

# HANDS-ON LITERACY

**SAMPLE LESSON**

**GRADES 3-6**

# Table of Contents

**SAMPLE STUDENT LESSON 3**

**SAMPLE TEACHER LESSON 9**



**Access Your  
Digital Lesson Here**



Reading Horizons



Copyright © 2025 Central Creativity

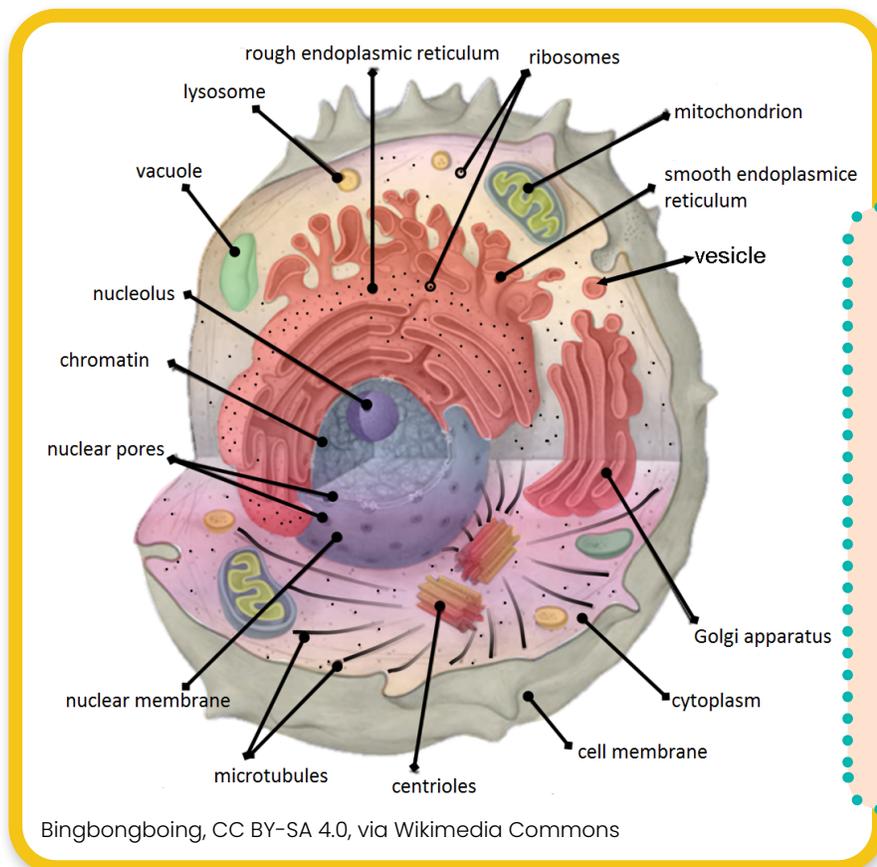
All rights reserved. No part of this publication may be reproduced or distributed in whole or in part without written permission of the copyright owners.

[www.centralcreativity.com](http://www.centralcreativity.com)

# FUNGUS FERMENTATION

All living things have to have food to survive. Plants make their own food from the sun, herbivores eat the plants, and carnivores eat the herbivores! Food gives humans and other organisms the **energy** they need to function.

The energy in food isn't usable for the body, though. In humans, food is turned into usable energy, called **adenosine triphosphate (ATP)**, through a process called **cellular respiration**. This all happens inside the cells of our bodies. Once the food becomes ATP, it can be used to help our lungs breathe in air, our hearts pump blood, and all the other things our bodies do.

