

Lesson Exemplars for Agricultural Crops Production

TECH-PRO ELECTIVE

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LESSON EXEMPLAR			
Learning Area	AGRICULTURAL CROPS PRODUCTION	Lesson Exemplar	1

I. OBJECTIVES	
A. Content Standard	The learners demonstrate understanding of principles on the overview of agricultural crop production, farm tools, implements, and simple equipment, and pre-operative check-up following the manufacturer's manual.
B. Performance Standard	The learners perform pre-operative checking of tools, farm implements, and equipment in accordance with the manufacturer's manual.
C. Learning Competencies	<p>Key Topics Learned in the Previous Grade Level</p> <ol style="list-style-type: none"> 1. Keeping records of materials, tools, and equipment 2. Performing nursery operations 3. Plant Propagation 4. Seed testing 5. Preparing growing media <p>LC 1. Discuss the overview of agricultural crop production.</p>

<p>II. REFERENCES and MATERIALS</p>	<p>REFERENCES:</p> <p>Buckseth, Tanuja. 2016. "Aeroponics - an Overview ScienceDirect Topics." Wwww.sciencedirect.com. 2016. https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/aeroponics. "Career Opportunities in Agricultural Business." n.d. https://www.missouricareereducation.org/doc/agbusiness/SRLesson2.pdf.</p> <p>CEDTyClea. 2025. "FAO: Almost Half of Filipinos Can't Afford a Healthy Diet - BusinessWorld Online." BusinessWorld Online. September 4, 2025. https://zurl.co/HS7Iy.</p> <p>Copeland, B.J. 2024. "Artificial Intelligence." In <i>Encyclopedia Britannica</i>. https://www.britannica.com/technology/artificial-intelligence.</p> <p>Food and Agriculture Organization of the United Nations. 2018. "Lowell - an Agriculturist in Philippines." YouTube. October 1, 2018. https://www.youtube.com/watch?v=PUg0jkTlkvk.</p> <p>Google. 2025. "Gemini." Gemini.google.com. Google. 2025. https://gemini.google.com/app.</p> <p>Gonzales, Len. 2020. "UNIT 1 Working in the Agricrops Production Sector." Scribd. 2020. https://www.scribd.com/document/608149692/UNIT-1-Working-in-the-Agricrops-Production-Sector.</p> <p>Salaheen, Serajus, and Debabrata Biswas. 2019. "Monoculture - an Overview ScienceDirect Topics." Wwww.sciencedirect.com. 2019. https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/monoculture.</p> <p>Taylor, James A. 2016. "Precision Agriculture - an Overview ScienceDirect Topics." Sciencedirect.com. 2016. https://www.sciencedirect.com/topics/earth-and-planetary-sciences/precision-agriculture.</p> <p>Technical Education and Skills Development Authority (TESDA). December 2013 Training Regulations: Agricultural Crops Production NC II.</p> <p>"Wayground (Quizizz) Flexible K-12 Learning Resources." 2025. Wayground.com. 2025. https://wayground.com.</p> <p>World Agroforestry. 2021. "What Is Agroforestry?" World Agroforestry Transforming Lives and Landscapes with Trees. 2021. https://www.worldagroforestry.org/about/agroforestry</p> <p>MATERIALS:</p> <p>Image of a farm, mobile phones, white board, white board marker, manila paper, metacards, print out images (including pegs and coconut trees), writing pad, colored papers, video clip, presentation slides, laptop/ tablets, smart TV, activity sheets, internet connectivity</p>
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III. CONTENT	Overview of Agricultural Crops Production <ul style="list-style-type: none"> • Career and business opportunities • Challenges • Common terminologies • Technology and innovation <ul style="list-style-type: none"> o hydroponics o container gardening o vertical gardening o aquaponics o aeroponics o agroforestry o monoculture o artificial intelligence <ul style="list-style-type: none"> - genetic engineering - robotics - machine learning o precision agriculture <ul style="list-style-type: none"> - GPS - drones - satellite
IV. OBJECTIVES	<p>At the end of the lesson, learners are expected to:</p> <ol style="list-style-type: none"> 1. Identify the different career and business opportunities in agricultural crops production. 2. Recognize common challenges in agricultural crops production including environmental, economic, and technological factors. 3. Discuss agricultural crops business opportunities and challenges through SWOT Analysis 4. Appreciate the importance of agricultural crops production in food security and economic development

V. PROCEDURES	ANNOTATIONS															
A. Activating Prior Knowledge	<div>1. Activating Prior Knowledge</div> <div>Learning Task 1. Hay Day Challenge</div> <div>Directions: Observe carefully the image/illustration presented. Identify and mark the different types of agricultural crops shown in the image using the wooden pegs. Afterwards, classify them according to their types as to agronomics and horticultural crops. Write them on the given table.</div> <div><div>Hay Day Challenge</div><div></div></div> <div>Reference: https://gemini.google.com/app</div> <div><div>Table 1</div><table><tr><th>Agronomics Crops</th><th>Horticultural Crops</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table></div>	Agronomics Crops	Horticultural Crops													<div>Present a large image of various agricultural crops. Have learners use wooden pegs to mark different crops and then classify them into a table as either "Agronomic" or "Horticultural". Use the provided guide questions to facilitate a discussion on local crops and the importance of agriculture.</div> <div>This activity activates prior knowledge by using visual aids and hands-on classification to engage learners immediately. This uses Inquiry-Based Learning to develop Critical Thinking by requiring learners to categorize information based on visual evidence.</div>
	Agronomics Crops	Horticultural Crops														

Guide Questions

1. Which crops are commonly grown in your community?
2. Why is it important to learn about agricultural crops?
3. How can agriculture contribute to your future plans?

Directions: Given the different agricultural crops, write down one job or business you think is involved in getting these crops from the farm to the market. Write it down on the Meta card and post it under the following category: **PRODUCING, HARVESTING, PROCESSING, and DISTRIBUTING.**

Table 2

PRODUCING	HARVESTING	PROCESSING	DISTRIBUTING

Guide Questions:

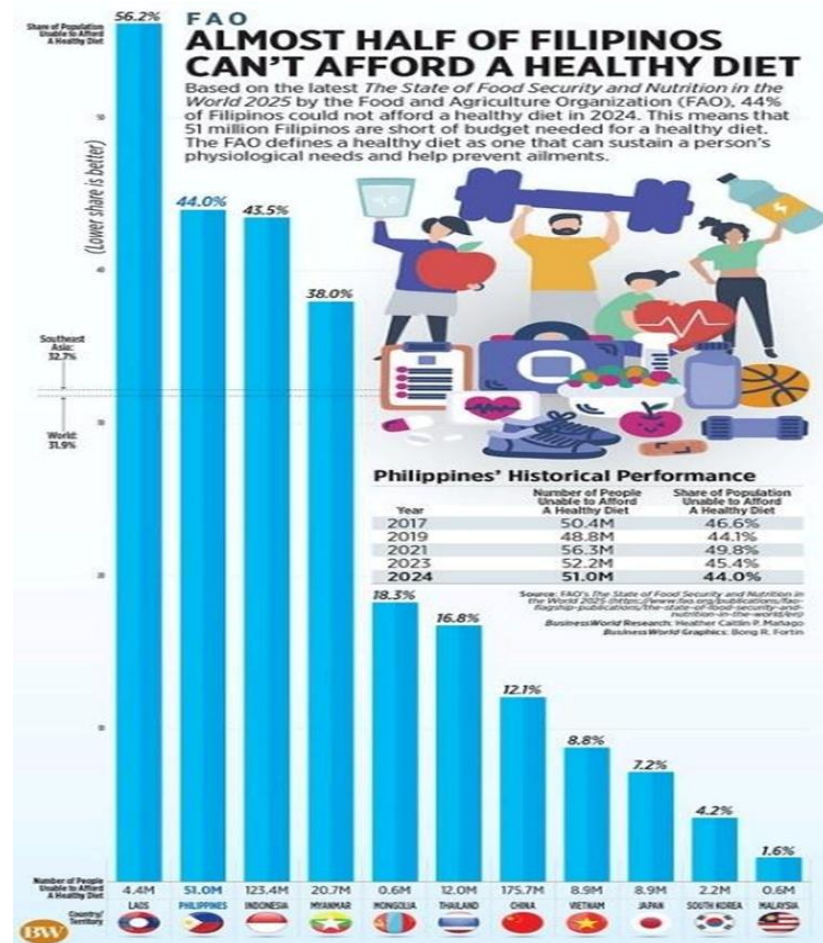
1. Are there more jobs other than farming? Why?
2. What are your thoughts on the sheer number of people required to produce these crops?
3. How do they help in the overall agricultural crop production process?

2. Establishing the Purpose of the Lesson

Learning Task 2. **THE RISING GRAPH**

Directions: Look at the graph shown on the board. Analyze and interpret it using the guide questions below.

Display a graph regarding food security in the Philippines. Ask students to analyze the data using the guide questions to understand the current state of healthy diet affordability and its impact on food security.



Reference: <https://zurl.co/HS7Iy>

Guide Questions:

1. Based on the latest *The State of Food Security and Nutrition in the World 2025* by the Food and Agriculture Organization, how many percent of Filipinos could not afford a healthy diet in 2024? What does it mean?
2. How will it affect food security considering the growing population of the Philippines?

Link the lesson to real-world socio-economic issues, fostering social awareness and critical data analysis. This uses Contextualization to foster Information Literacy, helping students connect raw data to real-world food security challenges

	<p>3. How important are careers in agricultural crops production in solving this problem? Will you venture into a business related to farming? Why?</p> <p>4. How can we turn this challenge into an opportunity to ensure our country remains food-secure while promoting economic growth?</p>	
<p>B. Instituting New Knowledge</p>	<p>1. Presenting Examples</p> <p>Learning Task 3. CAREER FLASH</p> <p>The next activity will give you the knowledge on what you can become after finishing this lesson. This time, you will be engaged in using Wayground, an online interactive platform.</p> <p>Directions: Using your mobile phones, answer the following questions by clicking the word/words that best describe/s the given item. To access, scan the QR Code or key in the search engine joinmyquiz.com and type the code 3791 2542 to join.</p>  <p>Guide questions:</p> <ol style="list-style-type: none"> 1. What other careers do you think may evolve in agricultural crops productions? 2. If you are to select among the given careers, what will you choose? Why? 	<p><i>Direct learners to use their mobile phones to join an interactive quiz via joinmyquiz.com using a specific code (3791 2542) or by scanning a QR code. This task introduces them to various career paths in agri-crop production.</i></p> <p><i>It integrates ICT (Information and Communication Technology) to make career exploration interactive and learner-centered and to build Technology Literacy while exploring modern career paths.</i></p>

