



Use this alongside our Walkthrough Guides to tick off the concepts you're confident with to plan your study and find areas of improvement!

Equilibrium

- I can define **equilibrium**
- I can generate equilibrium constant (K_c) expressions for a given reaction
- I can describe what the value of the equilibrium constant means in terms of the amounts of products and reactants in a system
- I can calculate Q_c and explain its meaning
- I can state **Le Chatelier's principle**
- I can describe and explain how changing concentrations of products or reactants affects an equilibrium
- I can describe and explain how a change in pressure affects an equilibrium
- I can describe and explain how a change in temperature affects an equilibrium
- I can describe and explain how a catalyst affects an equilibrium

Solubility

- I can define **solubility**
- I can generate solubility constant (K_s) expressions for a given reaction
- I can calculate the solubility of a species given the K_s value
- I can describe and explain whether precipitation will occur using Q_s
- I can describe and explain the **common ion effect**

Acids and Bases

- I can define the terms **acid** and **base**
- I can describe and explain what makes an acid or a base strong or weak
- I can calculate pH given a concentration of H_3O^+ ions
- I can calculate the concentration of H_3O^+ ions given a pH
- I can describe K_w and give its value
- I can calculate the pH of strong acids and bases
- I can define and explain K_a and K_b
- I can generate K_a and K_b expressions given a reaction
- I can convert between $\text{p}K_a$, K_a , $\text{p}K_b$, and K_b
- I can calculate the pH of solutions of weak acids and bases

Buffer Solutions

- I can describe a **buffer solution** and what is in a buffer solution
- I can calculate the pH of a buffer solution
- I can describe and explain the function of a buffer system

Species in Solution

- I can describe and explain the relative concentrations of species in solution for:
 - Strong acids and bases
 - Weak acids and bases
 - Neutral salts
 - Salts of weak acids and bases
- I can describe and explain what makes a solution conductive

Titration Curves

- I can define the **equivalence point**
- I can describe and explain where a buffer zone is on a titration curve
- I can describe and explain the significance of the **half equivalence point**
- I can calculate the pH of a solution at the equivalence point of a titration
- I can describe why an indicator would or would not be suitable for use in a given solution