

# Kinetics and Equilibrium

Text	Unit Objectives:
18.1	1. Know how reaction kinetics is measured as well as what is meant by a reaction mechanism.
18.1	2. The guiding factor in a chemical reaction is energy. You must understand activation energy as well as heat (enthalpy) of a reaction.
18.1	3. Be able to read a potential energy diagram. Be able to determine: <ul style="list-style-type: none"> <li>• the P.E. of reactants</li> <li>• the P.E. of products.</li> <li>• the P.E. of the activated complex.</li> <li>• the activation energy (with/without catalyst)</li> <li>• the heat of reaction</li> <li>• if a reaction is exothermic or endothermic</li> </ul>
18.1	4. Know and understand the 5 factors that affect reaction rate.
18.2	5. Know and be able to describe different types of equilibrium <ul style="list-style-type: none"> <li>• phase equilibrium</li> <li>• solution equilibrium</li> <li>• chemical equilibrium</li> </ul>
18.2	6. Be able to describe the results of a stress on equilibrium using Le Chatelier's Principle Types of stress include: <ul style="list-style-type: none"> <li>• Effect of concentration</li> <li>• Effect of pressure</li> <li>• Effect of temperature</li> <li>• Effect of catalyst</li> </ul>
18.2	7. Understand how to determine the equilibrium constant and what a large or small equilibrium constant tells us about the concentration of the product and reactants.
18.4	8. Know the two factors that determine if a reaction is spontaneous
18.4	9. Be able to determine if a reaction is spontaneous by looking at enthalpy, entropy, and temperature.

### Essential Vocabulary

Activated Complex, Activation Energy, Catalyst, Chemical Equilibrium, Chemical Kinetic, Common Ion Effect, Heat of Reaction, Effectiveness of Collisions, Enthalpy, Enthalpy Change, Entropy, Enzyme, Equilibrium Constant, Free Energy Change, Heat of Reaction, Le Chatelier's Principle, Phase Equilibrium, Potential Energy Diagram, Reaction Rate, Spontaneous Reaction

**Announcements:**

1.