	<p>Learning Task 4. PLANTING IDEAS</p> <p>Focus Group Discussion</p> <p>Directions: Answer the following questions and discuss your answers with your group.</p> <ol style="list-style-type: none"> 1. Which high-value crops offer the return on investment in today's Philippine market? 2. What emerging trends can be turned into scalable agri-crop business ventures? 3. What value-adding opportunities can increase profitability beyond raw crops sales? <p>2. Discussing New Concept</p> <p>In this lesson, you will take a look into agriculture as a primary source of livelihood and food source in the country. We look at it as a production system and the other agricultural operations aside from crop production.</p> <p>Agricultural crops production remains relevant because it continues to play an important role in the Philippine economy as well as providing jobs for the population. Crop production will continue to provide food and supplies, feed and cash crops alike, marketable harvests, raw materials, and food security.</p> <p>But before you dive into the career and business opportunities, as well as the challenges of ACP, various terms will be defined and discussed. These terminologies will further help you in understanding the overview of Agri-crops production.</p> <p>Vocabulary Building</p> <p>AEROPONICS- is defined as a method of growing plants where the roots are exposed to air and receive nutrients and water</p>	<p><i>Organize a Focus Group Discussion (FGD) where learners discuss high-value crops, emerging trends, and value-adding opportunities in the Philippine market.</i></p> <p><i>This uses a Collaborative Approach to enhance Communication and Civic Literacy as learners discuss community economic growth</i></p>
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	<p>through fogging or misting technology, which creates fine water droplets that are suspended in the air.</p> <p>AGROFORESTRY- is the interaction of agriculture and trees, including the agricultural use of trees.</p> <p>AQUAPONICS- is a sustainable farming system that combines aquaculture (the cultivation of fish) and hydroponics (growing plants in water without soil)</p> <p>ARTIFICIAL INTELLIGENCE (AI)- is the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings.</p> <p>CONTAINER GARDENING- involves growing plants in containers rather than in the ground.</p> <p>HYDROPONICS- is the technique of growing plants using a water-based nutrient solution rather than soil, and can include an aggregate substrate, or growing media, such as vermiculite, coconut coir, or perlite.</p> <p>MONOCULTURE- is defined as the agricultural practice of cultivating large land areas dedicated to a single crop, which is often facilitated by the use of selective herbicides.</p> <p>PRECISION AGRICULTURE- is a data-driven farming management concept based on observing, measuring, and responding to inter-field variability to optimize production. It uses technology like GPS, IoT sensors, drones, and AI to apply inputs (water, fertilizer, pesticides) precisely where and when needed, increasing yields, reducing costs, and improving environmental sustainability.</p> <p>VERTICAL GARDENING- is a revolutionary approach to gardening that allows you to maximize your space, making it ideal for small gardens, balconies, and urban environments.</p>	
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	<p>By growing plants vertically, you can transform compact areas into lush, green havens.</p> <p>CAREER AND BUSINESS OPPORTUNITIES IN AGRICULTURAL CROP PRODUCTION</p> <p>The agricultural crop production sector offers a wealth of career paths and business ventures spanning from high-tech research to modern farm management. Whether you prefer hands-on cultivation or corporate strategy, the industry connects science, technology, and commerce to ensure global food security.</p> <p>Top Career Opportunities</p> <ul style="list-style-type: none"> • Agronomist / Crop Scientist: Conducts research on soil health, pest control, and seed technology to maximize crop yield and quality. • Precision Agriculture Technician: Applies data analytics, IoT sensors, and satellite imaging to monitor plant health and optimize resource use. • Agricultural Engineer: Designs safer, more efficient farm equipment, irrigation systems, and post-harvest processing facilities. • Agricultural Extension Officer: Acts as a bridge between scientific researchers and local farmers by teaching sustainable, modern farming techniques. • Farm / Greenhouse Manager: Supervises the day-to-day operations of crop production, from planting schedules to harvesting and labor management. <p>High-Potential Business Opportunities</p> <ul style="list-style-type: none"> • Controlled Environment Agriculture (CEA): Setting up high-value hydroponic, aquaponic, or vertical 	
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	<p>farming systems to grow fresh produce (e.g., lettuce, herbs, microgreens) year-round.</p> <ul style="list-style-type: none"> • Organic & Specialty Crop Production: Fulfilling the strong consumer demand for certified organic fruits, vegetables, and specialized cash crops like cacao or coffee. • Agri-Tech & Inputs Supply: Starting a business that provides agricultural supplies, such as custom blended fertilizers, organic pest repellents, or drone monitoring services. • Post-Harvest & Processing: Purchasing raw crops and transforming them into higher-margin retail products (e.g., drying, packaging, juicing, or freezing) to minimize post-harvest losses. • Equipment Rental & Contracting: Investing in expensive heavy machinery (e.g., tractors, harvesters) and offering rental or custom harvesting services to smaller local farms. <p>Crop production in the Philippines is a highly diverse and profitable sector, moving beyond traditional farming toward an agribusiness-driven model that integrates technology, sustainability, and direct market access. Key profitable areas include high-value vegetable farming, organic crop production, fruit farming (bananas, pineapples), and specialty crops like herbs and spices, with strong investment opportunities in agri-processing and technology.</p> <p>CAREERS IN AGRI-CROPS PRODUCTION</p> <p>A person who has achieved the knowledge of agri-crop production can become the following:</p> <p>Farmer/Grower - operates establishments which produce crops, livestock, and other agricultural outputs.</p>	
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	<p>Farm worker - hired worker in the farm employed for specific on-farm jobs (e.g. fruit picking)</p> <p>Nursery operator - farm worker primarily assigned in nursery farm operations</p> <p>Farm aide - assists farm workers in various agricultural activities</p> <p>Farm caretaker - maintains farm property and guards equipment, crops, and other farm essentials</p> <p>In addition, this lesson has divided these occupations into the following categories:</p> <ol style="list-style-type: none"> 1. Production 2. Supplies/ Sales 3. Management 4. Processing 5. Service/Research and Development 6. Communication and Education <p>Learning Task 5. TREE OF LIFE</p> <p>Directions: You will be grouped into 6 and will be assigned each with one of the categories among the given careers. You will describe each career by selecting the examples from the tree of life. Collect the leaves belonging to each one and paste it in your tree of life. Afterwards, you will present your output together with your answers from the given guide questions.</p>	<p><i>Group learners into six teams, each assigned a career category (e.g., Production, Management, Processing). Students must "collect" specific career examples (leaves) from a "Tree of Life" diagram and paste them onto their own group's tree before presenting.</i></p> <p><i>This uses a kinesthetic and visual grouping strategy to help learners differentiate between various professional sectors in agriculture. This Constructivist activity encourages Collaboration and Creativity as groups physically build their knowledge maps.</i></p>
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Reference: <https://gemini.google.com/app>



Production



Supplies/ Sales



Management



Processing



Service/ Research
and Dev



Communication and
Education

	<p>Guide Questions:</p> <ol style="list-style-type: none"> 1. How would you determine which career path in agri-crop production best matches your skills, interests, and long-term goals? 2. In what ways can pursuing a career in agri-crop production contribute to both personal success and the economic development of your community? 3. How would you describe market trends and use them to shape your career decisions and business strategies in crop production? <p>Learning Task 6. PEER CHALLENGE ACCEPTED</p> <p>Directions: Select and work with your chosen partner. You will be provided with an article. Read it carefully. Then, answer the following questions. Discuss your answers with your partner.</p> <p>Agriculture remains to be a source of employment for many Filipinos despite accounting for only around 10% of the GDP (Food and Fertilizer Technology for the Asian and Pacific Region, 2018).</p> <p>Furthermore, it suggested that there is a low labor productivity in agriculture due to the limited diversification of traditional crops such as rice, corn, and coconut – lagging behind in total productivity, compared to other ASEAN countries.</p> <p>The Philippine Statistics Authority (2021) has identified that the agricultural production in the country has decreased in the fourth quarter of 2020. These include production declines for crops, livestock, poultry, and fisheries.</p> <p>Most of the agricultural outputs consist of crops, which account for 57.9% of the outputs had a -0.4% decrease, with livestock at -12.9%, poultry at -5.5%, and fisheries at 14.5%. Natural disasters and climate change also pose a great</p>	<p><i>Provide pairs of learners with an article regarding Philippine agricultural productivity and climate risks. Instruct them to read carefully and discuss the economic consequences of failing to diversify traditional crops.</i></p> <p><i>This uses Reflective Teaching to build Global Awareness regarding the "unprecedented impact" of climate change on national stability.</i></p>
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	<p>challenge which threaten agricultural yield by a large, unprecedented impact.</p> <p>In the World Risk Report (2019), the Philippines ranked 9th out of 180 countries – indicating the country’s high risk of disaster, natural and man-made, as well as the country’s ability to adapt, respond, and prepare in such conditions.</p> <p>Guide questions:</p> <ol style="list-style-type: none"> 1. Why does the historical and cultural reliance on these three specific crops (rice, corn, and coconut) create a barrier to modernizing the agricultural sector, and what are the long-term economic consequences of failing to diversify? 2. Given the high disaster risk (9th in the world), how does the "unprecedented impact" of climate change threaten to turn the agricultural sector from a "source of employment" into a source of national economic instability? 3. If natural disasters and climate change continue to cause "unprecedented impacts" on yields, what specific changes must be made to Philippine agriculture? <p>3. Developing Mastery</p> <p>Learning Task 7. WATCH ME PLANT</p> <p>Directions: Watch the Youtube video about Lowell – An Agriculturist in the Philippines. Then answer the following questions.</p> <ol style="list-style-type: none"> 1. How will you describe Lowell as an agriculturist in the Philippines? 2. What are the challenges he encountered as an agriculturist? How did he respond to those challenges? 	<p><i>Play a YouTube video about an agriculturist in the Philippines. Have learners identify the challenges faced by the professional and brainstorm how they would respond to similar obstacles.</i></p> <p><i>This Narrative-Based Learning approach builds Empathy and</i></p>
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	<p>3. If you are to be in his shoes, how will you overcome those challenges?</p>  <p>Reference: https://www.youtube.com/watch?v=PUgOjkTlkvk</p>	<p><i>Adaptability by letting learners "walk in the shoes" of a professional.</i></p>
<p>C. Demonstrating Knowledge and Skills</p>	<p>1. Finding Practical Application</p> <p>LEARNING TASK 8. SWEET SWOT</p> <div data-bbox="589 702 1471 1016" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p><i>As a member of the small group of farmers in your locality that is currently selling cucumber and sweet potatoes to local wholesalers, you consider expanding into cold-pressed bottled cucumber juices and sweet potato chips to increase your profit margins. But before venturing into it, you decided to conduct first a SWOT Analysis that will discuss the strengths, weaknesses, opportunities, and threats of the said business.</i></p> </div> <p>Directions: You will be working in a group. You will be tasked with studying the given scenario. Then, conduct a SWOT Analysis that will discuss the strengths, weaknesses, opportunities, and threats. Organize your findings into a standard 2x2 grid SWOT Matrix. Ensure each quadrant has at least 3–4 specific points. Place it in Manila paper and have it discussed with your classmates. Your group will be assessed using the rubric below. Be prepared to discuss: <i>"Which Strength will help you overcome your biggest Threat?"</i></p>	<p><i>Present a scenario involving a group of farmers expanding into processed products like cucumber juice. Have learners' groups conduct a SWOT Analysis, organize it into a 2x2 matrix on Manila paper, and present it to the class.</i></p> <p><i>It promotes higher-order thinking skills (HOTS) by requiring students to apply business analysis tools to a realistic agricultural scenario. Likewise, this Project-Based Learning (PBL) task develops Problem Solving and Leadership through strategic business planning.</i></p>

		Criteria	Highly Competent (4)	Competent (3)	Developing (2)	Beginning (1)	
		Analysis Depth	All 4 quadrants have 4+ insightful, specific points directly tied to the scenario.	All 4 quadrants have 3 points; points are relevant to the scenario.	Missing points in some quadrants or points are too vague/general .	Fewer than 3 points per quadrant; little connection to the scenario.	
		SWOT Categorization	Perfectly distinguishes between internal (S/W) and external (O/T) factors.	Mostly correct categorization with 1–2 minor overlaps.	Mixes up internal and external factors significantly.	Concepts are misplaced (e.g., a Weakness listed as a Threat).	
		Visual Organization	2x2 Matrix is perfectly drawn on Manila paper; neat, legible, and professional.	Matrix is clear and easy to read; minor issues with spacing or neatness.	Matrix is present but messy or difficult for the class to read.	No 2x2 grid used; disorganized or illegible layout.	
		Group Presentation	All members contribute; speakers are clear, confident, and field questions well.	Most members speak; explanation of the matrix is logical and clear.	Only one person speaks; explanation is a simple reading of the paper.	Lack of preparation; unable to explain the reasoning behind the points.	
		Collaboration	Group worked seamlessly; evidence of	Group worked well together with minor	Group struggled to cooperate; some	Little to no evidence of teamwork or	

	shared workload and consensus.	lopsidedness in effort.	members were off-task.	group discussion.
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2. Making Generalization

Learning Task 9. **SOW ME**

Directions: Complete the prompt below. Volunteers to share their answers to the class

"If we don't address the challenges encountered in agri-crop production, our Food Security will

_____."

3. Evaluating Learning

Directions: Read each item carefully. Select the letter of the answer that best describes the item.