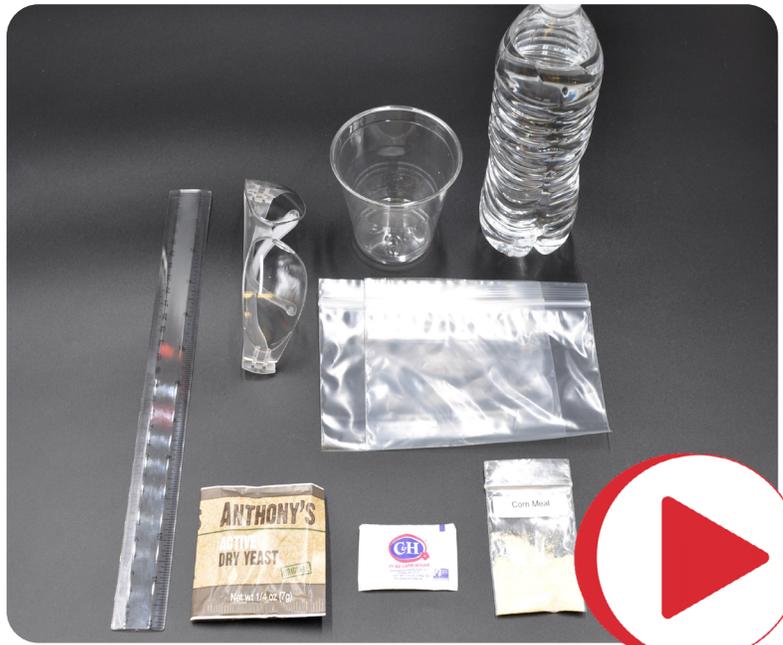


Our bodies are made of microscopic cells that have their very own organs called **organelles**. These organelles are constantly working to make new cells. Each organelle has a specific job to do to make new cells and keep our bodies going. Cellular respiration happens mainly in the **mitochondria** of the cell.

# Materials

- Plastic Zipper Bags
- Yeast
- Sugar
- Cornmeal
- Water
- Cup
- Measuring Tool\*

\*In General Supplies

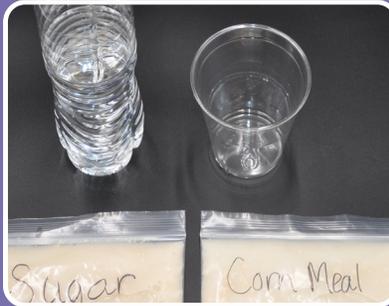


*Fermentation produces ethanol, which is flammable. Keep away from open flame. Safety glasses and adult supervision are recommended. Do not leave bags unattended. If they look as if they'll burst, open them slightly at the corner.*



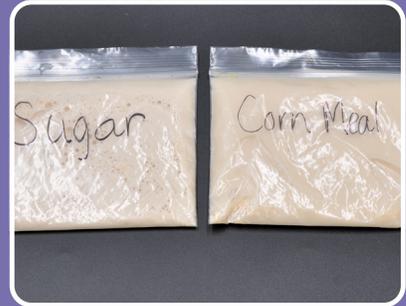
## STEP 1

Divide the yeast evenly between the two plastic bags.



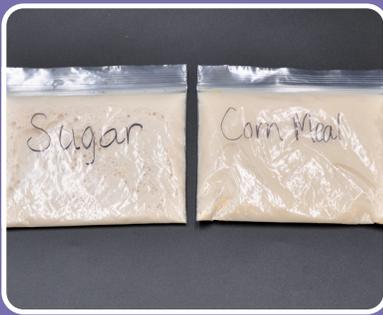
## STEP 2

Add sugar to one bag and cornmeal to the other. Label each bag or notice the color of the ingredients to remember which is which.



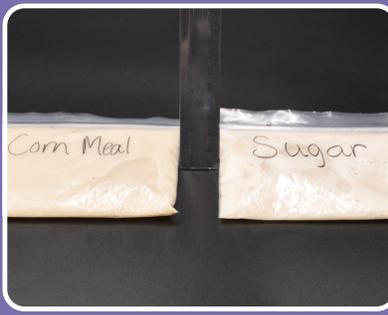
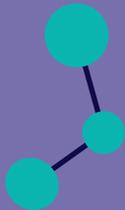
## STEP 3

Fill your cup most of the way with water. Pour half the water in one bag and half in the other. Seal them carefully, removing as much air as possible.



### STEP 4

Massage each bag until the yeast has dissolved.



### STEP 5

Measure the height of each bag and record this next to *initial height* in your data table on page 82. Measure it again every 5 minutes for the next 20 minutes. Record your observations in the data table.



### STEP 6

After 20 minutes, carefully open the corners of the bags to let out the air and then dispose of them in the trash.



Read the instructions carefully and look for the word **yeast** as you go. Use your highlighter to mark every time you see the word **yeast**, and notice how the vowels **ea** are together, with the first vowel making a long sound and the second vowel staying silent.



**Fermentation** is a process that cells of some fungi use to extract, or remove, energy from carbohydrates. Carbohydrates are foods like bread, sugar, and potatoes. Fermentation occurs when yeast and water come in contact with **carbohydrates**. The yeast breaks down the carbohydrate into energy and produces a gas called **carbon dioxide**. Cellular respiration in humans requires oxygen to work. Fermentation, however, doesn't!





Record your measurements in the table below.

