



Single Cell Growth Lab

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Cell Theory

- All organisms are made of 1 or more cells
- The cell is the basic unit of all living things
- All cells come from existing cells

2 kinds of cells

- Prokaryote: no nucleus, no membrane (example: bacteria)
- Eukaryote: has nucleus, larger than prokaryote, have membrane, usually multicellular (what is multicellular?)

Cells are living!

There are 4 essential things essential for organisms to live:

- 1. food
- 2. water
- 3. shelter (warmth, habitat)
- 4. air

Today we are working with Yeast.

- Yeast is a single celled organism
- Yeast is from the fungi kingdom
- Yeast is a eukaryote, and has a cell wall

Yeast Cell



Supplies

- Yeast packet
- 2 ½ cups warm water
- 2 cups flour
- 1 TBS sugar
- 1 gallon sized Ziploc
- 1 quart sized glass jar
- Cloth netting

Step 1: Water

- Pour $\frac{1}{2}$ cup warm water into the baggie, then pour the package of yeast into the water to dissolve.

The water is necessary for the cell to perform the process of diffusion, which helps the cells divide and grow. When this happens to yeast, it is called **budding**.

Step 2: Food

- Next, add 1 TBS sugar

The sugar represents the food that the plants make through **photosynthesis**, which is glucose, a type of sugar. The sugar we are using is processed sugar, but is still sugar.

Step 3: Shelter (warmth)

- Add the remaining 2 c water, but also the 2 cups flour.

The 2 cups flour will give the yeast cells a home to live in, to keep it safe and warm, mix it gently and thoroughly, careful not to harm the cells as they are living organisms.

Pour into Jars

- Carefully pour half your cell mixture into your jars, we will put netting over the top of the jar to let it “breathe.”
- The yeast will be using oxygen to break the sugar (food) down to use it as energy; CO₂ (Carbon Dioxide) will be released into the air, this will show up as bubbles in the mixture.

Cell Respiration

- The process of using oxygen to produce energy from food is called **Cell Respiration**, in an animal it keeps it warm; for a plant, it keeps it alive and gives it energy to cell activities.

Mark Your Jar

- Take a Sharpie marker, and make a small mark across your jar about an inch long where the top of the mixture is.
- Record your information on your science journal page
- Then, wait! Tomorrow we will see what happens next!

Food for Thought....

- What cells make up our body?
- Which cells are living?
- What evidence do we have that they are living?
- How are cell body parts like our body parts?
- How do cells grow?