1. Which of the following careers best describes someone in the farm primarily assigned in nursery farm operations?

- a. Farm Aide
- b. Farm Caretaker
- c. Farm Worker
- d. Nursery Operator

2. Which of the following careers best describes someone who assists farm workers in various agricultural activities?

- a. Farm Aide
- b. Farm Caretaker
- c. Farm Worker
- d. Nursery Operator

3. Which of the following careers categorizes aquaculturists and greenhouse growers?

- a. Management
- b. Processing
- c. Production
- d. Supplies/ Sales

	<p>2. What agricultural practice refers specifically to the sustainable interaction and integration of trees with crops or farming systems?</p> <p>A) Agroforestry B) Controlled Environment Agriculture C) Monoculture D) Precision agriculture</p> <p>3. Which production system combines aquaculture (cultivating fish) with hydroponics (growing plants in water without soil)?</p> <p>A) Aeroponics B) Agroforestry C) Aquaponics D) Vertical gardening</p> <p>4. What technology describes the capability of a digital computer or a computer-controlled robot to perform tasks commonly associated with intelligent beings?</p> <p>A) Agricultural Engineering B) Artificial Intelligence (AI) C) Internet of Things (IoT) D) Precision Agriculture</p> <p>5. If an urban gardener chooses to grow crops inside pots, tubs, or boxes instead of directly in the ground, what method are they practicing?</p> <p>A) Agroforestry B) Container gardening C) Monoculture D) Vertical gardening</p> <p>6. Which cultivation technique utilizes a water-based nutrient solution instead of soil, and may include aggregate media like perlite, vermiculite, or coconut coir?</p> <p>A) Aeroponics B) Agroforestry C) Container gardening D) Hydroponics</p>
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	<p>7. What is the agricultural practice of dedicating large land areas to cultivating a single crop, often heavily reliant on selective herbicides?</p> <p>A) Agroforestry B) Controlled Environment Agriculture C) Monoculture D) Precision agriculture</p> <p>8. Which data-driven management concept optimizes production by observing, measuring, and responding to inter-field variability using GPS, drones, and sensors?</p> <p>A) Agri-Tech supply B) Controlled Environment Agriculture C) Monoculture D) Precision agriculture</p> <p>9. Which revolutionary gardening approach maximizes limited space by growing upward, making it ideal for balconies and small urban environments?</p> <p>A) Aeroponics B) Container gardening C) Hydroponics D) Vertical gardening</p> <p>10. Which specialist conducts intensive research on soil health, pest control, and seed technology to directly maximize crop yield and quality?</p> <p>A) Agricultural Engineer B) Agricultural Extension Officer C) Agronomist / Crop Scientist D) Precision Agriculture Technician</p> <p>11. Which technical expert applies data analytics, satellite imaging, and IoT sensors to track plant health and optimize resource utilization on modern farms?</p> <p>A) Agricultural Engineer B) Farm Manager C) Nursery operator D) Precision Agriculture Technician</p>
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	<p>12. Who is primarily responsible for designing safer, more efficient farm machinery, automated irrigation systems, and post-harvest storage facilities?</p> <p>A) Agricultural Engineer B) Agricultural Extension Officer C) Agronomist D) Farm Caretaker</p> <p>13. Which professional acts as a crucial bridge between scientific researchers and local farmers by teaching sustainable, modern farming techniques?</p> <p>A) Agricultural Engineer B) Agricultural Extension Officer C) Agronomist D) Farm Manager</p> <p>14. Who supervises day-to-day operations of crop production, managing tasks from planting schedules and labor allocation to the final harvest?</p> <p>A) Agricultural Extension Officer B) Farm / Greenhouse Manager C) Farm Worker D) Nursery operator</p> <p>15. Setting up high-value hydroponic, aquaponic, or vertical farming systems to grow fresh produce year-round falls under which high-potential business category?</p> <p>A) Agri-Tech & Inputs Supply B) Controlled Environment Agriculture (CEA) C) Equipment Rental & Contracting D) Post-Harvest & Processing</p>
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	<p>16. Fulfilling strong consumer demand for certified fruits and vegetables, along with high-value cash crops like cacao or coffee, represents which business opportunity?</p> <p>A) Controlled Environment Agriculture B) Equipment Rental & Contracting C) Organic & Specialty Crop Production D) Post-Harvest & Processing</p> <p>17. Providing custom-blended fertilizers, organic pest repellents, or commercial drone monitoring services is an example of which business type?</p> <p>A) Agri-Tech & Inputs Supply B) Controlled Environment Agriculture C) Equipment Rental & Contracting D) Post-Harvest & Processing</p> <p>18. Purchasing raw crops and transforming them into higher-margin retail items via drying, packaging, or freezing serves what primary economic purpose?</p> <p>A) Eliminating the need for farm workers B) Minimizing post-harvest losses C) Reducing the need for agronomists D) Shifting the farm into an agroforestry model</p> <p>19. Investing in expensive heavy machinery like tractors and harvesters to offer custom services to smaller local operations is categorized as:</p> <p>A) Agri-Tech & Inputs Supply B) Controlled Environment Agriculture C) Equipment Rental & Contracting D) Post-Harvest & Processing</p> <p>20. What specific term describes an individual who operates an agricultural establishment that produces crops, livestock, and other outputs?</p> <p>A) Farm aide B) Farm caretaker C) Farm worker</p>
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	<p>D) Farmer/Grower</p> <p>21. A hired laborer who is explicitly employed to carry out specific, seasonal on-farm tasks like fruit picking is known as a:</p> <p>A) Farm aide B) Farm caretaker C) Farm worker D) Farmer</p> <p>22. Which type of agricultural worker is primarily assigned to manage and execute operations within a plant cultivation nursery?</p> <p>A) Farm caretaker B) Farm manager C) Nursery operator D) Precision technician</p> <p>23. An employee whose role is focused on assisting higher-level farm workers in various routine agricultural activities is defined as a:</p> <p>A) Farm aide B) Farm caretaker C) Farm manager D) Farmer</p> <p>24. Which occupational role focuses on maintaining farm property and safeguarding valuable equipment, standing crops, and other farm essentials?</p> <p>A) Farm aide B) Farm caretaker C) Farm worker D) Nursery operator</p>
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	<p>25. Agricultural extension officers, modern researchers, and technical educators are properly grouped under which occupational category?</p> <p>A) Communication and Education / Service & R&D</p> <p>B) Management and Corporate Strategy</p> <p>C) Post-Harvest and Processing</p> <p>D) Supplies and Sales</p>
VII. REFLECTION	<p>EXIT TICKET:</p> <p>At the end of the activity, have the learners write down one new thing they have learned the overview of agricultural crops production on a customized ticket by completing the statement below. One new thing I learned today about the overview of Agri-Crops Production is _____.</p> <p>LEARNING LOG:</p> <p>Have learners reflect on their learning and assess their own understanding and skills. Use prompts like: What did you find most challenging about this lesson?” How confident are you in identifying and maintaining farm tools? Let the learners rate their confidence level from 1-5 (5 as the highest and 1 is the lowest).</p>
VIII. USE OF GENERATIVE AI	<p>In preparing this Learning Exemplar (LE), the author used Google Gemini in order to generate an image of a farm and a coconut tree. The author(s) reviewed and finalized the writing of the content. The author takes full responsibility for the content of this LE.</p>

LESSON EXEMPLAR			
Learning Area	AGRICULTURAL CROPS PRODUCTION	Lesson Exemplar	2

I. OBJECTIVES	
A. Content Standard	The learners demonstrate understanding of principles on the overview of agricultural crops production, farm tools, implements, and simple equipment, and pre-operative check-up following the manufacturer's manual.
B. Performance Standard	The learners perform pre-operative checking of tools, farm implements, and equipment in accordance with the manufacturer's manual.
C. Learning Competencies	<p>Key Topics Learned in the Previous:</p> <ol style="list-style-type: none"> 1. Career and Business Opportunities 2. Challenges 3. Common Terminologies 4. Technology and Innovation <p>LC 2. Discuss the safety standards in agricultural crops production.</p>
II. REFERENCES and MATERIALS	<p>REFERENCES</p> <p>“Aspects of Inspection.” n.d. https://ati2.da.gov.ph/ati-car/content/sites/default/files/2022-12/GAP.pdf.</p> <p>News, GMA Integrated. 2025. “DA Warns Some Imported Vegetables Lack Health Certificate.” GMA News Online. January 24, 2025. https://www.gmanetwork.com/news/topstories/nation/934007/da-warns-some-imported-vegetables-lack-health-certificate/story/.</p> <p>Technical Education and Skills Development Authority (TESDA). <i>Agricultural Crops Production NC II Training Regulations. Agriculture, Forestry and Fishery Sector</i>. Taguig City, Metro Manila: Technical Education and Skills Development Authority, n.d.https://tesda.gov.ph/Downloadables/TR%20%20%20Agricultural%20Crops%20Production%20NC%20II.pdf.</p>

	<p>“Using Personal Protective Equipment on the Farm.” n.d. Extension.umn.edu. https://extension.umn.edu/farm-safety/using-personal-protective-equipment-farm.</p> <p>MATERIALS Images, white board, white board marker, manila paper, metacards, print out images, writing pad, colored papers, power point presentation, laptop/ tablets, smart TV, activity sheets</p>	
III. CONTENT	<p>Safety Standards in Agricultural Crops Production</p> <ul style="list-style-type: none"> • Occupational Safety and Health Standards in Agricultural Crops Operations <ul style="list-style-type: none"> o Safety regulations o Hazards and risks o Contingency measures o Waste disposal management • Philippine Good Agricultural Practices (PhilGAPs) <ul style="list-style-type: none"> o For certification o For sustainable agriculture 	
IV. OBJECTIVES	<p>At the end of the lesson, learners are expected to:</p> <ol style="list-style-type: none"> 1. Identify the Occupational Safety and Health Standards in agricultural crops operations. 2. Recognize the role and importance of Philippine Good Agricultural Practices (PhilGAPS). 3. Demonstrate awareness on following safety standards in agricultural crops production through participation in learning tasks. 	
V. PROCEDURES		ANNOTATIONS
A. Activating Prior Knowledge	<p>1. Activating Prior Knowledge</p> <p>Learning Task 1. SPOT THE HAZARD</p>	<p>Start with a "Spot the Hazard" visual activity. Show images of a messy farm tool shed or a farmer spraying chemicals without a mask. Use this to bridge to the definition of Hazard and Risk. This taps into prior knowledge</p>



Reference: Google Gemini

Directions: Carefully observe the image. List three things in the picture that could cause an accident.