**HEIGHT OF BAG WITH SUGAR (in cm)**      **HEIGHT OF BAG WITH CORNMEAL (in cm)**

| <b>Initial Height</b> |  |  |
|-----------------------|--|--|
| <b>5 Minutes</b>      |  |  |
| <b>10 Minutes</b>     |  |  |
| <b>15 Minutes</b>     |  |  |
| <b>20 Minutes</b>     |  |  |

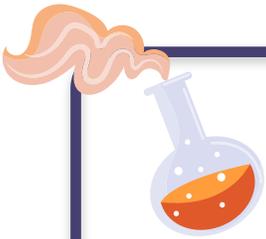
Which bag filled with more carbon dioxide? Why do you think that is? (Hint: Think about the food you were feeding the yeast in each. Was one easier to break down than the other?)

.....  
.....

## CAREER CONNECTION

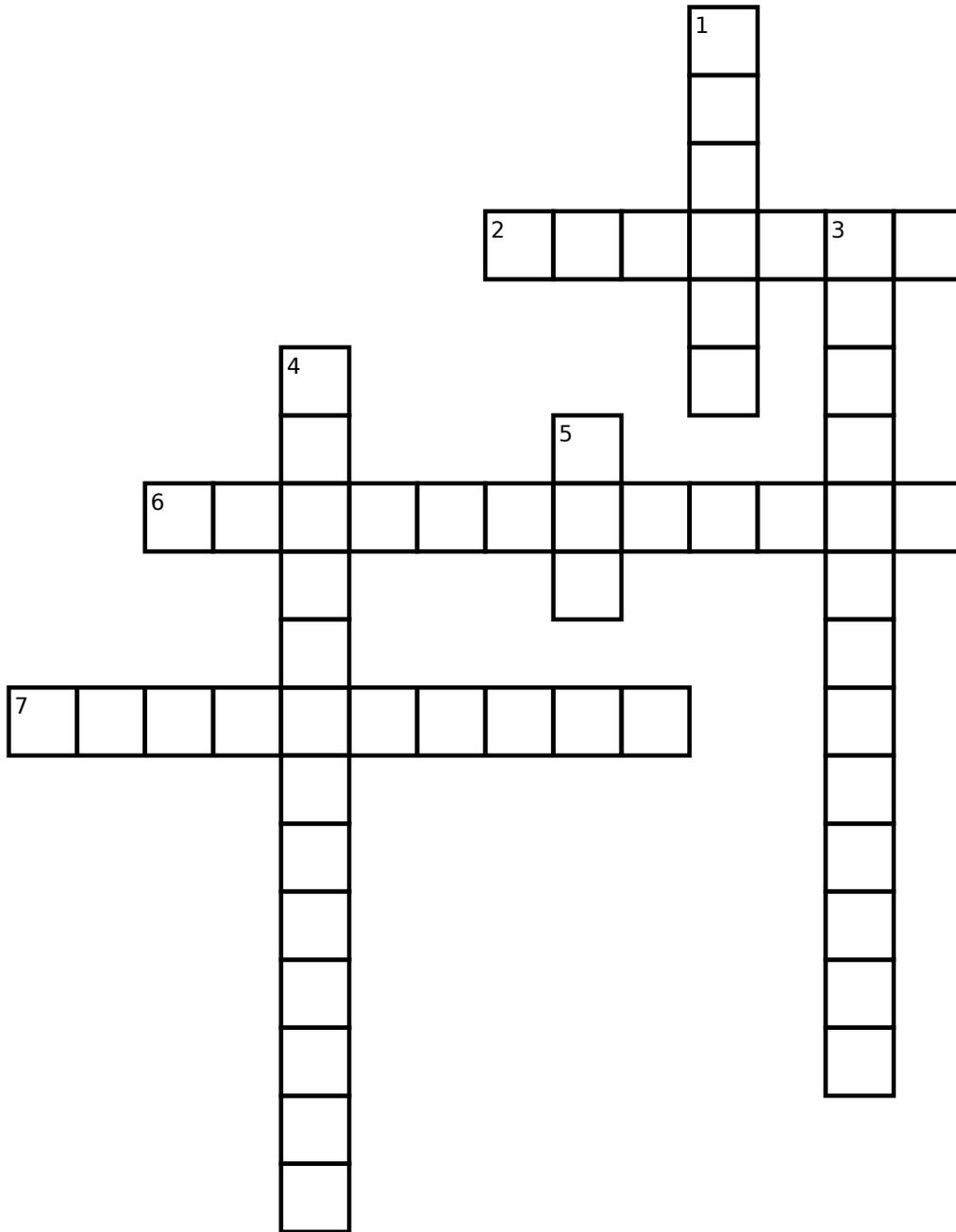
• Baker •

Bakers rely on fermentation for many of the breads they bake. As the yeast cells carry out fermentation, they release carbon dioxide, which helps the bread rise and gives it its fluffy texture. Bakers work in bakeries, restaurants, grocery stores, and other places. They often follow recipes created by others, but many bakers use their science knowledge, cooking experience, and creativity to create new recipes.



