

### Section 16.2 Factors Affecting Reaction Rates

In your textbook, read about the factors that affect reaction rates (reactivity, concentration, surface, area, temperature, and catalysts).

In the space at the left, write *true* if the statement is true; if the statement is false, change the italicized word to make it true.

- \_\_\_\_\_ 1. *Decreasing* the concentration of reactants increases the collision frequency between reacting particles.
- \_\_\_\_\_ 2. A *heterogeneous* catalyst exists in a different physical state than the reaction it catalyzes.
- \_\_\_\_\_ 3. Increasing the *concentration* of a substance increases the kinetic energy of the particles that make up the substance.
- \_\_\_\_\_ 4. Catalysts increase the rates of chemical reactions by *raising* the activation energy of the reactions.
- \_\_\_\_\_ 5. *Increasing* the surface area of a reactant increases the rate of the reaction.
- \_\_\_\_\_ 6. Raising the temperature of a reaction increases the rate of the reaction by increasing the *energy* of the collisions between reacting particles.

Answer the following questions.

7. A chemist heated a sample of steel wool in a burner flame exposed to oxygen in the air. He also heated a sample of steel wool in a container of nearly 100% oxygen. The steel-wool sample in the container reacted faster than the other sample. Explain why.

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8. Would the chemist have observed the same results if he used a block of steel instead of steel wool? Explain your answer.

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9. How would the reaction have differed if the steel wool was not heated?

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