

B. Reading Text**Title: Optimizing the Bioprocess**

Biotechnology laboratories rely on automated systems to maintain cell cultures and analyze data. Today, the research team is testing a new automated bioreactor. First, a technician prepares a fresh inoculum. **She** injects **it** into the main chamber to start the cell culture. To ensure the environment remains safe, the system continuously checks for contamination. If foreign bacteria enter the chamber, **they** will ruin the entire batch, so the lab environment must be perfectly clean.

As the cells grow, the team monitors their viability. Dr. Rossi uses an electronic biosensor to track cell health in real time. **It** measures chemical changes instantly and transmits data to the computer. Every hour, the automated system performs routine sampling. **It** extracts small liquids from the vessel and delivers **them** to the automated testing tray. Because the machine handles hundreds of micro-tubes simultaneously, **it** achieves a very high throughput. Dr. Rossi analyzes the final data, and **she** sends **them** to the director to prove the experiment was a success.

**C. Reading Comprehension**

Answer the following questions based on the text above:

1. What does the technician do with the inoculum at the start of the process?
2. Why is contamination dangerous for the cell culture batch?
3. Which device does Dr. Rossi use to track cell health and viability in real time?
4. Why does the system achieve a high throughput during sampling?

D. Grammar Focus: Pronouns in Context

Look back at the bold pronouns in the reading text. Identify whether they are Subject or Object pronouns, and write down exactly what noun they are replacing.

Nº	Pron	P.	Type	Replaces
1	She	1		
2	it	1		
3	they	1		
4	It	2		
5	It	2		
6	them	2		
7	it	2		
8	she	2		
9	them	2		

BASIC FERMENTATION

Vocabulary:

Match the words with their definitions.

1. Bioreactor	A. The liquid nutrient solution prepared in the vessel to support cellular metabolism and growth.
2. Substrate	B. The continuous stirring or mixing of the medium to distribute nutrients and oxygen evenly.
3. Agitation	C. Any substance produced during metabolism, such as ethanol or lactic acid generated during fermentation.
4. Yield	D. The specialized vessel or container where biological reactions and microbial growth take place.
5. Medium	E. The total mass or amount of desired product generated from the fermentation process.
6. Metabolite	F. The specific nutrient base or chemical substance that microorganisms feed on to produce a reaction.

PRESENT CONTINUOUS

POSITIVE <table style="width: 100%;"> <tr><td>I am</td><td>I'm</td></tr> <tr><td>You are</td><td>You're</td></tr> <tr><td>He is</td><td>He's</td></tr> <tr><td>She is</td><td>She's</td></tr> <tr><td>It is</td><td>It's</td></tr> <tr><td>We are</td><td>We're</td></tr> <tr><td>They are</td><td>They're</td></tr> </table> working.	I am	I'm	You are	You're	He is	He's	She is	She's	It is	It's	We are	We're	They are	They're	NEGATIVE <table style="width: 100%;"> <tr><td>I am not</td><td>I'm not</td></tr> <tr><td>You are not</td><td>You aren't</td></tr> <tr><td>He is not</td><td>He isn't</td></tr> <tr><td>She is not</td><td>She isn't</td></tr> <tr><td>It is not</td><td>It isn't</td></tr> <tr><td>We are not</td><td>We aren't</td></tr> <tr><td>They are not</td><td>They aren't</td></tr> </table> working.	I am not	I'm not	You are not	You aren't	He is not	He isn't	She is not	She isn't	It is not	It isn't	We are not	We aren't	They are not	They aren't	
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QUESTION <table style="width: 100%;"> <tr><td>Am I</td></tr> <tr><td>Are you</td></tr> <tr><td>Is he</td></tr> <tr><td>Is she</td></tr> <tr><td>Is it</td></tr> <tr><td>Are we</td></tr> <tr><td>Are they</td></tr> </table> working?	Am I	Are you	Is he	Is she	Is it	Are we	Are they	SHORT ANSWER <table style="width: 100%;"> <tr> <td>Yes, I am</td> <td>No, I am not</td> <td>No, I'm not</td> </tr> <tr> <td>Yes, you are</td> <td>No, you are not</td> <td>No, you aren't</td> </tr> <tr> <td>Yes, he is</td> <td>No, he is not</td> <td>No, he isn't</td> </tr> <tr> <td>Yes, she is</td> <td>No, she is not</td> <td>No, she isn't</td> </tr> <tr> <td>Yes, it is</td> <td>No, it is not</td> <td>No, it isn't</td> </tr> <tr> <td>Yes, we are</td> <td>No, we are not</td> <td>No, we aren't</td> </tr> <tr> <td>Yes, they are</td> <td>No, they are not</td> <td>No, they aren't</td> </tr> </table>		Yes, I am	No, I am not	No, I'm not	Yes, you are	No, you are not	No, you aren't	Yes, he is	No, he is not	No, he isn't	Yes, she is	No, she is not	No, she isn't	Yes, it is	No, it is not	No, it isn't	Yes, we are	No, we are not	No, we aren't	Yes, they are	No, they are not	No, they aren't
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-ING SPELLING <table style="width: 100%; text-align: center;"> <tr> <td style="background-color: #FF0000; color: white; padding: 5px;">work</td> <td style="background-color: #FF0000; color: white; padding: 5px;">study</td> <td style="background-color: #FF0000; color: white; padding: 5px;">working</td> </tr> <tr> <td style="background-color: #0000FF; color: white; padding: 5px;">live</td> <td style="background-color: #0000FF; color: white; padding: 5px;">make</td> <td style="background-color: #0000FF; color: white; padding: 5px;">living</td> </tr> <tr> <td style="background-color: #0000FF; color: white; padding: 5px;">run</td> <td style="background-color: #0000FF; color: white; padding: 5px;">swim</td> <td style="background-color: #0000FF; color: white; padding: 5px;">running</td> </tr> <tr> <td></td> <td></td> <td style="background-color: #0000FF; color: white; padding: 5px;">swimming</td> </tr> </table> GENERAL RULE: add -ing Consonant + -e : delete -e and add -ing Consonant + vowel + consonant (stressed): double the consonant + -ing			work	study	working	live	make	living	run	swim	running			swimming																
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Extra Practice: [Present continuous: I'm doing. I'm not doing. Are you doing? - Test-English](#)

