

Yeast Respiration Lab: CLASS COPY!

Introduction:

Most organisms, including yeasts, use oxygen in a process called cellular respiration. Cellular respiration is the controlled breakdown of carbohydrate to carbon dioxide and water with capture of some of the energy in the form of ATP. In the absence of oxygen, fermentation partially breaks down carbohydrate and a small amount of energy is captured in the form of ATP. The products are different depending upon the organism involved; in the case of yeast the products are ethanol and carbon dioxide. This is inefficient compared to respiration, but enables the yeast to survive and grow where no oxygen is available. Today you will observe how yeast utilize cellular respiration during fermentation.

Purpose: Remember to do this!

Hypothesis:

Materials:

100ml Erlenmeyer Flask, 2/3 teaspoon yeast, 40 mL apple Juice, Latex balloon, Heat Source

Procedure:

1. Stretch out your balloon as much as possible. Then, place 2 grams or about 1 teaspoon of yeast in your balloon, by filling a spoon to the point where the yeast is about level with the top of the spoon. **Please come see Mrs. Davis for this.**
2. Measure the circumference of your balloon utilizing the string you have been given.
3. Add about 40ml of warm apple juice into your 50ml Flask.
4. **Quickly** cover the flask tightly with the balloon. Dump the contents into the flask and secure your balloon using a piece of masking tape.
5. Observe and make a prediction about what will happen to this experiment after 30 minutes.

Data and Observations:

- 1) Make a drawing of your experiment at the beginning. Leave room to draw it at the end of this period.
- 2) Copy the chart onto your lab write-up.

	Observations inside the Flask	Circumference of Balloon (cm)
Original		
After 30 minutes		

Summary Questions:

- 1.) Did the balloon change in circumference during the period of this experiment?
If so, how did they change?
- 2.) What specifically accounted for the change that occurred in the balloon in this experiment?
- 3.) What was the specific source of energy in the apple juice the yeast used for respiration?
- 4.) The yeast began its respiration aerobically, but then after time completed it anaerobically as a fermentation process. How do these two processes differ?
- 5.) How did the physical evidence collected in this investigation support or reject your hypothesis?
- 6.) How does what the yeast did, compare to how we blow up a balloon? Who uses more energy?
- 7.) List and explain at least two major sources of possible error in this investigation.