

Yeast Fermentation Science Inquiry Project

Educator Instructions

For this laboratory it is based on a traditional Yeast Fermentation Lab an example of which can be found [here](#). This lesson was created using [Youth Canada Science's Smarter Science Framework](#).

Overview:

The intent of this project is to follow a Teacher-Guided Inquiry methodology that is adapted from Youth Science Canada's Smarter Science Framework. Learners will conduct a simple experiment involving yeast fermentation of sugars, choosing what variables to manipulate and control.

NB Curricular Connections:

Science 9/10

Strand: - Scientific Literacy – Big Idea: Investigation - Skill Descriptors:

Plan investigations to answer questions about relationships between and among variables observed, Collect and represent accurate data using tools and methods appropriate for investigations.

Strand: Scientific Literacy – Big Idea: Sensemaking – Skill Descriptor: Analyze and interpret qualitative and quantitative data to construct explanations and conclusions.

Strand: Scientific Literacy – Big Idea: Communication - Skill Descriptor: Communicate procedure, result, and conclusion using a variety of media and working collaboratively

Strand: Learning and Living Sustainably– Big Idea: Responsible and Sustainable Application - Skill Descriptors: Apply scientific and technological knowledge and an understanding of sustainable practices responsibly, Identify community-based challenges connected to at least two of Sustainable Development Goals 3, 13, 14, and 15, and apply iterative processes to design solutions.

What You'll Need:

- 1) Download and print "Yeast Fermentation Science Inquiry Project" hand out one per group



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2) Assuming a student group size of two:

- Pop bottle or Erlenmeyer Flask
- Balloon
- Dry active yeast
- Sugars of various types (Sucrose, Glucose, Fruit Juice, Syrup, etc.)
- Fabric measuring tape, or string and a ruler.
- Thermometer
- Volumetric containers (Graduated cylinders, beakers, or measuring spoons)
- Mass balance
- * Depending on what the learners choose to include the materials can vary

Instructions:

- 1) Before starting this activity, learners should be able to make graphs and organize data tables.
- 2) Introduce the activity by presenting the materials inform learners that they will have to measure the rate of the fermentation process (CO_2) production based on conditions they choose.
- 3) Hand out the "Yeast Fermentation Science Inquiry Project" learner document.
- 4) Go over the handout and inform students that they are to create their own experimental design given the presented materials.
- 5) Have students research their topic and form their own inquiry question.

Assessment Ideas:

- Consider using a rubric or checklist as learners work through the design process
- Consider have the learners write a lab report based on their experimental

Acknowledgments:

This activity was created using the Smarter Science Framework by Youth Science Canada (<https://youthscience.ca/for-educators/#resources>)