Guide Questions:

1. Why do you think these things can cause an accident?
2. What possible accidents or injuries may occur?
3. How will you prevent these accidents from happening?

Learning Task 2. **A FARMER'S TALE**

Directions: Analyze the two contrasting pictures. Then answer the guide questions.



Reference: Google Gemini

A farmer wearing PPE (gloves, boots, mask)

A farmer without PPE handling chemicals

and establishes a baseline for safety awareness

Ask the learners “Who among you has visited or seen a farm?” Allow 2–3 learners to share their experiences. Then, show two contrasting pictures. Write key responses on the board

	<p>Guide questions:</p> <ol style="list-style-type: none"> 1. What differences do you notice between the two pictures? 2. Which farmer is safer? Why? <p>2. Establishing the Purpose of the Lesson</p> <p>Learning Task 3. SAFETY FIRST</p> <p>Directions: Today, you will learn how farmers can stay safe while working and how they ensure that the food we eat is safe and of high quality. Using meta cards, write down your answer to this question and post it on the board.</p> <p>Processing Question:</p> <p>“Why do you think safety is important in farming?”</p> <p>Learning Task 4. SAFETY NEWS</p> <p>Directions: Read and analyze the news article from GMA Integrated News about the precautions issued by the Department of Agriculture about imported goods. Then answer the questions that follow.</p> <p style="text-align: center;">DA warns some imported vegetables lack health certificate</p> <p>The Department of Agriculture (DA) on Friday warned consumers of imported vegetables that can be found in dry markets as they could have been smuggled.</p> <p>In Bernadette Reyes’ report on "24 Oras," vegetables called “tiger chili,” “garlic sticks,” and “Chinese Yam” were available at a market in Pasay City.</p>	<p>Present objectives using a slide or chart. Ask learners to read the objectives aloud. Clearly communicates learning goals. Give them meta cards and allow them to write down their answers in the given question.</p> <p>Instruct learners to silently read the news article.</p>
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	<p>But Agriculture Secretary Francisco Laurel Tiu said that these vegetables could pose a threat to one's health if they were not issued sanitary and phytosanitary import clearance by the Bureau of Plant Industry.</p> <p>“Wala silang health certificate so that is actually dangerous. Hindi natin alam kung mataas ‘yan sa heavy metals, hindi natin alam kung reject ‘yan, may pesticide content, yung fertilizer na ginamit tama ba na hindi harmful sa tao,” he said.</p> <p>(They don't have health certificates so that is actually dangerous. We are not sure if they have high levels of heavy metals, if they are rejected, if they contain pesticides, or what kind of fertilizer was used.)</p> <p>Meanwhile, some retailers are clueless about the original source of their vegetables.</p> <p>“Ang alam lang namin doon lang namin kinuha sa Divisoria, Ma'am, tapos binebenta lang namin dito,” a vendor said.</p> <p>(What we only know is we just source them from Divisoria and sell them here.)</p> <p>The DA said that it will coordinate with the Bureau of Customs to locate the source of the said vegetables, while also encouraging retailers to cooperate,</p> <p>“I-coordinate din namin sa DA at DTI tapos kung ano mga sanction na pwede namin ibigay sa kanila isa-sanction po namin sila,” said Ted Velasco, Pasay Markets master.</p> <p>(We will also coordinate with the DA and DTI regarding the possible sanctions to the sources.)</p>	
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	<p>Meanwhile, the DA also said that it would gradually slash the maximum suggested retail price (MSRP) for imported rice in the coming weeks as it targets an MSRP of P49 per kilo by March. --Vince Angelo Ferreras/LDF, GMA Integrated News Guide questions:</p> <ol style="list-style-type: none"> 1. Why did the Department of Agriculture (DA) warn consumers of imported vegetables that can be found in dry markets in Pasay City? 2. What are the possible effects of consuming those vegetables? 3. How will you demonstrate awareness of safe and sustainable farming practices? 							
<p>B. Instituting New Knowledge</p>	<p>1. Presenting Examples</p> <p>Occupational Health and Safety is a set of policies and procedures that is followed in a workplace in order to prevent accidents, illness, and injuries. In the Philippines, RA 11058 strengthens the existing occupational health and safety standards in the workplace through the Department of Labor and Employment. OHS involves knowing the risks that can be encountered in a workplace and figuring out how it can be prevented.</p> <p>Learning Task 5. FARM HAZARDS</p> <p>Directions: Using the given table, identify whether the following hazards are Ergonomic, Physical, Chemical or Biological Hazards. Place them in their appropriate group.</p> <table border="1"> <tr> <td>Heat stress</td><td>Irritation from pesticides</td><td>Slippery area</td></tr> <tr> <td>Contamination from soil</td><td></td><td>Animal attack</td></tr> </table>	Heat stress	Irritation from pesticides	Slippery area	Contamination from soil		Animal attack	<p>Display the OSH safety signs (Caution, Warning, Danger) and the PhilGAP official logo.</p>
Heat stress	Irritation from pesticides	Slippery area						
Contamination from soil		Animal attack						

	<div><div>Back and neck strain from planting Insects and snakes</div><div>Muscle fatigue from using tools Greenhouse fire</div><div>Inhalation of toxicants from waste</div></div>																													
	<table><tr><th>Ergonomic</th><th>Physical</th><th>Chemical</th><th>Biological</th></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table>	Ergonomic	Physical	Chemical	Biological																									
Ergonomic	Physical	Chemical	Biological																											
	<div><div>2. Discussing New Concept</div><div>HAZARDS IN THE FARM</div><div>Ergonomic hazards can be eliminated or reduced by thoughtfully planning the layout of the farm. Proper handling of tools and equipment during any activity will also prevent ergonomic hazards. For example, do not place the field/plots too further away from the nursery. This will cost you too much time and effort during transplanting.</div><div><ul style="list-style-type: none">Physical hazards can be eliminated or reduced by providing enough breaks, resting shade, water supply, and protective equipment.Meanwhile, chemical and biological hazards can be eliminated or reduced by regularly cleaning and sanitizing areas.</div></div>	<div>Facilitate a discussion on the hazards in the farm, safety procedures, waste management, and Philippine Good Agricultural Practices (PhilGAP).</div>																												

	<ul style="list-style-type: none"> • Frequent handwashing and wearing protective equipment will also reduce risk of contamination. • Most importantly, proper orientation of all farm workers on safety will increase likelihood of safety in the farm. <p>The rule of thumb in ensuring safety is prevention – eliminating and reducing hazards. However, in the event of an accident, knowledge of emergency procedures is also integral.</p> <p>EMERGENCY PROCEDURE</p> <p>An emergency procedure is a set of actions undertaken in the event of an accident or emergency.</p> <p>First is immediate care given to a person who has been injured or has suddenly felt ill. With or without emergency, have a first aid kit prepared.</p> <p>PERSONAL PROTECTIVE EQUIPMENT ON THE FARM</p> <p>Personal Protective Equipment (often referred to as PPE) is an important part of safety on farms. Hazards can be everywhere on farms, and taking preventative measures like using PPE is important to your safety.</p> <p>PPE varies based on the task at hand, and not every job requires the same equipment. PPE is designed to control the uncontrollable and serve as the last line of defense in hazardous situations. It is used for your safety and should be used when necessary.</p> <p>Examples of PPE are eye protection, hearing protection, feet protection, respiratory protection, gloves and</p>	
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	<p>full body suits. By figuring out what the hazards are for your task, it will depend on what PPE you will need.</p> <p>5S AND GOOD HOUSEKEEPING</p> <p>5S is a management approach for productivity and quality that focuses on maintaining orderliness and cleanliness in the workplace. 5S means:</p> <ol style="list-style-type: none"> 1. Sort or Seiri – Distinguish between what is needed and not needed. 2. Set in order or Seiton – Secure a place for everything and everything should be in its place. 3. Shine or Seiso – Clean and look for ways to keep it clean and organized. 4. Standardize or Seiketsu – Establish guidelines and monitor. 5. Sustain or Shitsuke – Commit to a clean and organized workplace and stick to a cleaning schedule. <p>Proper Waste Management</p> <p>Working on the farm entails that we will have cycles every few months. Along this process, farm outputs are produced from the harvested crops. Since there are different processes involved from nursery operations to postharvest, farm wastes will also be produced.</p> <p>In the Philippines, RA 9003 or the Ecological Solid Waste Management Act ensures a systematic waste management program for the environment and public health.</p> <p>Agricultural waste can range from green waste, pesticides, chemicals, fluids from the equipment, fertilizer bags, and even pests. It is very important to get rid of these agricultural wastes or if possible, find ways to make use of them through reducing, reusing, and recycling if possible.</p>	
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	<p>Ecological solid waste management involves the practice of the different elements:</p> <p>Generation - activity of producing solid waste</p> <p>Collection - removing solid waste from the source or from a storage point</p> <p>Storage - temporary containment of solid waste after generation and prior to collection for ultimate recovery or disposal</p> <p>Processing - collection, extraction, or recovery of recyclable materials from the waste stream for the purpose of recycling, generating energy or producing a product suitable for beneficial use</p> <p>Disposal - discharging, depositing, dumping, spilling, leaking, or placing solid waste into or any land.</p> <p>The 3Rs (Reduce, Reuse, Recycle) have long been used in the management of waste whether in households, workplace, or public places.</p> <p>Reduce emphasizes the importance of resource conservation in ensuring waste minimization such as buying in bulk and purchasing high quality products that will last longer</p> <p>Reuse is the process of using items for the same or different purpose without the alteration of physical and chemical characteristics. To reuse items, you may buy durable goods you can use for a long period of time and donating or giving away products that you do not need anymore</p> <p>Recycle refers to the treatment of used or waste materials through a process of making them suitable for beneficial use and other purposes. This includes any process where solid</p>	
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	<p>waste is transformed into new products or as raw materials for the production of other goods or services. To recycle, buy recyclable products that can be sold to junk shops and recycling facilities. Composting is a way of recycling biodegradable waste.</p> <p>HANDLING HAZARDOUS MATERIALS</p> <p>There are various hazardous agricultural wastes that we will have in the farm such as animal wastes (if livestock are involved in the farm), fertilizer run off, dust, and pests. Hazardous wastes also include chemicals, medicines, oils, fluids, batteries, and contaminated PPEs that we have used.</p> <p>One must consider the best way to manage these hazardous agricultural wastes:</p> <ol style="list-style-type: none"> 1. Stock chemicals and medicines as needed. DO not overhaul such chemicals if possible in the farm storage. 2. Do not mix hazardous waste materials. These materials may react with each other and may cause dangerous outcomes such as fire. 3. Label and store all hazardous wastes. Everything should be noted and labeled to make sure that these wastes are not reused or handled incorrectly to ensure safety in the farm. 4. Turn over hazardous wastes ethically and environmentally. Each municipality/ city/ province will have local ordinances that one must be aware of when turning over these wastes. There are waste collectors responsible for collecting and managing these wastes. 	
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	<p>CONTINGENCY MEASURES</p> <p>Agricultural contingency measures involve proactive planning and risk mitigation to safeguard crops against unpredictable events like droughts, floods, typhoons, and pest outbreaks. These strategies ensure resilience, maintain productivity, and protect food supply chains.</p> <p>Key strategies span pre-emptive crop management, emergency interventions, and safe farm operations.</p> <p>1. Climate & Extreme Weather Mitigation</p> <ul style="list-style-type: none"> • Drought Preparation: Implement in-situ rainwater conservation, construct farm ponds, and utilize solar pump irrigation systems to ensure a steady water supply. For delayed monsoons, switch to short-duration or drought-resistant crop varieties. • Flood Management: Install adequate drainage systems to prevent waterlogging. If flooding occurs, replant with flood-tolerant varieties (e.g., Sub-1 rice strains), apply split nitrogen top-dressing to spur rapid tillering, and carry out community-based swarming caterpillar monitoring. • Typhoon & Windbreaks: Establish perimeter windbreaks (e.g., rows of tall trees) to reduce wind velocity and protect delicate crops from physical damage. <p>2. Pest and Disease Control</p> <ul style="list-style-type: none"> • Integrated Pest Management (IPM): Combine biological controls (beneficial insects), mechanical barriers (netting), and cultural practices (crop rotation) to prevent pest outbreaks. 	
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	<ul style="list-style-type: none"> • Emergency Outbreaks: Have emergency pesticide or fungicide supplies ready, utilizing community-wide spraying following disasters like heavy floods. <p>3. Occupational Safety & Farm Emergency Protocols</p> <ul style="list-style-type: none"> • Chemical Hazards: Follow exact manufacturer instructions for mixing and applying pesticides. Store chemicals in locked, well-ventilated areas away from water sources, and always have spill containment kits and eyewash stations on-site. • Physical & Heat Hazards: Mandate appropriate Personal Protective Equipment (PPE) including respirators, hard hats, and safety eyewear. Prevent heat stress by adjusting work hours to early mornings or late afternoons and providing shaded rest areas. • Machinery Emergencies: Ensure regular maintenance and equip all moving parts with safety guards. Train workers on basic first aid and establish clear, accessible emergency assembly points. <p>4. Post-Harvest & Financial Contingencies</p> <ul style="list-style-type: none"> • Post-Harvest Handling: Implement moisture and temperature controls in storage facilities (e.g., metal silos, cold storage) to prevent spoilage. • Supply Chain Diversion: Maintain a network of local markets, processors, and trading centers to avoid over-reliance on a single buyer. • Insurance: Utilize agricultural insurance programs to protect against catastrophic crop failure. 	
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LEARNING TASK 6. LET'S PREVENT IT