# BRAIN BREAK!

Solve the crossword puzzle below.



**Down:**

- 1. necessary for the body to function
- 3. bread, sugar, potatoes
- 4. gas that is created from yeast
- 5. energy that's usable by the body, for short

**Across:**

- 2. to remove
- 6. process that cells of some fungi use to extract energy from carbs
- 7. the organs of cells

Answer Key: 1. energy, 2. extract, 3. carbohydrate, 4. carbon dioxide, 5. ATP, 6. fermentation, 7. organelles



Name: \_\_\_\_\_

## DECODABLE PASSAGE

Read the story and make an illustration to match.

It is a feat to make a meal.

You have a heap of stuff to heat.

You have to beat the cream and steam the peas.

Wait! Did you heat the meat? Yes.

Next have a seat to eat a real treat.

Then clean each pot and pan in the sink.

### Decodable Cards

Teachers: Cut the cards in half. Consider laminating for repeated use.

#### Phonetic Skill 5: ea

neat cheat heat seat

lead lean leaf leap

treat trait beat bait

yeast peach heap lead

stay way mail brain

#### Phonetic Skill 5: ea

neat cheat heat seat

lead lean leaf leap

treat trait beat bait

yeast peach heap lead

stay way mail brain

Name: \_\_\_\_\_

## FLUENCY PYRAMID

The

The bleach

The bleach will

The bleach will get

The bleach will get it

The bleach will get it neat

The bleach will get it neat and

The bleach will get it neat and clean.

Name: \_\_\_\_\_

## DECODABLE SENTENCES

1. We will read in class.

2. The steam from the tea is hot.

3. They eat peas and beans for lunch.

4. I had a big feast with the king.

5. The gray seal is in the sea.

**Word Cards**  
Teachers: Cut the cards out. Consider laminating for repeated use.

|       |       |
|-------|-------|
| and   | grass |
| jazz  | stamp |
| land  | class |
| past  | raft  |
| chant | task  |

Phonetic Skill 2: Vowel *a* © 2024 by Reading Horizons 269

Name: \_\_\_\_\_

**ROLL AND READ**

|   |                        |
|---|------------------------|
|    | camp branch grant vast |
|    | brass fact grasp plant |
|    | land ramp slant chant  |
|    | craft ask grand mask   |
|  | pass sand clamp task   |
|  | ranch staff hand act   |

268 © 2024 by Reading Horizons Phonetic Skill 2: Vowel *a*

Word Cards

Teachers: Cut the cards out. Consider laminating for repeated use.

cream

cheat

bead

meal

least

tea

team

leaf

neat

leap

Phonetic Skill 5: ea

© 2024 by Reading Horizons

517

Name: \_\_\_\_\_

## ROLL AND READ



bean

heap

lead

neat



tea

peach

lean

dream



each

eat

bead

team



yeast

teach

pea

least



leaf

meal

reach

seat



sea

treat

bleach

cheap

516

© 2024 by Reading Horizons

Phonetic Skill 5: ea



# NOTES

A series of horizontal blue lines on a white background, providing a space for writing notes. A vertical pink line is positioned on the left side, creating a margin.

# HANDS-ON LITERACY

**TEACHER  
SAMPLE LESSON**

**GRADES 3-6**

# Phonetic Skill 5: ea

When certain vowels are adjacent, or next to each other, the second vowel is silent, and the first vowel sound is long.

**Sound-Spelling Wall (2 min):** You can use small mirrors to show your students how their mouths look and move during sound production.

- **Articulatory Features of /ē/:** The lips are in the shape of a wide smile, and the chin is in a medial position. There is a small space between the top and bottom teeth. The tongue is lifted very high in the mouth and pushed toward the front. The jaw is tense.

 Watch my mouth as I say the sound /ē/. Say the sound with me. (/ē/)

- Guide students with the articulatory features of the sound. Repeat the sound as needed.

When we say the sound /ē/, our mouth is open, and nothing blocks the air. That means this is a vowel sound.

- Use classroom or personal Sound Walls to locate the /ē/ card.

We can spell this sound with the vowels e, e with silent e, or ea.



**Direct Skill Instruction (5 min):** Have your students write and mark with you during instruction.

 We will learn about Phonetic Skill 5. When certain vowels are adjacent, or next to each other, the second vowel is silent, and the first vowel sound is long.

