

## AP Biology Catalase Lab

### Enzyme Concentration Protocol:

1. Copy the Teacher Demonstration of Controls Data Table from the reading.
2. Obtain a 250ml beaker with approximately 100ml of potato extract. You will be assigned one of the enzyme concentrations.
3. Put a funnel with a folded cheesecloth into the top of a **100ml graduated cylinder**. You will pour the potato extract directly into the graduated cylinder through the filtering system until you have reached the correct volume as indicated in the chart below.
4. Take the **100ml beaker** and get the correct amount of dH<sub>2</sub>O. Add the dH<sub>2</sub>O to the graduated cylinder.
5. After creating your enzyme concentration, place the solution back in the **100ml beaker**. This is the beaker that you will soak your filter paper in.

Enzyme Concentration Reaction Cups	Volume of Enzyme (potato extract)	Volume of water
1 (20%)	8ml	32ml
2 (40%)	16ml	24ml
3 (60%)	24ml	16ml
4 (80%)	32ml	8ml
5 (100%)	40ml	0ml

6. Take the **50ml beaker** and collect 30 mls of **hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>)**. This is your **substrate** for the lab. *This is your reaction beaker.*
7. Collect five filter paper disks in a clean glass petri dish.
8. Pick up a disk with clean forceps. Using the forceps, dunk the disk in your enzyme extract for **FIVE** seconds, until the disk is uniformly moistened. Gently shake off any excess.
9. One person should watch the clock and other should watch the disk. You will be recording the number of seconds it takes for the disk to reach the top of the liquid.
  - a. Place your soaked disc **flat on the bottom** of the reaction beaker.
  - b. Watch the filter disk. You should see tiny bubbles of oxygen being released as the catalase breaks the hydrogen peroxide into hydrogen and oxygen.
  - c. As soon as the disc reaches the top of the liquid call time and **record in your data table**. Be precise in your measurements.

- d. Remove the disc **immediately** and discard it. DO NOT throw out the hydrogen peroxide.
10. You will repeat steps 8 and 9, five times and calculate an average.
  11. Put the potato solids from the cheesecloth into the trash and **rinse out the cheesecloth**. Flatten and hang on the pegs above the sink.
  12. Add your data to the google doc.
  13. Create a **computer generated data table and appropriately labeled graph** to illustrate the data within 95% confidence (mean  $\pm$  2 SEM)  
Does your graph say what you want it to say??