Directions: Fill out the table below by matching the hazard with its specific prevention strategy. Ensure the appropriate prevention strategy for every example scenario.

Hazard Type	Example Scenario	Prevention/Reduction Strategy
Physical	Working under the sun for 6 hours straight.	
Chemical	Using liquid fertilizers or pesticides.	
Biological	Handling manure or working in damp, moldy areas.	

PHILIPPINE GOOD AGRICULTURAL PRACTICES (PhilGAP)

It refers to farm level approaches designed to reduce the risk of contamination during on-farm production and postproduction processes.

GAP recommendations addresses:

- environmental protection & management - free of contaminants - safe & responsible handling of agro-chemicals - biodiversity conservation
- food safety - safe, healthy and quality produce for better nutrition and consumption

Divide the class into small groups. Expected output is a visual representation of concepts and relationships. Provide manila paper and markers. This activity will support collaborative learning and develop organization of ideas. A sample image has been provided.

	<ul style="list-style-type: none"> • worker's health, safety and welfare - improves farmers and consumers condition - enhance the agricultural family welfare • product quality - globally competitive produce - improved food security. <p>This approach is a set of principles, regulations and technical recommendations that are applicable during primary production, processing and food transport, agreed upon by the Association of South East Asian Nations (ASEAN) where the Philippines is one of the 10 members. o GAP bridges the gap between traditional farming practices and market as well as the stakeholders' (customers) standards for agricultural and non-agricultural products</p> <p>GAP CERTIFICATION</p> <p>A.O. 30 series of 2012, known as the GAP Certification Guidelines, encourages all farmers/food producers to adopt GAP principles and to be GAP certified. The following therefore, are encouraged to undergo certification:</p> <ul style="list-style-type: none"> • Individual Farmers • Cooperative & Farmer Organization-owned and operated farms • Corporate Farms / Produce Marketing Organizations (PMOs) • Demonstration farms • Tasked to spearhead the certification process is the Bureau of Plant Industry (BPI) in cooperation with the Regional GAP Team in the Municipal, Provincial, and Regional levels. 	
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	<p>Processing Questions:</p> <ol style="list-style-type: none"> 1. How can a farmer reduce the physical strain of moving seedlings if the planting plots are located very far from the nursery? 2. Since PPE (protective gear) is the "last line of defense," which part of the 5S system (Sort, Set in Order, Shine, Standardize, Sustain) do you think is best at removing a hazard before a worker even needs to put on gear? 3. If you were a farm manager, how would you change your daily waste habits to make sure your farm qualifies for PhilGAP certification? 4. Why might a farmer's decision to hide or bury hazardous chemicals (to save money) eventually ruin the quality of the food they try to sell later? 5. If you had to teach a new worker about safety using the 3Rs (Reduce, Reuse, Recycle), how would you apply those rules to handling dangerous chemicals instead of just trash? <p>3. Developing Mastery</p> <p>Learning Task 7. CONCEPT MAPPING</p> <p>Directions: You will be divided into groups. Each will create a concept map showing OSHS practices.</p>	
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Reference: ChatGPT

C. Demonstrating Knowledge and Skills

1. Finding Practical Application

Learning Task 8. **SAFETY AUDIT**

Directions: In groups, you will demonstrate awareness of the safety procedures to follow in farm operations by performing a Safety Audit. You must inspect a specific farm task (e.g., land preparation or weeding) and list the OSH standards that must be followed to avoid injury.

SAFETY AUDIT	
Specific Farm Task	OSH Standards

Conduct a "Mini-Farm Walk" (or use a simulated station).

	<p>2. Making Generalization</p> <p>Learning Task 9. 3-2-1 SUMMARY</p> <p>Directions: Complete the following. Write</p> <p>3 OSH standards every farmer must follow</p> <hr/> <hr/> <hr/> <p>2 Ways PhilGAP protects the environment</p> <hr/> <hr/> <p>1 Reason why food safety starts at the farm</p> <hr/> <p>3. Evaluating Learning</p> <p>Directions: Read each statement carefully. Write TRUE if the statement is correct and FALSE if it is incorrect. Write your answer on the space provided.</p> <ol style="list-style-type: none"> 1. Ergonomic hazards can be reduced by properly planning the layout of the farm. 2. Placing the field far away from the nursery helps save time and effort during transplanting. 3. Providing breaks, shade, water, and protective equipment can help reduce physical hazards. 4. Chemical and biological hazards can be reduced by regularly cleaning and sanitizing farm areas. 5. Frequent handwashing and wearing PPE increase the risk of contamination. 6. Proper orientation of farm workers has no effect on farm safety. 7. Prevention is the most important rule in ensuring safety on the farm. 	<p>Use the "3-2-1 Summary" method.</p> <p>Administer a 10-item True or False quiz.</p>
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	<p>8. PPE is considered the first line of defense against hazards.</p> <p>9. The 5S principle includes Sort, Set in order, Shine, Standardize, and Sustain.</p> <p>10. Mixing hazardous waste materials is recommended to save storage space.</p> <p>4. Additional Activities</p> <p>Learning Task 10. FROM FARM TO SAFETY</p> <p>Directions: Demonstrate awareness of the safety procedures to follow by creating a digital infographic or a poster promoting "Safety First in the Farm".</p>	Assign a creative project.
VI. ASSESSMENT	<p>Directions: Read and analyze each item carefully. Then select the best answer from the given choices.</p> <p>1. A farmer places the nursery far from the field, causing workers to feel tired during transplanting. What should be done to solve this problem?</p> <p>A. Increase working hours</p> <p>B. Redesign the farm layout</p> <p>C. Add more workers</p> <p>D. Ignore the issue</p> <p>2. If workers experience frequent body pain while working, what is the most appropriate action?</p> <p>A. Make them work faster</p> <p>B. Improve tool handling and farm design</p> <p>C. Reduce their salary</p> <p>D. Assign more tasks</p> <p>3. A farm lacks shaded resting areas. What is the most likely effect?</p> <p>A. Increased productivity</p> <p>B. Reduced physical hazards</p> <p>C. Increased risk of heat stress</p> <p>D. Improved worker morale</p>	

	<p>4. Which situation shows proper control of chemical hazards?</p> <ul style="list-style-type: none"> A. Leaving chemicals open B. Cleaning and sanitizing regularly C. Mixing all chemicals together D. Ignoring waste <p>5. A worker skips handwashing after handling crops. What could be the possible consequence?</p> <ul style="list-style-type: none"> A. Faster work B. Reduced contamination C. Increased risk of contamination D. Better productivity <p>6. Why is worker orientation important before starting farm tasks?</p> <ul style="list-style-type: none"> A. To delay work B. To increase risks C. To ensure safety awareness D. To reduce communication <p>7. A farm only reacts after accidents happen. What safety principle is being ignored?</p> <ul style="list-style-type: none"> A. Reaction B. Prevention C. Production D. Competition <p>8. In an emergency where a worker is injured, what should be done first?</p> <ul style="list-style-type: none"> A. Continue working B. Provide immediate care C. Wait for instructions D. Ignore the situation <p>9. If PPE is not used during hazardous tasks, what is the likely outcome?</p> <ul style="list-style-type: none"> A. Increased safety B. Reduced risk C. Higher chance of injury D. Faster completion
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	<p>10. A worker chooses not to wear gloves while handling chemicals. What does this indicate?</p> <ul style="list-style-type: none"> A. Proper safety practice B. Lack of hazard awareness C. High productivity D. Good decision-making <p>11. Which scenario best shows the application of 5S principles?</p> <ul style="list-style-type: none"> A. Tools scattered everywhere B. Clean and organized workspace C. Ignoring cleanliness D. Mixing tools and waste <p>12. A farmer burns waste instead of recycling it. What principle is not followed?</p> <ul style="list-style-type: none"> A. 5S B. 3Rs C. PPE D. Emergency response <p>13. If hazardous wastes are mixed together, what could happen?</p> <ul style="list-style-type: none"> A. Safer storage B. Reduced reaction C. Dangerous chemical reactions D. Easier disposal <p>14. Why should hazardous materials be properly labeled?</p> <ul style="list-style-type: none"> A. For decoration B. To prevent misuse and accidents C. To increase cost D. To save time <p>15. A farm follows safety rules, uses PPE, and manages waste properly. What is the most likely result?</p> <ul style="list-style-type: none"> A. Increased accidents B. Unsafe environment C. Improved safety and productivity D. Reduced efficiency
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VII. REFLECTION	<p>EXIT TICKET:</p> <p>At the end of the activity, have the learners write down one new thing they have learned the overview of agricultural crops production on a customized ticket by completing the statement below. One new thing I learned today about Occupational Health and Safety standards is _____.</p> <p>LEARNING LOG:</p> <p>Have students reflect on their learning and assess their own understanding and skills. Use prompts like: What did you find most challenging about this lesson?” How confident are you in identifying and maintaining farm tools? Let the learners rate their confidence level from 1-5 (5 as the highest and 1 is the lowest).</p>
VIII. USE OF GENERATIVE AI	<p>In preparing this Learning Exemplar (LE), the author(s) use Google Gemini and ChatGPT in order to create a concept map and several images. The author(s) reviewed and finalized the writing of the content. The author(s) take(s) full responsibility for the content of this LE.</p>