- Refer to the 5 Phonetic Skills Poster on Page 43.

The adjacent vowels ea spell the sound /ē/ at the beginning, middle, or end of words.

- Refer to the Adjacent Vowels Poster.

Let's prove a Phonetic Skill 5 word with the adjacent vowels ea.

First, tell me the sounds in *reach*. (/r/ /ē/ /ch/)

Write the word *r-e-a-c-h*. (**reach**)

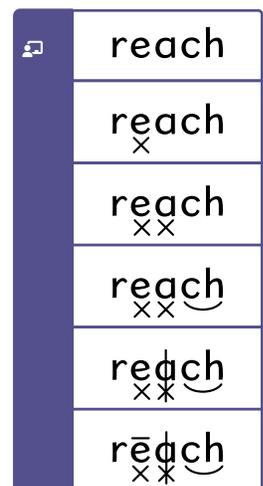
Mark the vowel e with an x. (**x under e**)

Mark the vowel a with an x. (**x under a**)

Mark the digraph with an arc. (**arc under ch**)

Then we come around the word. The second vowel is silent. We draw a straight line through the silent a and the x under it to remind us that there is no sound for this vowel.

Mark the a silent. (**silent line through a**)



## Phonetic Skill 5

# Aa



The first vowel *e* spells its long sound.

Mark the vowel *e* with a long vowel mark. (**macron over e**)

Read the word twice. (**reach, reach**)

You've got it! The word is *reach*.

Tomas uses a hook to help him *reach* things that are too high.

### ☑ Check for Understanding

☰ What does Phonetic Skill 5 tell us? (**When certain vowels are adjacent, the second vowel is silent, and the first vowel sound is long.**)

**Dictation Word Bank (5 min):** Choose 3–5 words to dictate. Provide corrective feedback as your students write and prove the words. Ask your students to read each word they wrote before they erase their boards.

tēa

sēal

blēach

bēad

ēast

hēap

lēan

pēa

nēat

mēal

tēach

pēach

lēap

**Transfer (8 min):** This section is critical for your students to move learning from isolation to context. Repeated readings are beneficial and encouraged. While the goal is for your students to reach the paragraph level of transfer, some students may need support at the word or sentence level first. Choose the option(s) most appropriate for your students.

## Materials

| Decodable Cards      |       |      |       |
|----------------------|-------|------|-------|
| Phonetic Skill 5: ea |       |      |       |
| neat                 | cheat | heat | seat  |
| lead                 | lean  | leaf | leap  |
| treat                | trait | beat | bait  |
| yeast                | peach | heap | lead  |
| stay                 | way   | mail | brain |

Decodable Cards

Name: \_\_\_\_\_

### DECODABLE SENTENCES

1. We will read in class.
2. The steam from the tea is hot.
3. They eat peas and beans for lunch.
4. I had a big feast with the king.
5. The gray seal is in the sea.

Decodable Sentences

Name: \_\_\_\_\_

### DECODABLE PASSAGE

Read the story and make an illustration to match.

It is a feat to make a meal.  
You have a heap of stuff to heat.  
You have to beat the cream and steam the peas.  
Wait! Did you heat the meat? Yes.  
Next have a seat to eat a real treat.  
Then clean each pot and pan in the sink.

Decodable Passage

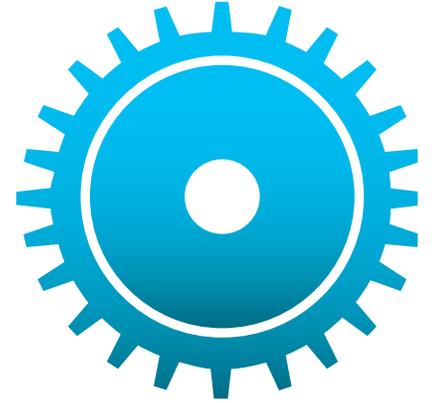
## Phonetic Skill 5

### Decoding Transfer

- **Modeled Echo Read:** The teacher reads, and then students repeat, like an echo.
- **Choral Read:** Students read with the teacher.
- **Partner Read:** Students read with a partner.
- **Independent Read:** Students read by themselves.

### Decoding Extensions

- Dictate the sentences to students for additional transfer in encoding. Have students read the sentences after writing.
- Have students choose one sentence to turn into a paragraph or story.
- Have students illustrate what they read in the passage.



