7

DepED
DEPARTMENT OF EDUCATION

Lesson Exemplar for TLE

Quarter 2
Lesson
10

Lesson Exemplar for TLE Grade 7
Quarter 2: Lesson 10 (Week 8)
SY 2024-2025

Development Team

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TLE/QUARTER 2/ GRADE 7

I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES	
A. Content Standards	The learners demonstrate an understanding of the concepts and skills in animal production.
B. Performance Standards	The learners illustrate the housing requirements for poultry and livestock based on industry standards.
C. Learning Competencies and Objectives	**Learning Competencies** 1. Identify products and byproducts of poultry and livestock production; and 2. Discuss farm waste management in poultry and livestock production according to RA 9003 or the Ecological Solid Waste Management Act of 2000.
D. Content	• Products and Byproducts of Poultry and Livestock Production • Farm Waste Management in Poultry and Livestock Production
E. Integration	Improvisation, **SDG 11:** Sustainable Cities and Communities, **SDG 12:** Responsible Consumption and Production, **SDG 13:** Climate Action

II. LEARNING RESOURCES
Animal by-products. European Food Safety Authority. (n.d.). https://www.efsa.europa.eu/en/topics/animal-by-products Chapter 9 Agricultural Waste Management Systems - USDA. US DA National Resources Conservation Services. (2011). https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=31493.wba Poultry Products | Animal & Food Sciences. (2023). https://afs.ca.uky.edu/poultry/poultry-products

<table>
<tr><th colspan="2">III. TEACHING AND LEARNING PROCEDURE</th><th>NOTES TO TEACHERS</th></tr>
<tr><td>A. Activating Prior Knowledge</td><td>
DAY 1

1. Short Review
Part 1: Review. The teacher will ask the following questions to the students.
1. What are the feeding management for poultry and livestock animals?
2. Can you describe the housing requirement of poultry and livestock?

Part 2: Completing the KWLS Chart
The students will accomplish the chart. On the K column, they will list down all what they KNOW about the lesson. On the W column, they will list down all what they WANT to know about the lesson. The L and S column will be reserved in the latter part of the lesson. The S column is an additional column in order for the students to have a critical understanding on the importance of the lesson.

<table>
<tr><th>Know</th><th>Want</th><th>Learned</th><th>So what?</th></tr>
<tr><td></td><td></td><td>  </td><td>  </td></tr>
</table>
2. Feedback (Optional)
</td><td rowspan="2">The teacher will conduct a short review based on the previous lesson. The teacher will direct the students the diet formulation, and nutrition of poultry and livestock animals. This short review will serve as springboard for the teacher to establish the lesson purpose. The teacher may opt to use the second activity to determine the prior knowledge of the students. Only the first two columns are being accomplished by the students and the third and last column will be completed at the end of this lesson.</td></tr>
<tr><td>B. Establishing Lesson Purpose</td><td>
1. Lesson Purpose