LESSON EXEMPLAR			
Learning Area	AGRICULTURAL CROPS PRODUCTION	Lesson Exemplar	3

I. OBJECTIVES	
A. Content Standard	The learners demonstrate understanding of principles on the overview of agricultural crops production, farm tools, implements, and simple equipment, and pre-operative check-up following the manufacturer's manual.
B. Performance Standard	The learners perform pre-operative checking of tools, farm implements, and equipment in accordance with the manufacturer's manual.
C. Learning Competencies	<p>Key Topics Learned in the Previous:</p> <ol style="list-style-type: none"> 1. Occupational Safety and Health Standards in Agricultural Crop Production 2. Philippine Good Agricultural Practices <p>LC 3. Classify the different farm tools, implements, and equipment according to work requirements</p>
II. REFERENCES and MATERIALS	<p>REFERENCES:</p> <p>Technical Education and Skills Development Authority (TESDA). <i>Agricultural Crops Production NC II Training Regulations. Agriculture, Forestry and Fishery Sector</i>. Taguig City, Metro Manila: Technical Education and Skills Development Authority, n.d.https://tesda.gov.ph/Downloadables/TR%20%20%20Agricultural%20Crops%20Production%20NC%20II.pdf.</p> <p>Freepik. "Mystery Box Images – Free Download on Freepik." 2026. Accessed May 20, 2026. https://www.freepik.com/free-photos-vectors/mystery-box.</p> <p>MATERIALS:</p> <p>Images of tools and equipment, white board, white board marker, Manila paper, metacards, print out images, writing pad, colored papers, power point presentation, laptop/ tablets, smart TV, activity sheets</p>

III. CONTENT	Farm Tools, Implements, and Equipment <ul style="list-style-type: none">• Hand tools<ul style="list-style-type: none">o digging toolso propagation toolso harvesting toolso measuring tools• Farm implements and equipment<ul style="list-style-type: none">o water pumpso hand tractoro plowo harrowo sprayer• Maintenance of farm tools, implements and equipment<ul style="list-style-type: none">o correctiveo preventiveo schedule	
IV. OBJECTIVES	At the end of the lesson, learners are expected to: <ul style="list-style-type: none">1. Identify the different farm tools, implements, and equipment according to work requirements.2. Classify the appropriate farm tools, implements, and equipment for a given farm task.3. Appreciate the importance of showing responsibility in handling and organizing tools according to safety standards.	
V. PROCEDURES		ANNOTATIONS
A. Activating Prior Knowledge	1. Activating Prior Knowledge Activity 1. Directions: Act out the physical motion of using a specific tool or piece of equipment without speaking, while others guess the name. One person comes to the front, picks a slip/card inside the box, and has 30 seconds to mimic the motion of using that tool. No talking or making engine noises. The first person to shout the correct name wins a point for their team.	Prepare slips of paper with names of common tools (Bolo, Shovel, Rake, Axe). Use this to gauge which learners have "hands-on" experience. If a learner uses a very specific motion (like the flick of a wrist for a bolo), acknowledge their technique. Remind them to "mimic" the weight of the tool.

	<div data-bbox="833 220 1178 512" data-label="Image"> </div> <p data-bbox="667 563 1370 632">Reference: https://www.freepik.com/free-photos-vectors/mystery-box</p> <p data-bbox="577 778 1205 807">2. Establishing the Purpose of the Lesson</p> <p data-bbox="577 836 1449 970">Activity 2. Directions: Form small groups. Each group receives cards with names of farm items (Rice Thresher, Axe, Plow, Spade, Harrow, Shovel, Rake, Hand trowel, Rotavator, Pruning Shears, Water pump, Spading fork).</p> <ul data-bbox="624 999 1382 1150" style="list-style-type: none"> • Place the cards under three labeled boxes: Tools, Implements, Equipment. • The group that classifies all items correctly in the shortest time wins. 	<p data-bbox="1487 140 2040 236">A shovel is heavy; a hand trowel is light. This builds "muscle memory" awareness.</p> <p data-bbox="1487 639 2040 981">Before starting, give them the "cheat sheet" definitions: Tools: Handheld, light, no engine/animal. Implements: Accessories pulled by animals or tractors. Equipment: Heavy machinery (usually with an engine). Walk around and see which items confuse them. (Common mix-up: Is a plow a tool or an implement? Answer: It's an implement because it needs a "puller").</p>
<p data-bbox="248 1278 533 1342">B. Instituting New Knowledge</p>	<p data-bbox="577 1182 934 1211">1. Presenting Examples</p> <p data-bbox="577 1240 1460 1406">Activity 3. Directions: Read each farm tool, implement, or equipment listed below. Then, carefully match it with the correct use from the choices provided. Write the letter of the correct answer beside each number. Make sure you understand the function before answering.</p>	<p data-bbox="1487 1193 2040 1431">If possible, show actual tools or high-quality photos. Seeing the difference between a Spade (flat edge) and a Shovel (scooped edge) is vital. Explicitly explain the difference between a Sprayer (for chemicals/fertilizers) and a Sprinkler</p>

	<ol style="list-style-type: none"> 1. Hoe – 2. Plow – 3. Tractor – 4. Sprinklers – 5. Rice thresher – <p>Choices:</p> <ol style="list-style-type: none"> A. Loosening soil B. Preparing seedbed C. Pulling heavy implements D. Watering plants E. Separating grains from stalks <p>2. Discussing New Concept</p> <p>In this lesson, let's take a look into the most common farm tools, implements, and equipment which you will be encountering. Make sure that you familiarize with their description and function since these tools, implement, and equipment are very crucial in the coming modules when we actually perform hands-on farm operations. Take note that these are not all the farm tools, implements, and equipment that one may encounter in the farm industry.</p> <p>FARM TOOLS, EQUIPMENT AND IMPLEMENTS</p> <p>A. Hand Tools</p> <p>Hand tools are usually light and are used without the help of animals or machines. They are being used in performing farm activities which involve small yet important jobs to be done.</p> <p>Example of Hand Tools</p> <ol style="list-style-type: none"> 1. Bolo- There are different kinds of bolo used for different purposes. In crop production, it is used for cutting weeds, particularly tall shrubs and grasses. 	(for water). Mixing these up in real life can kill crops.
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	<ol style="list-style-type: none"> 2. Crowbar- is used for digging big holes and for digging out big stones and stumps. 3. Pick-mattock- is used for digging canals, breaking hard topsoil and for digging up stones and tree stumps. 4. Grab-hoe is used for breaking hard topsoil and pulverizing soil. 5. Spade- is used for removing trash or soil, digging canals or ditches and mixing soil media. 6. Shovel- is used in removing trash, digging loose soil, moving soil from one place to another and for mixing soil media. 7. Rake- is used for cleaning the ground and leveling the topsoil. 8. Spading fork- is used for loosening the soil, digging out root crops and turning over the materials in a compost heap. 9. Light hoe- is used for loosening and leveling soil and digging out furrows for planting. 10. Hand trowel- is used for loosening the soil around the growing plants and putting small amount of manure in the soil. 11. Hand cultivator- is used for cultivating the garden plot by loosening the soil and removing young weeds around the plant. 12. Hand fork- is used for inter row cultivation. 13. Pruning shears- is for cutting branches of planting materials and unnecessary branches of plants. 14. Axe- is for cutting bigger size post. 15. Grafting knife -is for cutting planting materials and for performing other operations in horticulture. <p>Harvesting Tools</p> <p>These tools are designed for manually gathering crops, fruits, or vegetables while minimizing damage to the produce.</p> <ul style="list-style-type: none"> ● Sickle: A curved metal blade used manually to reap crops like grains, rice, and wheat. 	
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	<ul style="list-style-type: none"> ● Pruning Shears: Used to cut away unwanted twigs, branches, or harvest woody fruits and vegetables. ● Harvesting Knife: Sharp, specialized knives used to cleanly cut fruits, stems, or crops (like sugarcane) at the base. ● Bolo: A large, versatile cutting tool utilized for chopping thicker stalks or clearing out overgrown vegetation around the crops. ● Mechanical Harvesters / Combines: Heavy, motorized equipment used in large-scale operations to perform reaping, threshing, and winnowing of grains simultaneously. <p>Measuring Tools</p> <p>These instruments help farmers accurately assess the environment, plot dimensions, harvest weight, and post-harvest quality.</p> <ul style="list-style-type: none"> ● Grain Moisture Meters: Used to measure the moisture content of harvested grains or oilseeds, ensuring appropriate levels to prevent mold and spoilage during storage. ● pH Meters: Essential for testing the acidity or alkalinity of the soil, ensuring the environment is optimal for specific crop growth. ● Weighing Balances / Scales: Used to measure the exact weight of harvests, fertilizers, and seeds for packaging and pricing. ● Steel Tape / Push-Pull Rule: Used to accurately measure distances between plants and to layout field or garden plots. ● Yield Monitors: Advanced sensors used during harvesting that record yield variability across different sections of a field. 	
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B. Farm Implements

These are accessories which are being pulled by working animals or mounted to machineries (hand tractor, tractor) which are usually used in the preparation of wide land. These are usually made of a special kind of metal.

Examples of Farm Implements

1. Plow- These are farm implements used in horticultural operations either pulled by a working animal or a tractor. The plow is specifically used for tilling large areas, making furrows and inter row cultivation. Plows pulled by working animals are made of either a combination of metal or wood or pure metal. They are used to till areas with a shallower depth than that of the disc plows which are pulled by tractors. Examples are native plow and disc plow.

2. Harrow- Harrows are used for tilling and pulverizing the soil. The native wooden harrow is made of wood with a metal tooth and pulled by a carabao while the disc harrow is a metal mounted to a tractor.

3. Rotavator -The rotavator is an implement mounted to a tractor used for tilling and pulverizing the soil.

C. FARM EQUIPMENT

These are machineries used in farm operations especially in rice production. They are used in land preparation and in transporting farm inputs and produce. Using this equipment requires a highly skilled operator.

