

8



Learning Activity Sheet for Science

Quarter 1

Lesson

5

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Learning Activity Sheets for Science Grade 8
Quarter 1: Lesson 5 of 5 (Week 8)
SY 2025-2026

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LEARNING ACTIVITY SHEET

| | | | |
|-----------------------------|---|-----------------------------|-------------------------|
| Learning Area: | Science 8 | Quarter: | 1 st Quarter |
| Lesson No.: | Lesson 5 Subtopic 2 | Date: | |
| Lesson Title/ Topic: | Cycles in Nature – Cellular Respiration | | |
| Name: | | Grade & Section: | |

I. Activity No.: Activity #1: KWHL Chart

II. Objective(s): At the end of the activity, the learners are engaged in the exploration of a topic by activating prior knowledge, generating questions, and identifying areas for further investigation through the completion of a KWHL chart.

III. Materials Needed: worksheet, writing materials (ballpen, pencil, etc.)

IV. Instructions:

1. Begin by filling out the “K” section with what you already know about the topic. This could include any prior knowledge, personal experiences, or observations related to the subject.
2. Move on to the “W” section and write down any questions or curiosities you have about the topic. These questions should reflect what you want to learn or understand more about.
3. In the “H” section, brainstorm and list potential sources or methods you can use to find answers to your questions.
4. Finally, as you gather information and explore the topic further, record your new learning and insights in the “L” section of the chart.
5. Continuously revisit and update the KWHL chart as you progress through your exploration of the topic. Add new knowledge gained, refine your questions, and adjust your strategies for finding information.
6. Reflect on your journey of learning by considering how your understanding of the topic has evolved over time and what insights you have gained through the process.

CELLULAR RESPIRATION

| K-What you already KNOW | W-What you want to Learn | H- How will you learn it | L- What you Learned |
|-------------------------|--------------------------|--------------------------|---------------------|
| | | | |

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| | | | |
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| Name: | | Grade & Section: | |

I. Activity No.: Activity #2: Inflating Insights: Blowing Balloons with CO₂ Magic

II. Objective(s): At the end of the activity, the learners understand the role of carbon dioxide in photosynthesis and respiration, and how it is produced and utilized by living organisms.

III. Materials Needed: worksheet, writing materials (ballpen, pencil, etc.), rubber balloon (medium size), funnel, 1 tablespoon baker's yeast, 1 teaspoon granulated sugar, graduated cylinder or beaker, 20 ml of very warm water (approximately 41-46 °C), thermometer and tape measure.

IV. Instructions:

1. Insert the end part of the funnel into the opening of the rubber balloon.
2. Pour the sugar and the baker's yeast into the balloon through the funnel.
3. Fill the measuring cup with 20 ml of warm water. Pour the water into the balloon.
4. Remove the funnel from the balloon. Tie the "neck" of the balloon into a tight knot. Then measure the balloon's circumference (midpart) with a tape measure. Record measurements in centimeters.
5. Find a warm place in the laboratory. Measure the balloon's circumference every 10 minutes.

Guide questions:

1. *How does the addition of sugar and baker's yeast to warm water in the balloon relate to cellular respiration? Explain the role of each component in the process.*
2. *How does the measurement of the balloon's circumference over time relate to the concept of cellular respiration? Discuss how changes in the circumference of the balloon reflect the production of gas as a byproduct of cellular respiration.*
3. *What is the significance of finding a warm place to conduct the experiment in relation to cellular respiration?*

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I. Activity No.: Activity #3: Word Puzzle

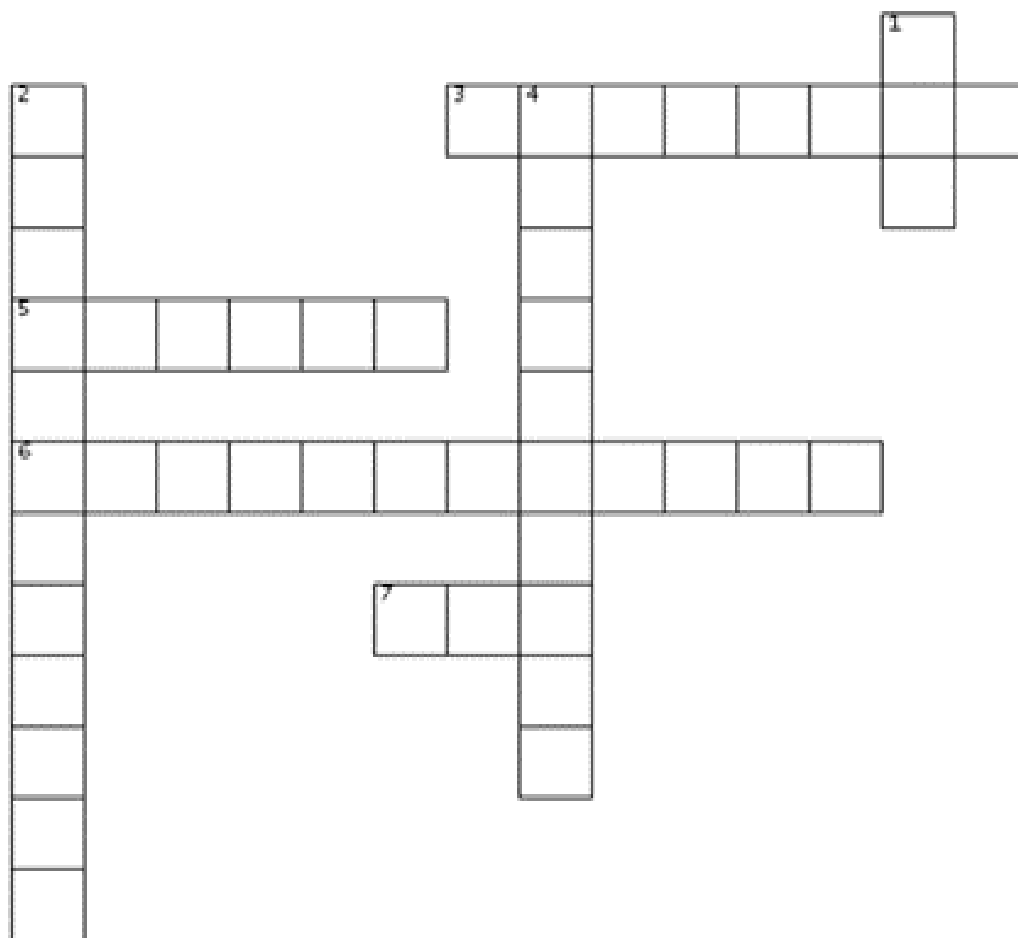
II. Objective(s): At the end of the activity, the learners are expected to:

1. Become acquainted with terminology used in discussions about cellular respiration.
2. Improve spelling and word recognition abilities through hands-on practice.

III. Materials Needed: reference book, worksheet, writing materials (ballpen, pencil, etc.)

IV. Instructions:

1. Complete the crossword puzzle.
2. Be guided by the words in the box and by the clues provided below.



| | | |
|--------------|--------------|--------|
| Mitochondria | Heterotrophs | Oxygen |
| Autotrophs | Bacteria | |
| ATP | Six | |

| Across | Down |
|---|--|
| 3. Single cell organisms that do not have mitochondria. | 1. Number of molecules of carbon dioxide and water produced during cellular respiration. |
| 5. Gas is needed for cellular respiration. | 2. Part of the cell where cellular respiration takes place. |
| 6. Organisms that take in organic compounds and convert them into carbon dioxide and energy (in the presence of oxygen) | 4. Organisms that turn carbon dioxide into sugar and oxygen. |
| 7. Energy currency of the cell. | |

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| | | | |
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I. Activity No.: Activity #4: Fizz, Froth and Fermentation: Secret Science of Bubbles

II. Objective(s): At the end of the activity, the learners are expected to:

1. Understand the proper procedures for producing vinegar from coconut water and making wine from saging na saba through fermentation.
2. Elucidate the scientific principles underlying the fermentation process, and to relate these processes to cellular respiration

III. Materials Needed: mobile phones or computer with internet access, reference book, worksheet, writing materials (ballpen, pencil, etc.)

IV. Instructions:

1. Read the scenario provided below with your group members and designate roles for a secretary, presenter, and evaluator to facilitate your collaboration.
2. Utilizing the rubric provided, craft a presentation based on the scenario.
3. Work together with your team members to achieve a successful outcome.

You are a member of a group of food technologists. As part of your outreach activity, the city mayor invited you to demonstrate the proper way of producing fermented products such as wine and vinegar. Your task is to lecture on the proper way of producing vinegar from coconut water and making wine from saging na saba using the fermentation process. Your lecture should show the proper sequence or steps on how do the process and what is the science behind the process. You can use a PowerPoint presentation which includes appropriate pictures and images in your lecture.

| Criteria | 4 | 3 | 2 | 1 | Total |
|---|---|---|---|---|-------|
| 1.Content (Accuracy and Depth) 1.1 Provides a comprehensive overview of the fermentation process, including its definition, types (lactic acid fermentation, alcoholic fermentation) 1.2 Explains the biochemical reactions involved in fermentation, such as glycolysis and the conversion of pyruvate to fermentation products. 1.3 Describe the role of microorganisms (yeast and bacteria) in fermentation and their importance in the production of fermented foods and beverages. | | | | | |

| | | | | | |
|---|--|--|--|--|--|
| 1.4 Demonstrates an understanding of the factors influencing fermentation, such as temperature, pH and substrate concentration. | | | | | |
| 2. Organization and Structure 2.1. Presentation is well structured with clear sections. 2.2 Content flows logically from one point to the next, facilitating understanding and retention. 2.3 Each slide has a clear title and contains concise, relevant information that supports the main point. | | | | | |
| 3. Clarity and Presentation Skills 3.1 Slides are visually appealing with appropriate use of graphics, images and colors. 3.2 Font size and style are consistent and easy to read. 3.3 Speaker maintains eye contact, speaks clearly and engages the audience throughout the presentation | | | | | |
| 4. Creativity and Originality 4.1 Demonstrate creativity in the design and delivery of the presentation, incorporating innovative elements that capture the audience's attention. | | | | | |
| 5. Time Management 5.1 Adheres to the allocated presentation time without rushing or exceeding the time limit. | | | | | |