Asking like Socrates: The students will ask the following questions:
1. What are the potential products in raising poultry and livestock animals?
2. What are the byproducts that can be generated in raising poultry and livestock?
3. What do we need to do to manage the byproducts generated in raising poultry and livestock?
</td><td>The teacher will ask the suggested questions to assess whether the students have prior knowledge and experience on taking care of domesticated animals.</td></tr>
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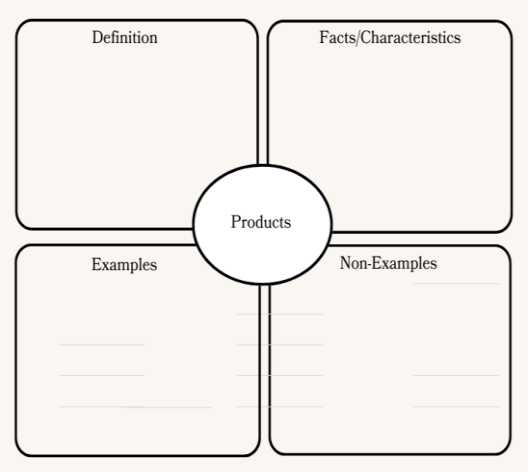
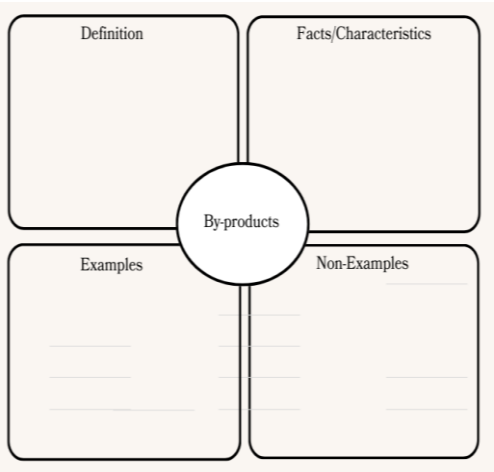
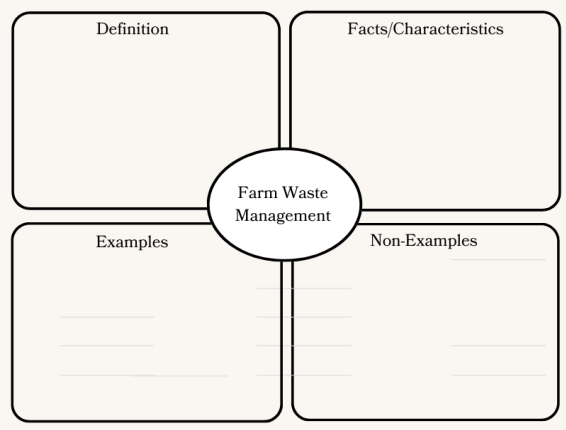
	2. Unlocking Content Area Vocabulary • **Products.** These are goods and services produced in poultry and livestock production. This includes traction, milk, eggs, fibers, wool, leather, feathers, and pharmaceuticals. • **Animal by-products (ABPs).** These are the materials derived from animal which are not beneficial for human consumption. • **Waste Management Systems.** It is a system or process of managing waste generated in poultry and livestock production. It involves generation, collection, transfer, storage, treatment, and utilization.	The teacher will present the terms needed in the discussion of the lesson. The teacher may strategize in presenting the vocabulary.
C. Developing and Deepening Understanding	**SUB-TOPIC 3: Products and Byproducts of Poultry and Livestock Production, and Farm Waste Management in Poultry and Livestock Production** **1. Explicitation** **Think tank:** Students will accomplish the graphic organizer on the products and byproducts of poultry and livestock production, and farm waste management practices.   	The teacher will activate the prior knowledge of the students by providing the graphic organizer. In the first section, the students will define product; give characteristics/facts in the second section; give examples and non-examples in the 3rd and last section.



Guide Question:

1. What will happen if there is no management of waste in a livestock farm?

The teacher always ensures that a guide question will be asked after an activity.

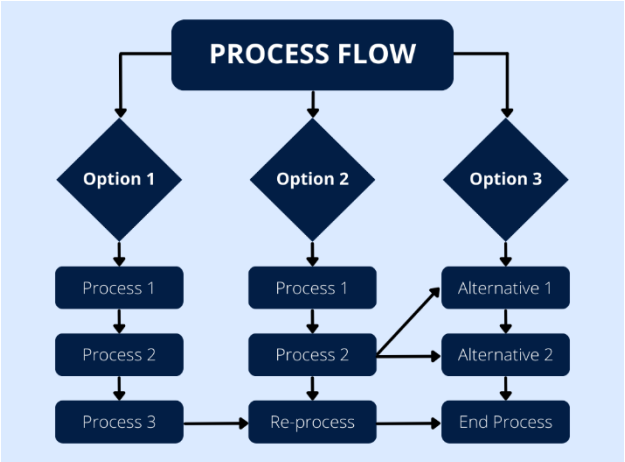
DAY 2

2. **Worked Example**: **The Destiny of the Waste**

Directions: Students will form a group of three to share the fate of the byproducts and waste if they are well-managed or not. The students will draw a flow chart to show the destiny of the byproducts and waste following the RA 9003.

The students may use the sample flowchart.

(See worksheet #1 for the activity which students will accomplish.)



The teacher will facilitate the accomplishment of flowchart to show the destiny of the waste if it's not managed or well managed. The teacher will give a brief background of creating a flowchart.

Reading Resources

Products of Poultry and Livestock Production

Livestock raising provides a wide array of benefits. While it is true that is provides a source of employment of the community members, it also provides a wide array of goods and services. These goods and services are intended for human consumption. This includes traction, milk, eggs, fibers, wool, leather, feathers, pharmaceuticals.

Traction. Farm animals such as cattle can serve as draft animals to draw farm implements, agricultural supplies, and products.
Dairy products are derived from livestock that produces milk such as cattle and goat. It can be processed to produce cheese, ice cream, butter, yogurt, etc.
Eggs and meat are excellent sources of protein and other nutrients.
Clothing can be made from animal skin and feather. Cattle skin can be made into leather; goat fur can turn into wool; chicken feather serves as clothing accessories.
Pharmaceutical products are derived from skin, bones, horn, hooves of slaughtered livestock.