Examples of farm equipment

1. Hand tractor
2. Small tractor
3. Big four wheel tractor
4. Combine harvester
5. Rice thresher
6. Water pump

	<p>D. Other materials, tools, and equipment</p> <ol style="list-style-type: none"> 1. Water pails – for hauling water, manure and fertilizers 2. Sprinklers – for watering seedlings and young plants 3. Wheel barrow –for hauling trash, manures, fertilizers, planting materials and other equipment 4. Sprayers – for spraying insecticides, foliar fertilizers, fungicides and herbicides <p>Maintenance of Farm tools, Implements, and Equipment</p> <p>In agricultural crop production, maintenance strategies dictate equipment reliability and harvest success. Preventive maintenance proactively stops breakdowns; Corrective maintenance fixes tools after a failure; and Schedule maintenance dictates the timeframe for inspections and servicing. Understanding these three ensures operational efficiency and prolongs the lifespan of farm assets.</p> <p>1. Preventive Maintenance (PM)</p> <p>Preventive maintenance is a systematic, proactive approach to keeping tools and machinery in top working condition to avoid malfunctions and accidents. In farm settings, it involves daily checkups and care.</p> <ul style="list-style-type: none"> • Pre-Operational Checkups: Always perform a safety walk-around before firing up a tractor or heavy machinery to check for undercarriage obstacles. Check fluid levels (engine oil, radiator coolant, hydraulic fluid), tire pressure, and battery condition. • Cleaning and Rust Prevention: Remove mud, soil, and sap immediately after use. Use a whetstone or sandpaper to scrub off rust, and apply a light coat of oil or grease on metal parts to prevent corrosion. • Sharpening: Keep cutting tools (boles, scythes, pruning shears) sharp. Sharp tools require less force to use, 	<p>Have learners swap papers for the matching activity. This encourages discussion when answers differ.</p>
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	<p>reducing the risk of accidental breakage and minimizing physical fatigue.</p> <ul style="list-style-type: none"> ● Storage: Store hand tools in a dry, safe place, preferably hanging them on a rack. Never leave them on the ground where they can collect moisture or cause injury. <p>2. Corrective Maintenance (CM)</p> <p>Corrective maintenance—also known as <i>reactive</i> maintenance—is a fix-it-when-it-breaks approach. It involves diagnosing, repairing, or replacing a piece of equipment that has already failed during a farm operation.</p> <ul style="list-style-type: none"> ● When it occurs: This happens unexpectedly when a belt snaps on a grain combine, an engine breaks down, or a wooden handle on a shovel crack in half. ● Impact: Relying solely on corrective maintenance can be costly. Unplanned equipment downtime during critical crop cycles (such as planting or harvesting) can compromise profitability and lead to significant productivity losses. <p>3. Schedule Maintenance</p> <p>Schedule maintenance (or <i>time-based maintenance</i>) involves performing servicing, inspections, and part replacements at predefined intervals (e.g., daily, weekly, monthly, or after a specific number of operational hours) based on manufacturer guidelines.</p> <ul style="list-style-type: none"> ● Manufacturer's Manual: Always refer to the equipment's user manual to follow the official maintenance program. ● Routine Adjustments: Periodic calibration of precision instruments like sprayers and seeders is performed. 	
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	<ul style="list-style-type: none"> ● Part Replacement: Parts prone to heavy wear and tear (e.g., spark plugs, filters, cutting blades) are replaced on a fixed schedule before they reach their failure limit. <p>Safety Measures in Handling Tools</p> <ul style="list-style-type: none"> ✓ Ensure proper use of tools. ✓ Regularly check if the PPEs are in tip-top shape. ✓ Regularly inspect tools to check if repair or replacement is needed. ✓ Ensure that storage areas are quakeproof. ✓ Use the right tool for the job. This will cost you less effort and decrease the likelihood of an accident. <p>Maintenance and Storage of Farm Tools, Implement, and Equipment</p> <ul style="list-style-type: none"> ✓ Always inspect for dull blades, rust, damaged handles, and loose heads. Replace or repair immediately. ✓ Check screws, bolts, and nuts frequently. ✓ Check for possible leaks and broken parts. ✓ Sharpen all cutting tools frequently. ✓ Oil or grease metal parts. ✓ Wooden handles should be sturdy. ✓ Hang garden tools. ✓ Store the tools in original cases. ✓ Clean and dry the tools after use. <p>Activity 4. Directions: Read each question carefully and write the correct answer.</p> <ol style="list-style-type: none"> 1. Which tool is used for digging big holes and removing stones? 2. What is a farm implement? 3. What is the use of a plow? 	
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	<ol style="list-style-type: none"> 4. Why is it important to clean and store tools properly after use? 5. Why is it important to choose the correct farm tool or equipment for a specific task? 6. How can improper handling of tools affect farm work and safety? <p>3. Developing Mastery</p> <p>Activity 5. Directions: Read each item listed below. Classify whether it is a Hand Tool, Farm Implement, or Farm Equipment.</p> <p>Items:</p> <ol style="list-style-type: none"> 1. Bolo 2. Crowbar 3. Harrow 4. Rotavator 5. Rice thresher 6. Spade 7. Tractor 8. Rake 9. Plow 10. Sprayer 	
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Activity 6. Directions: Test your knowledge on the various tools, implements, and equipment used in farming! Match the items in **Column A** with their correct descriptions or functions in **Column B**.

**Column A
(Tool/Implement/
Equipment)**

1. Bolo
2. Crowbar
3. Pick-mattock
4. Hand Trowel
5. Pruning Shears
6. Plow
7. Rotavator
8. Wheelbarrow
9. Four-wheel Tractor
10. Sprayer

**Column B
(Description/Function)**

- A. Used for hauling trash, manures, fertilizers, and planting materials.
- B. An implement pulled by animals or tractors for tilling large areas and making furrows.
- C. Used for cutting weeds, particularly tall shrubs and grasses.
- D. Machinery used for pulling implements, requiring a highly skilled operator.
- E. Used for digging big holes and digging out big stones and stumps.
- F. Used for loosening soil around growing plants and applying small amounts of manure.
- G. Used for breaking hard topsoil, digging canals, and digging up tree stumps.
- H. Used for cutting branches of planting materials and unnecessary plant parts.
- I. An implement mounted to a tractor used for tilling and pulverizing the soil.
- J. Used for applying insecticides, fungicides, and herbicides.

C. Demonstrating Knowledge and Skills

1. Finding Practical Application

Activity 7. Directions: You are assigned to organize tools in a farm storage area. Your task is to group the tools based on how they are used. Then work with your group. Examine each tool card carefully. Identify its function or use. Decide which farm activity it belongs to. Then, classify and organize using this guide:

Work Requirement	Tools/Implements/Equipment
Land Preparation	
Planting	
Crop Care	
Harvesting	

Discuss within your group:

1. Why did you place each tool in that category?
2. Are there tools that could belong to more than one category? Why?

2. Making Generalization

Activity 8. Directions: Answer the following questions

1. What did you learn about classifying farm tools, implements, and equipment based on their use?
2. Why is it important to use the correct tools for specific farm tasks?
3. How can proper classification of tools help improve safety and efficiency in farming?
4. What would happen if tools are not properly organized or classified?

Encourage learners to justify their choices. *Example:* A Plow is used for "Land Preparation," while Pruning Shears are for "Crop Care." The "Overlap" Question: This is a trick question! Some tools like the Bolo can be used in Land Prep (clearing) AND Crop Care (pruning). This shows the tool's versatility.

Focus on the Maintenance section. Ask: *"If we don't oil a shovel, what happens?"* (Rust). *"If we don't sharpen an axe?"* (It becomes dangerous because it bounces off the wood instead of cutting).

	<p>5. How can you apply what you learned today in real-life situations at home or in the community?</p> <p>3. Evaluating Learning</p> <p>Directions: Read and analyze each item carefully. Select the letter of the best correct answer.</p> <p>1. Which tool is used for watering seedlings and young plants?</p> <p>A. Sprayer B. Sprinkler C. Water pump D. Shovel</p> <p>2. A farmer needs to break hard topsoil and dig canals. Which tool should be used?</p> <p>A. Rake B. Pick-mattock C. Hand trowel D. Pruning shears</p> <p>3. You noticed that a tool has a rusty blade and loose handle. What should you do?</p> <p>A. Continue using it carefully B. Ignore it C. Repair or replace it immediately D. Lend it to others</p>	
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	<p>4. Why is it important to use the right tool for the job?</p> <p>A. To make work harder B. To save time and reduce accidents C. To avoid cleaning tools D. To use all tools available</p> <p>5. After using farm tools, what is the BEST practice?</p> <p>A. Leave them on the ground B. Wash and store them properly C. Hide them anywhere D. Give them to others</p> <p>4. Additional Activities</p> <p>Home Inventory: Ask learners to list 5 tools found in their backyard or community and classify and identify if they are tools, implements, or equipment. You may write down the uses and functions.</p>	<p>Instruct learners NOT to handle sharp tools at home without adult supervision. They should only observe and record. If a student lives in an apartment without a backyard, allow them to research tools used in "Urban Gardening" or "Hydroponics."</p>
VI. ASSESSMENT	<p>Directions: Read and analyze each item carefully. Select the letter of the best correct answer.</p> <p>1. Which category of farm tools is characterized as being light and used without the help of animals or machines?</p> <p>A. Farm Implements B. Farm Equipment C. Hand Tools D. Heavy Machineries</p> <p>2. What specific tool is designed for cutting tall shrubs and grasses in crop production?</p> <p>A. Axe B. Bolo C. Pruning shears D. Pick-mattock</p>	

	<p>3. If you need to dig big holes or remove large stones and stumps, which tool is most appropriate?</p> <p>A. Crowbar B. Shovel C. Spade D. Hand trowel</p> <p>4. Which tool is used for cleaning the ground and leveling the topsoil?</p> <p>A. Grab-hoe B. Light hoe C. Rake D. Spading fork</p> <p>5. What is the primary use of a Hand Trowel?</p> <p>A. Cutting branches B. Inter-row cultivation C. Loosening soil around growing plants D. Digging out big stones</p> <p>6. Which tool is used specifically for cutting branches of planting materials?</p> <p>A. Axe B. Grafting knife C. Bolo D. Pruning shears</p> <p>7. According to the text, what are Farm Implements?</p> <p>A. Handheld tools made of wood B. Accessories pulled by animals or mounted to machineries C. Small motorized tools for gardening D. Safety equipment for farmers</p> <p>8. Which of the following is an example of farm equipment used in rice production?</p> <p>A. Rotavator B. Plow C. Combine harvester D. Wheelbarrow</p>
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| | <p>9. What is the function of a Water Pump in a farm setting?</p> <ul style="list-style-type: none"> A. Land preparation B. Drawing water for irrigation or farm use C. Transporting produce D. Harvesting rice <p>10. Which material is used for hauling trash, manures, and planting materials?</p> <ul style="list-style-type: none"> A. Sprayer B. Wheelbarrow C. Water pail D. Sprinkler <p>11. You are tasked to prepare a small garden plot by loosening the soil and removing young weeds. Which tool should you reach for?</p> <ul style="list-style-type: none"> A. Hand fork B. Hand cultivator C. Pick-mattock D. Axe <p>12. A farmer wants to till a large area of land using a tractor. Which implement should be mounted to the tractor for tilling and pulverizing?</p> <ul style="list-style-type: none"> A. Native plow B. Rotavator C. Hand tractor D. Spading fork <p>13. What is the main difference between a Shovel and a Spade based on their descriptions?</p> <ul style="list-style-type: none"> A. A shovel is only for mixing soil, while a spade is only for trash. B. A spade is specifically mentioned for digging canals or ditches; a shovel is for moving soil. C. A shovel is used for cutting branches, while a spade is for digging. D. There is no difference in their functions. <p>14. Why does the use of farm equipment like a "Big four-wheel tractor" require a highly skilled operator?</p> <ul style="list-style-type: none"> A. Because they are light and easy to break. B. Because they are complex machineries used in land preparation and transport. C. Because they are used without the help of animals. D. Because they are made of wood and metal. |
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15. If a farmer is performing a "Horticultural operation" such as grafting or specialized cutting, which tool is most essential?
- A. Pruning shears
 - B. Grafting knife
 - C. Axe
 - D. Hand cultivator
16. How does a Harrow differ from a Plow in land preparation?
- A. A plow is for hauling water, while a harrow is for tilling.
 - B. A plow is for making furrows; a harrow is for tilling and pulverizing the soil.
 - C. A harrow is a hand tool; a plow is equipment.
 - D. A plow is motorized; a harrow is always pulled by a carabao.
17. Which of the following best explains why using the "right tool for the job" is a critical safety measure?
- A. It makes the tool look newer for a longer time.
 - B. It decreases the likelihood of accidents and requires less effort.
 - C. It allows the farmer to finish the job without using PPE.
 - D. It eliminates the need for tool storage.
18. You noticed that the metal head of your grab-hoe is starting to rust. What is the most appropriate maintenance step?
- A. Replace it with a wooden handle.
 - B. Sharpen it immediately.
 - C. Oil or grease the metal parts.
 - D. Hang it in a quakeproof area.
19. Which storage practice is recommended to ensure the longevity of garden tools?
- A. Leaving them in the field for easy access.
 - B. Cleaning and drying tools after every use before hanging them.
 - C. Storing them in piles on the floor.
 - D. Only cleaning them when they become unusable.
20. A farmer is using a sprayer to apply insecticides. Which safety protocol is most relevant to this activity?
- A. Checking if the storage area is quakeproof.
 - B. Ensuring the wooden handle is sturdy.
 - C. Regularly checking if Personal Protective Equipment (PPE) is in tip-top shape.
 - D. Sharpening the nozzle frequently.