Fermentation Reading Assignment

A. Pre-Reading: New Vocabulary

The following words appear in the reading text. Match them to their correct definitions before you read.

1. Vessel	A. A surface containing switches, dials, or controls to monitor a machine.
2. Yeast	B. Containing a large amount of sugar; sweet.
3. Sugary	C. A microscopic, single-celled fungus used to cause fermentation.
4. Panel	D. An optical instrument used for viewing very small objects or organisms.
5. Rapidly	E. A container, tank, or large tube used to hold liquids or biological materials.
6. Microscope	F. Very quickly; at a fast speed.

B. Reading Text

Identify the verbs in Present Continuous tense.

Title: Monitoring the Fermentation Process

Inside the main laboratory, a very important experiment is taking place right now. The technical team is operating a modern bioreactor to produce a specific organic compound. Inside the vessel, millions of yeast cells are consuming a sugary substrate. They are transforming it into ethanol, which is the main metabolite that the company needs.

Look at the control panel. The mechanical system is providing constant agitation to ensure that oxygen reaches every cell. Dr. Rossi is monitoring the liquid medium carefully because the temperature is rising. At this exact moment, the cells are multiplying rapidly. The team expects a very high yield at the end of the day. Right now, a technician is extracting a small sample, and she is checking it under the microscope to ensure the process is running perfectly.



C. Reading Comprehension Exercises

Exercise 1: Open Questions

Answer the following questions based on the text:

1. What specific device is the technical team operating right now?
2. Why is the mechanical system providing continuous agitation?

Exercise 2: Multiple Choice

Choose the correct option according to the text:

- | | |
|--|--|
| <p>1. The yeast cells are transforming the substrate into...</p> <p>a) Oxygen
b) Ethanol
c) Sugar</p> | <p>2. Dr. Rossi is monitoring the medium carefully because...</p> <p>a) The temperature is rising.
b) The microscope is broken.
c) The technician is leaving.</p> |
|--|--|

D. Grammar Exercises: Present Continuous**Exercise 1: True or False**

Read the rules and write **T** (True) or **F** (False). Rewrite the false ones in order to make them correct:

- _____ We use the auxiliary verb "DO" or "DOES" to form the Present Continuous.
- _____ The main verb must always end in "-ing" in the Present Continuous.
- _____ We use this tense to talk about permanent routines and habits.

Exercise 2: Multiple Choice

Choose the correct form of the verb to complete the sentences:

- Right now, the technician _____ the liquid sample.
a) is extracting b) are extracting c) extracting
- Millions of cells _____ the sugary substrate at this moment.
a) is consuming b) am consuming c) are consuming
- Look! The indicator light on the panel _____.
a) are flashing b) is flashing c) flashes

Exercise 3: Sentence Production

Look at the cues and write complete sentences in the **Present Continuous** to describe what is happening in the laboratory right now:

- (He / test / a new bioreactor)

- (I / analyze / the fermentation yield / on the computer)

- (The cells / not / grow / in this acidic medium)

- (The supervisor / check / the control panel / at the moment)
