Activity 6.2A Enzyme Activity

Purpose: In this activity you will be testing the idea that enzymes are affected by substrate concentration and competitive inhibitors.

Hypothesis: _____

_____

**Use if…then…format

Procedure:

1. Count out 25 substrate molecules (toothpicks) and arrange them randomly on your desk
2. One person in the group will be the enzyme and the other will time and record the results
3. Have the enzyme close their eyes and try to digest (break) as many substrate molecules as they can in 10 seconds.
4. Repeat the procedure with 35, 45 and 55 substrate molecules
5. Record the results in the table below.

Observations:

Total number of substrate molecules	Number of substrate molecules digested

Part B:

Procedure:

1. Count out 20 substrate molecules and five competitive inhibitors (paper clips) and arrange them randomly on your desk.
2. Have the enzyme close their eyes and try to digest as many substrate molecules as they can in 10 seconds.
3. Repeat the procedure with 15 substrate molecules and 10 competitve inhibitors
4. Repeat the procedure with 10 substrate molecules and 15 competitive inhibitors

Activity 6.2A Enzyme Activity

Observations:

Number of inhibitors	Number of Substrate molecules digested

Analysis

1. Graph your results for both parts. Please use a graphing app on your iPad or computer.
2. Calculate the **rate of reaction** for the first part of the activity. Remember, rate is defined as how quickly something occurs as a measure of time. Please show all of your work.
3. Summarize the effect on enzyme activity when substrate concentration is increased.
4. Summarize the effect on enzyme activity when a competitive inhibitor is added and then increased.