

Yeast and Decomposing Bananas

5th Grade

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References:

- “Observing Decomposers.” Science 4. Steck-Vaughn.
- Wikipedia.org/yeast

Benchmarks & Objective:

LS-3: Trace the organization of simple food chains and food webs (e.g., producers, herbivores, carnivores, omnivores and decomposers).

Students will observe the role of yeast as a decomposer.

Materials:

- Bananas
- Zip lock bags
- Yeast
- Teaspoon
- Ruler

Target Concept:

- Yeast, a fungus, is a decomposer. It helps break down organisms into inorganic matter. Yeast helps in the process of decomposition.

Initial Introduction:

Today’s experiment will involve yeast and decomposing bananas. Does anyone know what yeast is? Allow the students to give their answers. Yeasts are single-celled fungi which are commonly used to leaven bread, ferment alcohol, and even drive fuel cells. Ask students “what is a fungus?” They should remember that fungi are decomposers. Give an example of how yeast breaks down food ($\text{glucose} \rightarrow \text{ethanol} + \text{carbon dioxide}$). Include chemical formula. Yeast can operate aerobically or anaerobically. Define aerobic and anaerobic.

Procedure:

1. Have the students write the date and the title of today's lesson.
2. The students must also record materials.
3. Describe the procedure.
4. Pose the question, have them write it. What will happen to the two banana slices: the one with the yeast and the one without the yeast?
5. Have the students record the question and their hypotheses.
6. The students will be given 2 banana slices already in plastic bags. (2 per table is enough).

7. Have the students write down any observations they have.
8. Have them add 1 teaspoon of yeast to one bag and nothing to the banana labeled control. This is a good opportunity to review the term control with them.
9. Allow the students to record any additional observations they may have.
10. Each day allow a few minutes for the students to check their banana slices and record their observations. Continue until a conclusion can be made.

*This procedure should ideally take only 5 days. Using very ripe bananas and a drop or 2 of water may speed up the process. Otherwise it may take longer to notice any substantial difference.

Target Observations:

- Students should notice that the banana slice with the yeast breaks down faster than the one without the yeast.
- They may even notice a slight inflation of the bag due to the release of carbon dioxide.

Final Target Concept:

- The students should realize the yeast functioned as a decomposer.
- They should realize yeast is a decomposer because it breaks down matter into different components.
- If the bag with the yeast inflates, it will be a good opportunity to discuss how sugar is broken down into ethanol and carbon dioxide.