

Enzyme Activity Simulation

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Students have a great deal of difficulty understanding how enzymes function due to the abstract nature of molecules in general and of enzymes in particular. This simulation was developed as a pre-lab activity to introduce students to the concepts of enzyme kinetics and inhibition. Prior to the simulation, students viewed animations and discussed the role of enzymes in chemical reactions and the factors that influence enzyme activity. During the simulation, students become the enzyme "chipcolorase" which catalyzes the conversion of yellow substrate chips into green product chips in timed intervals. The simulation examines 1) the specificity of enzymes; 2) the reaction rates of enzyme-catalyzed vs. nonenzyme-catalyzed reactions; and 3) the effects of competitive and non-competitive inhibitors on enzyme reaction rates. The time for completion of this activity is approximately 35-45 minutes.