

1. A study of reaction \_\_\_\_\_ is called chemical \_\_\_\_\_.
2. Reaction rate refers to how quickly or slowly the \_\_\_\_\_ disappear and the \_\_\_\_\_ appear. It is measured in terms of the \_\_\_\_\_ of the reactants.
3. If a reaction is to occur, reacting particles must first \_\_\_\_\_ and this \_\_\_\_\_ must be effective. What are the TWO characteristics of an effective collision?
4. What are the FIVE major factors that affect reaction rate?
5. Why would a mixture of gases react faster when the volume they occupy is decreased?
6. Why would iron filings rust faster than an iron nail?
7. What is the effect of a catalyst on the required energy to achieve effective collisions?

8. ENZYMES act as catalysts in our bodies. Have you ever noticed that your hands seem to get "stiff" when they get cold? The reason is that these enzyme reactions causing the muscles to contract \_\_\_\_\_ down when your hands are cold so you can't contract your muscles as fast and your hands feel stiff! Decreasing temperature (decreases, increases) the rate of reaction.
9. Enzymes are in molds and bacteria that spoil food. Explain, using your knowledge of factors affecting the rate of reaction, why food doesn't spoil as fast when it is refrigerated as it would at room temperature.
10. Due to decomposition reactions with oxygen or carbon dioxide in the air, meat begins to feel slimy and smell spoiled. Explain, using your knowledge of chemical kinetics, why meat spoils less rapidly when left unsliced.
11. Based on your knowledge of factors affecting the rate of reaction, why is there a danger of explosions in places such as silos and coal mines where there are large quantities of powdered, combustible materials?