

Experiment Steps

Materials Needed:

- Measuring Spoons
- 5 zipper plastic bags
- Sharpie
- Timer

Ingredients Needed:

- 1 tablespoon of sugar
- 1 tablespoon of syrup
- 1 tablespoon of milk
- 1 tablespoon of chopped up plant
- 5 teaspoons of dry yeast
- 1 ¼ cups of very warm tap water

Step 1: Set Up

- Use a sharpie marker to label bags with the following names (each bag should have one name):
 - Control
 - Sugar
 - Syrup
 - Milk
 - Plant
- Add 1 Tablespoon of test material in the bag with its name. For example, you will add 1 Tablespoon of milk to the milk bag. The control bag should remain empty.
- Add 1 teaspoon of yeast to each bag, including the control bag.
- Pour 1/4 cup of warm tap water into each bag, including the control bag.
- Make sure each bag is zipped closed and that there is no air in each bag.
- Remove extra air from each bag and seal immediately. Make sure materials in each bag are mixed. No dry material should be sitting off to the side.
- Lay bags on flat surface.

Step 2: Making Observations

- Write observations of what each bag looks like in the “0 minute” row on [Handout: Table for Observations](#).
- Set timer for 3 minutes.
- When 3 minutes are up, have one person record observations in the “3 minute” row. Have another person immediately set the timer again for another 3 minutes.
- Repeat the process every 3 minutes for a total of 21 minutes total.

Table for Observations

Record your observations in the chart below.

Time (minutes)	Control	Sugar	Syrup	Milk	Plant
0					
3					
6					
9					
12					
15					
18					
21					

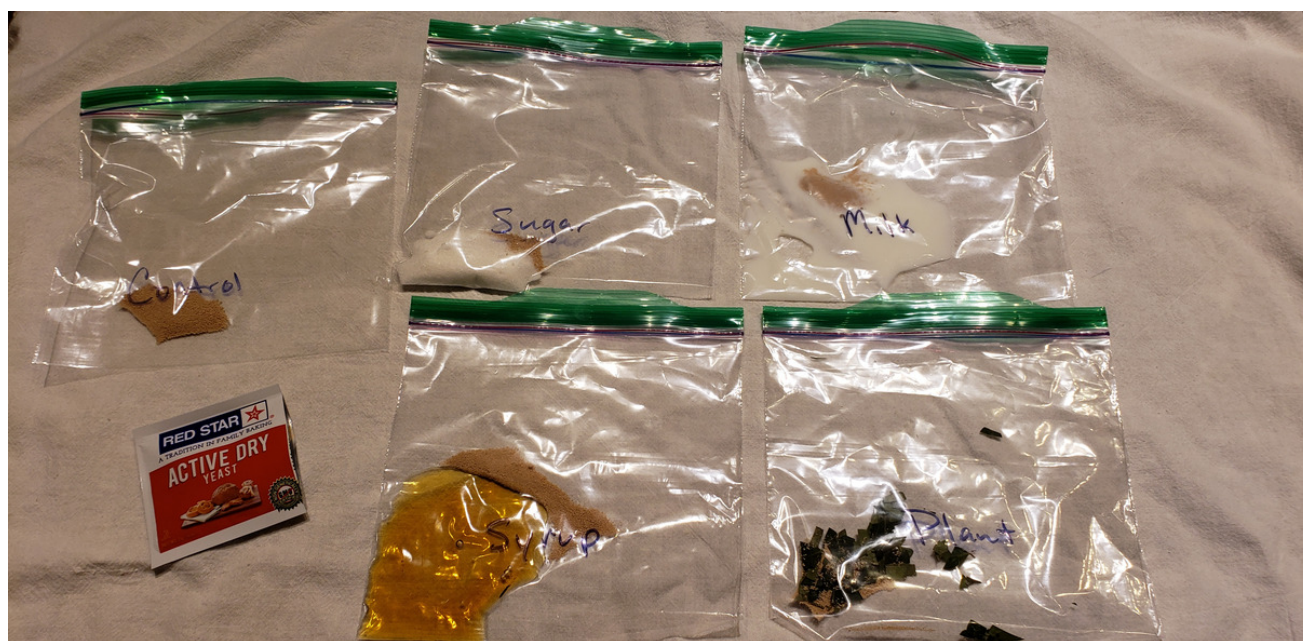
Teacher Tips

Use these pictures to help guide set-up.

Bags with materials only



Bags with materials and yeast



Lesson: Alternative Energy

Bags with water added.

You can stand bags up to make squeezing the air out easier.



After all air is out, bags should be laid flat again.



Lesson: Alternative Energy

The bags that will produce "fuel" will show small air pockets forming like those below:

Key: Syrup and sugar bags will produce gas. The milk bag will only produce gas if lactose is also added. The plant and control bags will not produce gas.

