

Name _____

Respiration in Yeast

Problem: To observe how organisms use sugar to create energy

Background Information:

Respiration is the process by which cells take in oxygen and release carbon dioxide and energy. It is the step-by-step breakdown of high-energy glucose molecules to release energy.

It takes place day and night in *all* living cells.

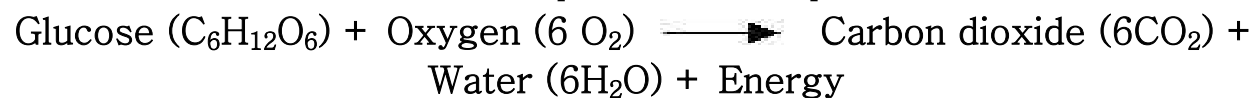
All cells carry out the process of cellular respiration in order to meet their energy needs.

Energy, produced from glucose by cellular respiration, is required for the survival of all living things.

The organelle where cellular respiration takes place in the cell is the mitochondrion. The mitochondrion is the organelle that makes energy from food for the cell's activities.

When living things respire they *produce heat energy*.

The chemical equation for respiration is:



Materials:

Dry yeast	Balloon	Warm water
Soda bottle	Sugar	Masking tape
Tape measure		

Procedure:

1. Put 1 spoonful of yeast and 2 spoonfuls of sugar in the soda bottle.
2. Fill the bottle $\frac{3}{4}$ full of warm water.
3. QUICKLY stretch the balloon over the opening of the bottle.
4. Seal with masking tape.
5. Shake the bottle to speed up the reaction.
6. Measure the diameter of the balloon every 2 minutes.
7. Shake as needed to mix the ingredients.
8. Repeat steps 1 and 2.
9. Insert a thermometer or temperature probe in the bottle.
10. Measure the temperature every 2 minutes.

Data:

Diameter of Balloon / Temperature at 2 Minute Intervals		
Time (minutes)	Diameter (cm)	Temperature (°C)
2		
4		
6		
8		
10		
12		
14		
16		
18		
20		

Data Analysis:

Make Line Graphs of your data, remember title & labels:

Describe the following relationships shown in the graph:

Time & temperature

Time & diameter

Conclusions:

1. What is the gas that filled the balloon? Where did it come from? **Explain your answer.**

2. **Explain** why the temperature changed during the investigation.