Byproducts of Poultry and Livestock Production

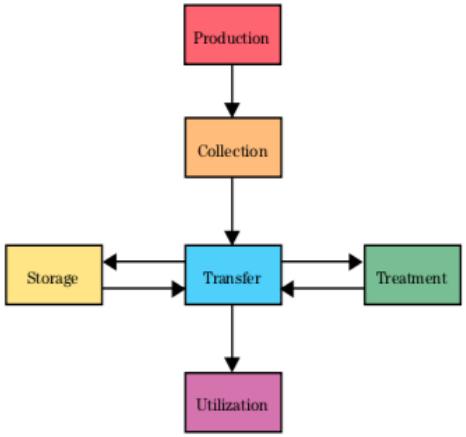
Animal by-products (ABPs) are materials derived from animals which are not intended for human consumption. This includes:

a. **Slaughterhouse waste** are byproducts derived when livestock are butchered in the slaughterhouse. Slaughtering leaves skin, bones, horn, hooves, blood, fat and offal (internal organs).
b. **Catering waste** are materials used in the entire livestock production. It includes food waste, plastics and packaging of the feeds, glass bottles of medicines, boxes and cardboards.
c. **Fallen stock** are farm animals died due to natural causes, diseases or killed prior to harvest.
d. **Materials** produced by animals such as manure, eggshells, feathers, wool, and fiber.
f. **Former foodstuff of animal origin** are products that are no longer suitable for human consumption such as milk, eggs, and meat.

ABPs provide benefits because some have high nutritional value. Thus, it can be used to develop products such as fertilizer, feed, biofuels, and cosmetics following the waste management system in the following section.

Waste Management Systems

There are six basic functions consisting of the Waste Management Systems: production/generation, collection, transfer, storage, treatment, and utilization. The following figure 1 shows the WMS.



Production. This refers to the amount and nature of agricultural waste generated. Management of waste considers the quantity of waste generated as it becomes a major concern in dealing with it. The generation of waste should consider the following: kind, consistency, volume, location, and timing. The production of unnecessary waste should be minimized such as leaking water facilities and drainage. It is also important to have a good record keeping on data of waste generation that could be used for future references such as expansion.

Collection. It is referred to as the initial capture and gathering of waste from its source or deposition to a collection point. It should consider the method of collection, location, scheduling, labor requirement, needed equipment and facilities, management, and impact.

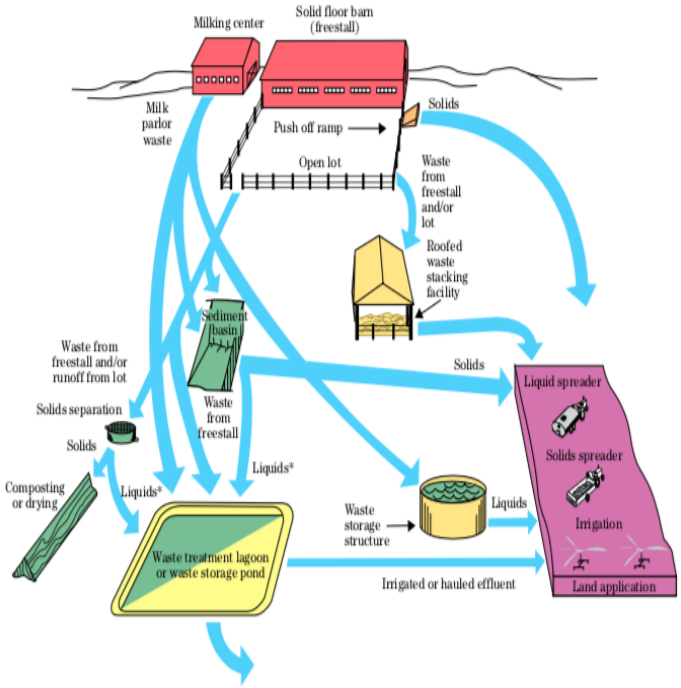
Transfer. This refers to the transfer and transportation of waste throughout the system. This considers the transport of waste from collection point to the storage facility, treatment facility, and utilization facility. The system plan should involve consistency (liquid, slurry, semisolid or solid) of the waste to be moved, method of transfer, distance, frequency and scheduling, necessary equipment, installation and management cost.

Storage. This refers to the temporary containment of the waste before transfer. Thus, a temporary storage facility is needed before it is being scheduled for pick-

up. This process should consider the storage period, required storage volume, estimated size, location, installation and management cost, impact of the storage.

Treatment. This process involves the reduction of impact the waste can bring such as pollution and modification of the physical characteristics of the waste. Pre-treatment is an effective method to facilitate more efficient and effective handling of waste. This stage should consider the characteristics of waste, determination of the desired characteristics, selection of the type, estimated size, location, and installation and management cost. Treatment includes solid/liquid separation, anaerobic digestion, thermo-chemical conversion, and anaerobic and aerobic treatment lagoons.

