Liver and Enzymes

Summary

Students use enzymes in liver to breakdown hydrogen peroxide. The reaction is measured by the temperature changes.

Time Frame

1 class periods of 60 minutes each

Group Size

Small Groups

Materials

student sheet (attached)
Intel temperature probe
CBL and calculator (or thermometer and clock with second hand)
graduated cylinder
hydrogen peroxide (3%)
a selection of other chemicals such as hydrochloric acid
ammonia
salt solution
baking soda solution etc
1 cm chunks of raw beef liver
2 test tubes
test tube rack
tweezers

Background for Teachers

Cells build up hydrogen peroxide during cellular reactions and it is harmful to the cells. The liver has an enzyme called catalase that breaks down hydrogen peroxide to carbon dioxide and water so it can be released from the cells. The heat released goes up rapidly, levels off, and then drops so it is easy for the students to calculate the changes.

Instructional Procedures

Help students program Intel CBL's and calculators to collect data every 30 seconds for 1 readings.

Show students where materials are and go over procedures.

Allow students time to collect data and complete graphs.

Compare student data on the board. Students can write their groups highest reading.

Allow students time to clean up and answer analysis questions.

Assessment Plan

Scoring guide:

- 1. Student participates and contributes to group work......4
- 2. Student records data and accurately graphs it......4
- 3. Student correctly answers questions......4

4. Conclusion specifically identifies learning......4

Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

Utah LessonPlans