USING THE HANDBOOK

40. Review the information on alloys in the Elements Handbook.
   a. Why is aluminum such an important component of alloys?
   b. What metals make up bronze?
   c. What metals make up brass?
   d. What is steel?
   e. What is the composition of the mixture called *cast iron?*

41. **Table 5A** of the *Elements Handbook* contains carbon monoxide concentration data expressed as parts per million (ppm). The OSHA (Occupational Safety and Health Administration) limit for worker exposure to CO is 200 ppm for an eight-hour period.
   a. At what concentration do harmful effects occur in less than one hour?
   b. By what factor does the concentration in item (a) exceed the maximum limit set by OSHA?

RESEARCH & WRITING

42. Find out about the chemistry of emulsifying agents. How do these substances affect the dissolution of immiscible substances such as oil and water? As part of your research on this topic, find out why eggs are an emulsifying agent for baking mixtures.

ALTERNATIVE ASSESSMENT

43. Make a comparison of the electrolyte concentration in various brands of sports drinks. Using the labeling information for sugar, calculate the molarity of sugar in each product or brand. Construct a poster to show the results of your analysis of the product labels.

44. Write a set of instructions on how to prepare a solution that is 1 M $CuSO_4$ using $CuSO_4 \cdot 5H_2O$ as the solute. How do the instructions differ if the solute is anhydrous $CuSO_4$? Your instructions should include a list of all materials needed.

extension

Graphing Calculator

Solubility vs. Temperature

Go to **go.hrw.com** for a graphing calculator exercise that asks you to graph the solubility versus temperatures for NaCl and KNO_3.

Keyword: HC6SLNX