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| http://www.usoe.k12.ut.us/curr/science/core/8thgrd/sciber8/bio_ener/images/grow.gif |
| In this experiment, you will use yeast. Yeast is a living organism that needs special treatment. Make sure that your yeast is fresh. The yeast that is not used should be refrigerated. Yeast cells consume sugar to obtain energy. As the yeast respires, it uses oxygen. The oxygen is converted http://www.usoe.k12.ut.us/curr/science/core/8thgrd/sciber8/bio_ener/images/yeastexp.jpgto carbon dioxide.  **Materials** :   * Yeast- 5 grams * Sugar- 20 grams * Plastic Bottle * 4-inch balloon, deflated * Luke warm water(40-43 degrees C) * Thermometer * Scrap paper * String * Metric ruler   **Procedure** :  Partner 1: Measure the following and place each into the bottle:   * + Get a piece of scrap paper and place on the balance.   + Press on/zero button until the balance reads 0.0 grams. This cancels the weight of the paper.   + Measure out 20 g of sugar and, using funnel, put into bottle.   + Get a 2nd piece of paper. Following the same procedure, measure 5 g of yeast.   + Using the funnel, place the yeast into the bottle. You should now have 20g sugar and 5g yeast in the bottle.   + Wait until partner 2 is ready, then move onto step 1.   + **You are responsible for timing and recording measurements.**   Partner 2:   * + Using a graduated cylinder, measure out about 100 mL of lukewarm water(40-43degrees C)-If the water is too hot, add a small amount of tap water at a time until the water reaches the correct temperature.   + Get a balloon and blow up the balloon at least 5 times to stretch it out.   + Get a piece of yarn about 24 inches and a ruler.   + Wait until partner 2 is ready, then move on to step 1.   + **You are responsible for measuring the balloon.**  1. Partner 2: be ready with the balloon and have partner 1 ready to start timing. 2. Pour the water into the bottle and QUICKLY stretch the balloon over the opening of the bottle. Note the start time:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. Measure the circumference of the balloon (using the string) every minute. 4. Lay the string along the ruler to see the measurement in cm. 5. Record each measurement. 6. After each measurement, shake the flask **GENTLY** to further mix the contents, and then let it sit. 7. Continue to measure every minute until you have taken 20 minutes of data. |
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| **Data**: Record the data based on the time and circumference of the balloon.   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | **Time (minutes)** | **Circumference in cm** | | **1** |  | | **2** |  | | **3** |  | | **4** |  | | **5** |  | | **6** |  | | **7** |  | | **8** |  | | **9** |  | | **10** |  | |  | |  |  | | --- | --- | | **Time (minutes)** | **Circumference in cm** | | **11** |  | | **12** |  | | **13** |  | | **14** |  | | **15** |  | | **16** |  | | **17** |  | | **18** |  | | **19** |  | | **20** |  | |   Graph the data. Create a line graph using time for the X-axis and circumference for the Y-axis. You must have a title and label each axis.  **Analysis**:   1. What did you observe happening in this reaction?    * What gas do you think is being produced?    * How could you prove what you think the gas is?    * How do you think the gas was formed? 2. What do you predict will happen to the balloon after 24 hours? |