Student Page

Name:_____ Period:_____

Title: Fun with Vegetables!

Purpose: To develop and test a hypothesis concerning one variable related to enzyme function.

Background info: Define an enzyme and a catalyst (in your own words).

Vegetables contain an enzyme called catalase, which aids in decomposing hydrogen peroxide. Hydrogen peroxide is produced in your body through natural chemical processes. Too much hydrogen peroxide is poisonous to your cells.

$$2\ H_2O_2 \rightarrow 2\ H_20 + O_2$$

By observing the amount of oxygen formed in this chemical reaction you are able to determine factors that affect enzyme function. What factors influence enzyme function? What is one that might increase or decrease the amount of product formed?

In this experiment we will establish as a control the following independent variables: 10 ml of blended potato, 5 ml of hydrogen peroxide, room temperature and a 5 minute collection time. The dependent variable is the amount of gas produced. In your experimental design you must first pick an independent variable to alter, so that the test is different from the control. Write a hypothesis as an "If ……, then ……" statement below:

Hypothesis:

Share your hypothesis with the class, no two groups can have the same one! Once your hypothesis has been approved move on and fill in the materials and procedures. Remember that you will need to do the control experiment first. Your teacher will tell you when you may start the experiments.

Materials:

Procedures:

Data:
Quantitative

Qualitative:

Graph:

Analysis:

1. When did you collect the most gas?

2. Why do you think this was the case?

3. What affect does the amount of enzyme have on the amount of oxygen?

4. How did changing the heat alter the amount of gas produced?

5. What veggie seemed to have the most catalase? How did you know?

Conclusions:

1. Did you results support your hypothesis? Why or why not?

2. Why was it important to only choose one variable?

3. Why is it important to repeat your experiment several times?

4. What other experiments could you perform to test your results?

5. What were some sources of error in this lab?

Explain 3 concepts that you learned or better understand after completing this lab. Please use complete sentences.