**Quick Check (optional):** If you would like to collect additional data, you may choose to give your students a Quick Check. Pick one of the lists provided. Ask your students to listen to each word and spell it on paper. Say each word and then provide a context sentence. Accuracy in the Quick Check can indicate proficiency in this skill.

#### List 1

- **heap:** The wind blew the leaves into a *heap*.
- **teach:** I can *teach* you how to do a magic trick.
- **lead:** Our puppy has a long *lead* for her walk.
- **east:** At dawn, the sun rises in the *east*.
- **dream:** A funny *dream* woke me up last night.

#### List 2

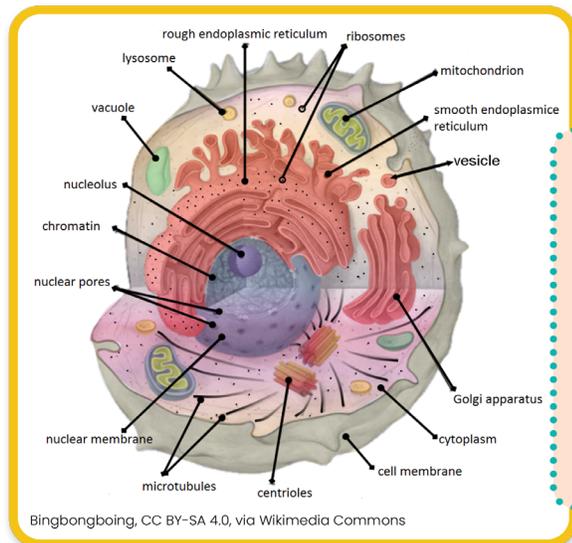
- **cheap:** This store sells *cheap* fruit and vegetables.
- **neat:** Eve keeps her room *neat* and tidy.
- **peach:** A *peach* is a fruit.
- **heat:** I *heat* my soup before I eat it.
- **yeast:** Bakers add *yeast* to make the bread rise.



# FUNGUS FERMENTATION

All living things have to have food to survive. Plants make their own food from the sun, herbivores eat the plants, and carnivores eat the herbivores! Food gives humans and other organisms the **energy** they need to function.

The energy in food isn't usable for the body, though. In humans, food is turned into usable energy, called **adenosine triphosphate (ATP)**, through a process called **cellular respiration**. This all happens inside the cells of our bodies. Once the food becomes ATP, it can be used to help our lungs breathe in air, our hearts pump blood, and all the other things our bodies do.



Our bodies are made of microscopic cells that have their very own organs called **organelles**. These organelles are constantly working to make new cells. Each organelle has a specific job to do to make new cells and keep our bodies going. Cellular respiration happens mainly in the **mitochondria** of the cell.

Bingbongboing, CC BY-SA 4.0, via Wikimedia Commons

© 2025 Central Creativity

77



## BIG IDEA

Yeast uses fermentation to break down sugar and make gas, helping bread rise and showing how tiny living things can create big changes



## WORDS TO KNOW

- **Energy:** The power that makes things move or work.
- **Yeast:** A tiny living fungus that helps dough rise.
- **Fermentation:** A process where yeast turns sugar into gas.
- **Carbohydrate:** A type of nutrient in foods like bread, rice, and fruit that gives your body energy.
- **Cellular Respiration:** A way cells make energy by using food and oxygen.
- **Organelles:** Tiny parts inside a cell that each have a special job.
- **Carbon Dioxide:** A gas we breathe out and that plants use to make food.



## ESSENTIAL INFO

Fermentation isn't just for baking. It's used around the world to make foods like cheese, yogurt, pickles, and even chocolate! Bakers depend on yeast's gas-making power to puff up dough, and scientists study yeast to learn how cells work. Yeast has been helping humans bake bread for thousands of years, and it's still hard at work in bakeries today!



## SAFETY

- Wear safety glasses and use adult supervision.
- Keep bags away from open flames because fermentation makes flammable gas.
- Don't leave bags unattended—if they puff up too much, carefully open a corner.
- Wash hands after handling yeast or bags.
- Throw bags away when finished. Don't open them near your face.

## Materials

- Plastic Zipper Bags
- Yeast
- Sugar
- Cornmeal
- Water
- Cup
- Measuring Tool\*

\*In General Supplies



*Fermentation produces ethanol, which is flammable. Keep away from open flame. Safety glasses and adult supervision are recommended. Do not leave bags unattended. If they look as if they'll burst, open them slightly at the corner.*



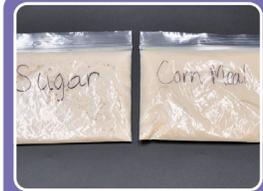
### STEP 1

Divide the yeast evenly between the two plastic bags.



