in the veins, outlining and defining them. During the summer, chlorophyll dissolves in the heat and light, but it is also being steadily replaced. In the fall, on the other hand, no new pigment is produced, and so we notice the other
30 colors that were always there, right in the leaf, although chlorophyll's shocking green hid them from view. With their camouflage gone, we see these colors for the first time all year, and marvel, but they were always there, hidden like a vivid secret beneath the hot glowing greens of summer. **C**

The most spectacular range of fall foliage occurs in the northeastern United States and in eastern China, where the leaves are **robustly** colored, thanks in part to a rich climate. European maples don't achieve the same flaming reds as their American relatives, which thrive on cold nights and sunny days. In Europe, the warm, humid weather turns the leaves brown or mildly yellow. Anthocyanin, the pigment that gives apples their red and turns leaves red or
40 red-violet, is produced by sugars that remain in the leaf after the supply of nutrients dwindles. Unlike the carotenoids, which color carrots, squash, and corn, and turn leaves orange and yellow, anthocyanin varies from year to year, depending on the temperature and amount of sunlight. The fiercest colors occur in years when the fall sunlight is strongest and the nights are cool and dry (a state of grace scientists find vexing to forecast). This is also why leaves

B CAUSE AND EFFECT

In lines 14–24, the pattern of organization switches from main idea and supporting details to cause and effect. Fill out a cause-and-effect chain to show why leaves fall.

C CAUSE AND EFFECT

Why do leaves turn color? Use information in lines 25–33 to fill out a cause-and-effect chain to show this process.

robustly (rō-bŭst'lē)
adv. in a strong, powerful way

3. **xylem**: plant tissue through which water and nutrients are conducted.