CHAPTER 6
Investigate Enzymatic Browning

What factors affect enzymatic browning? When sliced, an apple’s soft tissue is exposed to oxygen, causing a chemical reaction called oxidation. Enzymes in the apple speed this reaction, producing darkened, discolored fruit. In this lab, you will investigate methods used to slow enzymatic browning.

Procedure
1. Read and complete the lab safety form.
2. Predict the relative amount of discoloration each of these apple wedges will show when exposed to air. Justify your prediction.
   Sample 1: Untreated apple wedge
   Sample 2: Apple wedge submerged in boiling water
   Sample 3: Apple wedge submerged in lemon juice
   Sample 4: Apple wedge submerged in sugar solution
3. Prepare 75 mL of each of the following: boiling water, lemon juice, and sugar solution in three 250-mL beakers.
4. Slice an apple into four wedges. Immediately use tongs to submerge each wedge in a different liquid. Put one wedge aside.
5. Submerge the wedges for three minutes, then place on a paper towel, skin side down. Observe for 10 min, then record the relative amount of discoloration of each apple wedge.

Data and Observations

Analysis
1. Analyze How did each treatment affect the chemical reaction that occurred on the fruit’s soft tissue? Why were some of the treatments successful?

2. Think Critically A restaurant owner wants to serve fresh-cut fruit. What factors might be considered in choosing a recipe and preparation method?