### STEP 2

Add sugar to one bag and cornmeal to the other. Label each bag or notice the color of the ingredients to remember which is which.



### STEP 3

Fill your cup with most of the way with water. Pour half the water in one bag and half in the other. Seal them carefully, removing as much air as possible.

78

© 2025 Central Creativity

## NOTES

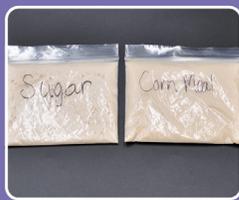


## FOR INQUIRING MINDS

**HOW DOES TEMPERATURE AFFECT YEAST?** Warm temperatures help yeast work faster, but too much heat can kill it.

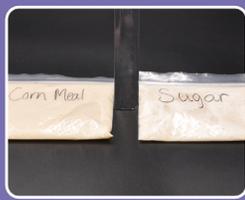
**WHAT ARE SOME OTHER FOODS MADE WITH FERMENTATION?** Cheese, yogurt, pickles, and even some sodas are made using fermentation.

**CAN YEAST BE USED FOR DRINKS TOO?** Yes! Yeast helps make root beer, kombucha, and even sparkling drinks bubble.



#### STEP 4

Massage each bag until the yeast has dissolved.



#### STEP 5

Measure the height of each bag and record this next to *initial height* in your data table on page 82. Measure it again every 5 minutes for the next 20 minutes. Record your observations in the data table.



#### STEP 6

After 20 minutes, carefully open the corners of the bags to let out the air and then dispose of them in the trash.



Read the instructions carefully and look for the word **yeast** as you go. Use your highlighter to mark every time you see the word **yeast**, and notice how the vowels **ea** are together, with the first vowel making a long sound and the second vowel staying silent.



**Fermentation** is a process that cells of some fungi use to extract, or remove, energy from carbohydrates. Carbohydrates are foods like bread, sugar, and potatoes. Fermentation occurs when yeast and water come in contact with **carbohydrates**. The yeast breaks down the carbohydrate into energy and produces a gas called **carbon dioxide**. Cellular respiration in humans requires oxygen to work. Fermentation, however, doesn't!



© 2025 Central Creativity

79

## TAKING IT FURTHER

**Fermented Food Fair:** Set up tasting stations with kid-friendly fermented foods, fun facts, and country-of-origin signs. Have students taste then vote on their favorite and create a class chart.

Fermented foods may include:

- Yogurt
- Cheese (like mild cheddar or mozzarella)
- Pickles (dill or bread-and-butter)
- Sourdough bread

## NOTES



## NOTES





## NOTES



Record your measurements in the table below.

|                       | HEIGHT OF BAG WITH SUGAR (in cm)                 | HEIGHT OF BAG WITH CORNMEAL (in cm)               |
|-----------------------|--|---|
| <b>Initial Height</b> | 10 Centimeters Tall.                             | 10 Centimeters Tall.                              |
| <b>5 Minutes</b>      | The bag with sugar grew to 12 centimeters.       | The bag with cornmeal stayed 10 centimeters.      |
| <b>10 Minutes</b>     | The sugar bag was 15 centimeters.                | The cornmeal bag grew a little to 11 centimeters. |
| <b>15 Minutes</b>     | The sugar bag got bigger to 17 centimeters.      | The cornmeal bag was 12 centimeters.              |
| <b>20 Minutes</b>     | The sugar bag was the biggest at 20 centimeters. | The cornmeal bag was 13 centimeters.              |

Which bag filled with more carbon dioxide? Why do you think that is? (Hint: Think about the food you were feeding the yeast in each. Was one easier to break down than the other?)

*The bag with sugar filled with more carbon dioxide. I think this is because sugar is easier for yeast to break down. Cornmeal is harder for the yeast to eat. The bag with sugar got much bigger than the cornmeal bag. The yeast liked the sugar best. It made gas that made the bag grow.*



## CAREER CONNECTION

• Baker •

Bakers rely on fermentation for many of the breads they bake. As the yeast cells carry out fermentation, they release carbon dioxide, which helps the bread rise and gives it its fluffy texture. Bakers work in bakeries, restaurants, grocery stores, and other places. They often follow recipes created by others, but many bakers use their science knowledge, cooking experience, and creativity to create new recipes.

