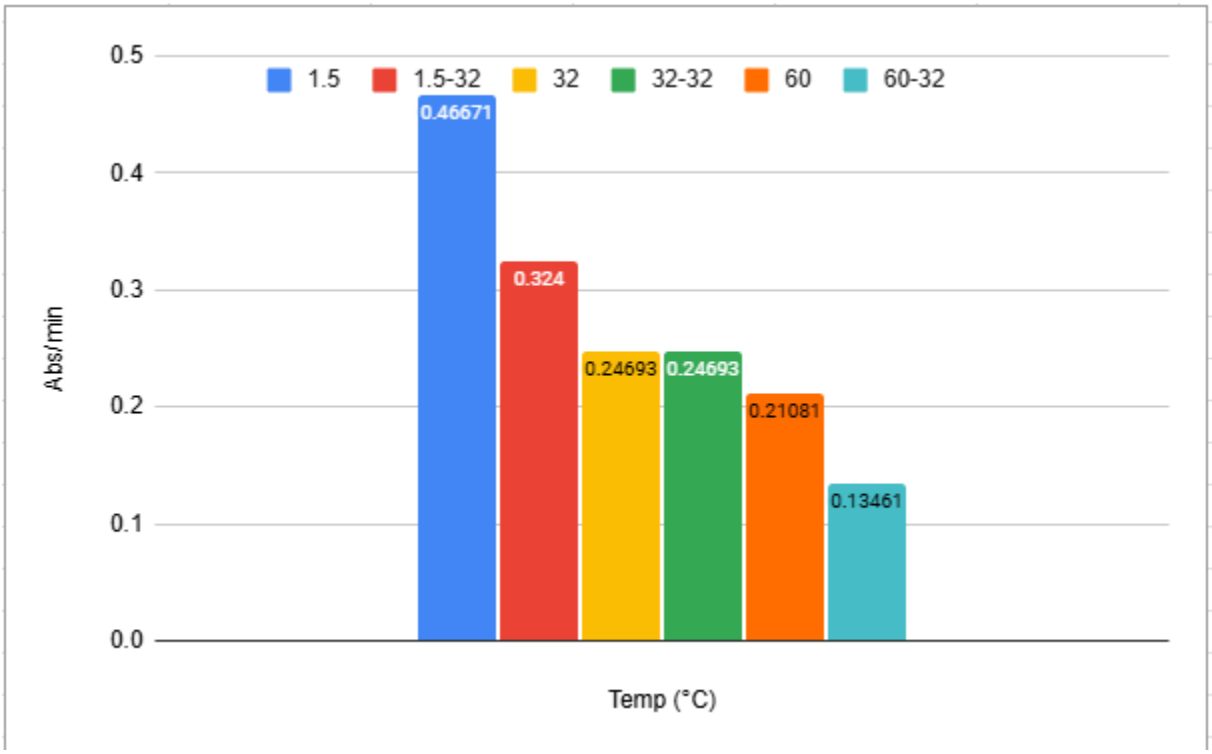
Lab 8 Homework:

Enzyme Kinetics Lab Packet

1. Use the data from your lab to create a Bar Graph. There will be 6 bars on the graph, the first 2 will show the cold temperature and the cold temperature moved to 32, the next 2 bars will show 32 and then moved to 32, and the final 2 bars will show hot temperature and hot moved to 32 degrees (only use the average enzyme activity for your bars). Please insert Bar Graph below:



2. Which temperature <u>irreversibly</u> denatures peroxidase? How does your data indicate that the enzyme is irreversibly denatured?

   The hottest temperature, 60 degrees, denatures it the worst out of the 3 initial temperatures, and the data indicates it was irreversibly denatured because after bringing the temperature down to 32 degrees it doesn't get any better even though the original 32 degrees temperature didn't denature is as bad as the original 60 degrees.

3. Why did the enzyme incubated at the other extreme temperature increase back to normal levels after being incubated at 32 degrees? (in other words, what was causing it to have low activity in the first place)

   The temperature at 1.5 degrees should have increased back to normal after being incubated at 32 degrees because at a lower temperature it has less energy to perform the reaction and so the reactions would be happening slower. When increasing the temperature, it would be adding more energy and the reactions will happen faster until getting denatured irreversibly.

4. What are *two* types of chemical bonds were broken when the enzyme was irreversibly denatured.

   Hydrogen bonds and covalent bonds

Research Proposal

From our research, it seems like changing the concentration of the enzyme in the reaction can influence the enzyme activity and rate of reaction. To test this, we could prepare a different concentration of peroxidase to PH buffer in several different test tubes then repeat a similar process as we did in this lab with measuring and recording each after adding an amount of substrate to kick off the reaction. By doing this we can see how the concentration of peroxidase affects the rate of reaction and enzyme activity.