

WKS
Factors Affecting Reaction Rates

Name _____
Period _____

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. *Increasing* the size of the particles of the reactants increases the rate of the reaction.
- _____ 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.
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.
8. What would the chemist have observed if he had used a block of steel instead of steel wool? Explain your answer.
9. How would the reaction have differed if the steel wool were not heated?
10. How do temperature, concentration, and surface area affect the rate of a chemical reaction?
11. How does the collision model explain the effect of concentration on the reaction rate?
12. How does the activation energy of an uncatalyzed reaction compare with that of the catalyzed reaction?
13. **Thinking Critically** For a reaction of A and B that proceeds at a specific rate, what is the effect of decreasing the amount of one of the reactants?