

**Main Ideas, Key Points,
Questions:**

After watching the video segment, write down key points, main ideas and big questions.

Objective(s):

- *To calculate the equilibrium constant, K_{eq} , as well as the specific concentrations of reactants and products under a certain set of conditions.*

Notes:

During the video segment, use words, phrases or drawings to take notes.

Summary:

After watching the video segment, write at least three sentences explaining what you learned. You can ask yourself: "If I was going to explain this to someone else, what would I say?"

After watching the video and performing any associated labs and/or experiments, you should be able to answer the following:

1. The equilibrium constant is the ratio of the concentrations of products divided by the concentrations of reactants. What does knowing the equilibrium constant tell us about a reaction?
2. If the equilibrium constant of a reaction is very high, formation of products is highly favored. If the equilibrium constant is lower than desired, chemists can suggest ways to improve product formation. Why would that be important to a chemical factory employee?

Here is the equation for the equilibrium constant for a reaction:

$$K_{\text{eq}} = \frac{[\text{C}]^c [\text{D}]^d}{[\text{A}]^a [\text{B}]^b}$$

Reactants are placed in the denominator (A and B on the bottom), while products are placed in the numerator (C and D on top).

3. Write the equilibrium equation for the reaction given as the first example in the video for Unit 10, segment B of *Chemistry Matters*.



4. Then write the equilibrium equation for a reaction known as the Haber process.



If you would like more practice on calculating equilibrium constants, please see the Closer Look video, "Calculating Equilibrium Constants," at gpb.org/chemistry-matters/closer-look.