Utilization. This process involves reusing or recycling of waste products such as source of energy, and source of organic matter through composting. Proper treatment of agricultural waste can be profitable. Land application is the common practice of utilizing the energy and nutrients of the waste. This process should consider selection of field, scheduling, design of the distribution system, selection of necessary equipment, determination of application rates and volumes, value, and installation and management cost.



The following figure 2 shows the handling of waste in a dairy farm.

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<td>DAY 3

3. Lesson Activity: My Farm Waste Management
Directions: Students will act as farm owners. They will utilize the knowledge and insights gained from this lesson. As farm owners, they will create their farm lay-out incorporating the solid waste management. Their farm lay-out should include.
a. Identified various facilities.
b. Identified path of waste management (They may utilize or refer to the previous taks).
c. Implementing guidelines of the solid waste management.</td>
<td>The teacher will assist students to accomplish this task by providing sample or highlighting the previous task which is creating a flowchart on farm waste management.</td>
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<td>D. Making Generalizations</td>
<td>DAY 4

1. Learners' Takeaways

Completing the KWLS Chart: The students will revisit their initial output on KWLS chart. This time the students will now accomplish the L and S column. The L column is intended to all the learnings and insights gained from the three lessons covered. The S column provides way for students to determine the importance and benefits they derive from learning the lessons.

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</table>

2. Reflection on Learning
The students will accomplish the weekly reflection log.</td>
<td>The teacher will ensure that the initial outputs of the students on KWLS are kept in order for the students to have their self-reflection on their own learning. For the reflection, the students will work on weekly reflection log to provide feedback on their own learning.</td>
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	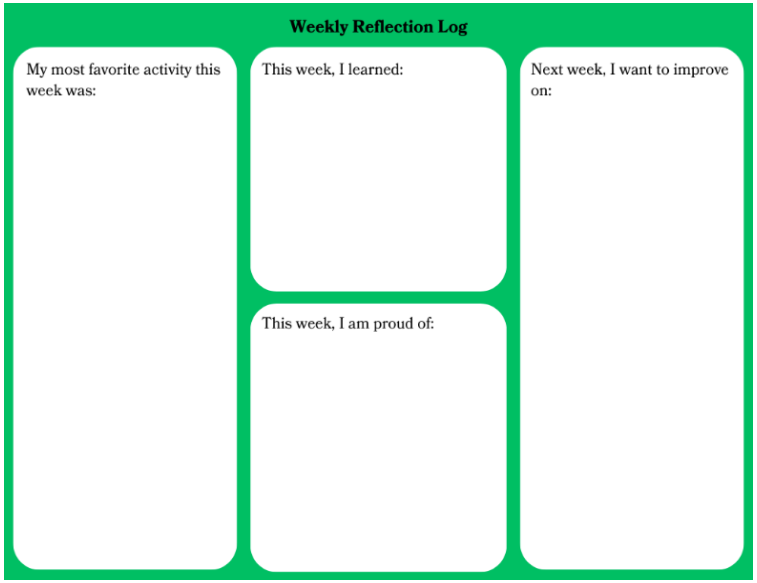	

IV. EVALUATING LEARNING: FORMATIVE ASSESSMENT AND TEACHER'S REFLECTION				**NOTES TO TEACHERS**
A. Evaluating Learning	**1. Formative Assessment** Students will answer the following questions: 1. What are the various products and by-products of poultry and livestock? 2. Why is it necessary to management farm waste? **2. Homework (Optional)**			The teacher will ask the following questions to conclude the lesson. This will provide plenty of ideas and insights from the students. The teacher will integrate the SDG 11, 12 and 13.
B. Teacher's Remarks	*Note observations on any of the following areas:*	**Effective Practices**	**Problems Encountered**	The teacher may take note of some observations related to the effective practices and problems encountered after
	strategies explored			

	materials used			utilizing the different strategies, materials used, learner engagement and other related stuff. Teachers may also suggest ways to improve the different activities explored/ lesson exemplar.
	learner engagement/ interaction			
	others			
C. Teacher's Reflection	*Reflection guide or prompt can be on:* ▪ *<u>principles behind the teaching</u>* *What principles and beliefs informed my lesson?* *Why did I teach the lesson the way I did?* ▪ *<u>students</u>* *What roles did my students play in my lesson?* *What did my students learn? How did they learn?* ▪ *<u>ways forward</u>* *What could I have done differently?* *What can I explore in the next lesson?*			Teacher's reflection in every lesson conducted/ facilitated is essential and necessary to improve practice. You may also consider this as an input for the LAC/Collab sessions.