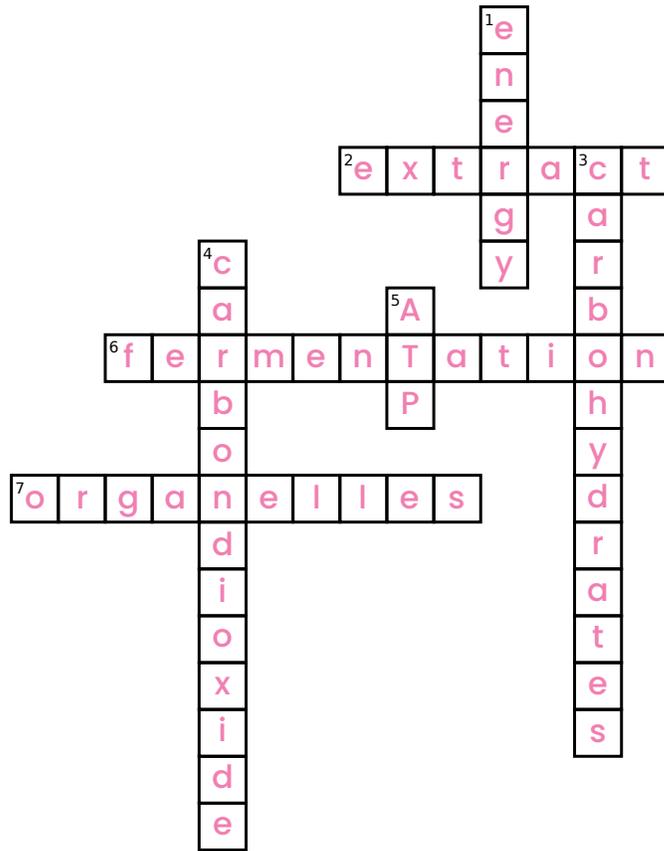


## NOTES



# BRAIN BREAK!

Solve the crossword puzzle below.



**Down:**

- 1. necessary for the body to function
- 3. bread, sugar, potatoes
- 4. gas that is created from yeast
- 5. energy that's usable by the body, for short

**Across:**

- 2. to remove
- 6. process that cells of some fungi use to extract energy from carbs
- 7. the organs of cells

Answer key: 1. energy, 2. extract, 3. carbs, 4. carbon dioxide, 5. ATP, 6. fermentation, 7. organelles



## NOTES

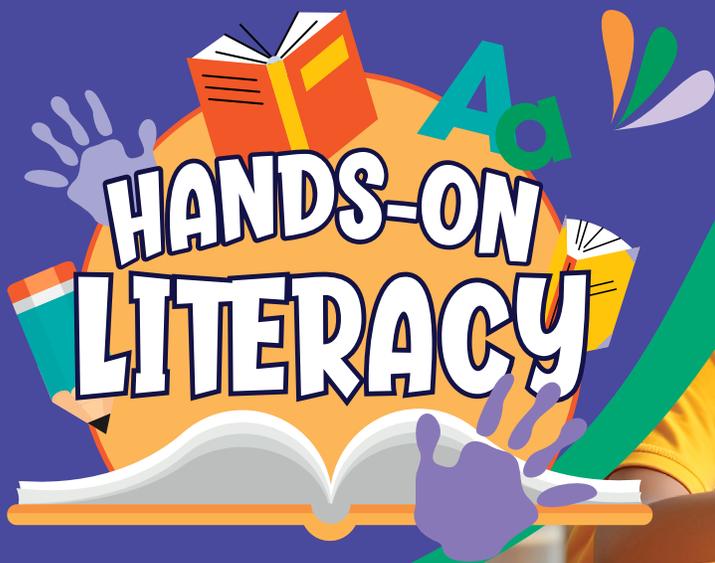


## NOTES



# NOTES

A series of horizontal blue lines on a white background, providing a space for writing notes. A vertical pink line is positioned on the left side of the page, serving as a margin.



**SPARK CURIOSITY.**

**FUEL LITERACY.**

**Build STEM  
and literacy skills  
needed to succeed in an  
ever-changing world!**

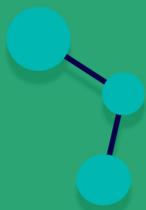
- Build essential STEM and literacy skills
- Engage in hands-on activities that foster learning.
- Standards-aligned projects that develop critical skills.
- Encourage innovation, creativity, and problem-solving.

**CONNECTING  
LITERACY WITH  
SCIENTIFIC  
DISCOVERY!**



For inquiries, scan the QR code  
or call 866-381-1760  
[www.centralcreativity.com](http://www.centralcreativity.com)





Reading Horizons

[www.centralcreativity.com](http://www.centralcreativity.com)  
© 2025 Central Creativity, LLC