VII. REFLECTION	<p>EXIT TICKET:</p> <p>At the end of the activity, have the learners write down one new thing they have learned the overview of agricultural crops production on a customized ticket by completing the statement below. One new thing I learned today about Farm tools, implements, and equipment is _____.</p> <p>LEARNING LOG:</p> <p>Have students reflect on their learning and assess their own understanding and skills. Use prompts like: What did you find most challenging about this lesson?” How confident are you in identifying and maintaining farm tools? Let the learners rate their confidence level from 1-5 (5 as the highest and 1 is the lowest).</p>
VIII. USE OF GENERATIVE AI	<p>In preparing this Learning Exemplar (LE), the author(s) used Microsoft Copilot in order to generate sample images of tools and equipment. The author(s) reviewed and finalized the writing of the content. The author(s) take(s) full responsibility for the content of this LE.</p>

LESSON EXEMPLAR			
Learning Area	AGRICULTURAL CROPS PRODUCTION	Lesson Exemplar	4

I. OBJECTIVES	
A. Content Standard	The learners demonstrate understanding of principles on the overview of agricultural crops production, farm tools, implements, and simple equipment, and pre-operative check-up following the manufacturer's manual.
B. Performance Standard	The learners perform pre-operative checking of tools, farm implements, and equipment in accordance with the manufacturer's manual.
C. Learning Competencies	<p>Key Topics Learned in the Previous Lesson:</p> <ol style="list-style-type: none"> 1. Classification of Farm Tools, Implements, and Equipment 2. Maintenance of Tools, Implements, and Equipment <p>LC 4. Perform pre-operative checking of tools, farm implements, and equipment in accordance with manufacturer's manual</p>
II. REFERENCES and MATERIALS	<p>REFERENCES</p> <p>"LR Portal." 2026. Deped LR Portal. 2026. https://lrmds.deped.gov.ph/detail/19209.</p> <p>MayshyllMasingBugtai. 2016. "Q1M1Pre-Operative Check-up of Tools, Implements and Equipment.pptx." Slideshare. 2016. https://slideshare.net/slideshow/q1m1preoperative-checkup-of-tools-implements-and-equipmentpptx/261558284</p> <p>"Rusty Farm Equipment." n.d. Wwww.youtube.com. Accessed April 3, 2026. https://www.youtube.com/shorts/9Y1gzu2gH5o.</p> <p>"What Is This Rusty Plow? (Old Farm Equipment)." n.d. Wwww.youtube.com. Accessed April 3, 2026. https://www.youtube.com/shorts/ehUTfFylKMM.</p> <p>MATERIALS</p> <p>White board, white board marker, manila paper, metacards, writing pad, colored papers, power point presentation, laptop/ tablets, smart TV, activity sheets, mobile phones, internet connectivity, different farm tools, materials, and equipment, images, checklist</p>

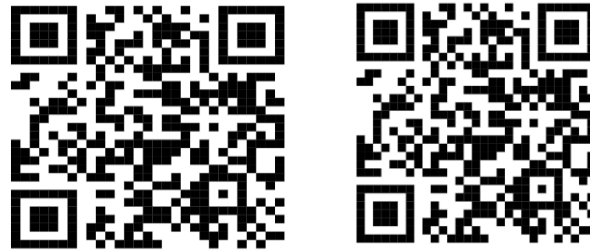
III. CONTENT	Pre-operative Checking of Tool, Implements, and Simple Equipment <ul style="list-style-type: none">• Inspection of tools and implements<ul style="list-style-type: none">o physical conditiono sharpnesso cleanlinesso functionalityo lubrication and greasing• Safety features and precaution<ul style="list-style-type: none">o protective shield and guardso safety switcheso PPEo warning labels• Fuel and oil check<ul style="list-style-type: none">o fuel levelo oil level• Battery condition• Operational readiness<ul style="list-style-type: none">o environmental consideration	
IV. OBJECTIVES	At the end of the lesson, learners are expected to: <ol style="list-style-type: none">1. Determine the procedures in pre-operative checking of tools, farm implements, and equipment in accordance with the manufacturer's manual.2. Perform pre-operative checking of tools, farm implements, and equipment in accordance with the manufacturer's manual.3. Value the importance of following the pre-operative checking of tools, farm implements, and equipment.	
V. PROCEDURES		ANNOTATIONS
A. Activating Prior Knowledge	1. Activating Prior Knowledge Activity 1. Directions: To complete this matching activity, carefully review both columns and draw a clear line connecting each item in Column A to its correct partner in	<i>Begin the lesson by clearly explaining the directions and allowing learners to answer the matching activity individually to activate prior knowledge. Afterward, the teacher facilitates a Think-Pair-Share strategy</i>

	<p>Column B. Start with the pairs you know best to narrow down your choices and ensure every item has its unique match.</p> <table><tr><th>Column A</th><th>Column B</th></tr><tr><td>1. Bolo</td><td>A. Harvesting and threshing crops</td></tr><tr><td>2. Crowbar</td><td>B. Hauling water and fertilizers</td></tr><tr><td>3. Pick-mattock</td><td>C. Applying insecticides and fertilizers</td></tr><tr><td>4. Rake</td><td>D. Used for land preparation</td></tr><tr><td>5. Pruning shears</td><td>E. Pulverizing soil</td></tr><tr><td>6. Plow</td><td>F. Cleaning the ground and leveling soil</td></tr><tr><td>7. Harrow</td><td>G. Watering seedlings</td></tr><tr><td>8. Rotavator</td><td>H. Tilling large areas and making furrows</td></tr><tr><td>9. Hand tractor</td><td>I. Irrigation support</td></tr><tr><td>10. Combine harvester</td><td>J. Tractor-mounted implement for soil preparation</td></tr><tr><td>11. Water pump</td><td>K. Digging big holes and removing stumps</td></tr><tr><td>12. Water pails</td><td>L. Breaking hard topsoil and digging stones</td></tr><tr><td>13. Sprinklers</td><td>M. Cutting branches of plants</td></tr><tr><td>14. Wheel barrow</td><td>N. Hauling trash and materials</td></tr><tr><td>15. Sprayers</td><td>O. Cutting weeds and tall grasses</td></tr></table>	Column A	Column B	1. Bolo	A. Harvesting and threshing crops	2. Crowbar	B. Hauling water and fertilizers	3. Pick-mattock	C. Applying insecticides and fertilizers	4. Rake	D. Used for land preparation	5. Pruning shears	E. Pulverizing soil	6. Plow	F. Cleaning the ground and leveling soil	7. Harrow	G. Watering seedlings	8. Rotavator	H. Tilling large areas and making furrows	9. Hand tractor	I. Irrigation support	10. Combine harvester	J. Tractor-mounted implement for soil preparation	11. Water pump	K. Digging big holes and removing stumps	12. Water pails	L. Breaking hard topsoil and digging stones	13. Sprinklers	M. Cutting branches of plants	14. Wheel barrow	N. Hauling trash and materials	15. Sprayers	O. Cutting weeds and tall grasses	<p>where learners compare answers with a partner. The teacher then leads a short discussion, asking volunteers to explain their answers to check understanding and correct misconceptions. This activity uses a Constructivist and Collaborative Learning approach, aligned with PPST 1.2.2, as it engages learners using varied teaching strategies.</p>
Column A	Column B																																	
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	<p>Activity 2. Directions: Fill in the table below by listing at least three examples under each classification.</p> <table><tr><th>Classification</th><th>Examples</th></tr><tr><td>Hand Tools</td><td></td></tr><tr><td>Farm Implements</td><td></td></tr><tr><td>Farm Equipment</td><td></td></tr><tr><td>Other Materials</td><td></td></tr></table> <p>Activity 3. Directions: Read and answer the following reflective questions.</p> <ol style="list-style-type: none">1. Why is it important to use the right tool for the job?2. How does proper maintenance of tools and equipment contribute to farm safety?3. Which classification of tools do you think is most essential in small-scale farming? Explain your answer.	Classification	Examples	Hand Tools		Farm Implements		Farm Equipment		Other Materials		<p><i>Instruct learners to complete the classification table by providing examples based on their prior knowledge and experiences. Learners may work individually first, followed by group sharing to validate their responses. The teacher scaffolds learning by guiding learners who struggle and clarifying misconceptions.</i></p> <p><i>Facilitate a reflective discussion by asking learners to answer open-ended questions and relate them to real-life farming situations. The teacher encourages multiple responses and uses probing questions to deepen understanding. This develops critical thinking and learner expression.</i></p> <p><i>Provide clear instructions on how to access the videos through QR codes and sets expectations before viewing. Learners are encouraged to take notes while watching. Afterward, the teacher facilitates a guided discussion using the provided questions, helping learners connect the video content to the lesson.</i></p>
Classification	Examples											
Hand Tools												
Farm Implements												
Farm Equipment												
Other Materials												

2. Establishing the Purpose of the Lesson

Activity 4. Directions: Scan the provided QR codes to watch Rusty Farm Equipment and What Is This Rusty Plow? (Old Farm Equipment) detailing the common misuse of various farm tools and equipment. Pay close attention to ensure you can identify and prevent hazardous handling practices in the field. Then answer the questions that follow.



1. What specific physical indicators, such as rust, dull blades, or frayed components, suggest that a piece of farm equipment has been ignored or poorly maintained over time?
2. How does the continued use of unserviceable or damaged machinery directly increase the likelihood of workplace accidents or catastrophic tool failure?
3. Beyond the immediate cost of repairs, how does the failure to perform routine maintenance on farm tools affect overall farm productivity and the lifespan of the equipment?

<p>B. Instituting New Knowledge</p>	<p>1. Presenting Examples</p> <p>Activity 5. Directions: Read the situation below:</p> <p>“Juan is about to plow their field early in the morning. He is in a hurry and skips checking the tools. While working, the plow suddenly breaks and causes delay.”</p> <p>Answer the following questions:</p> <ol style="list-style-type: none"> 1. What mistake did Juan make? 2. What should he have done before starting work? 3. What are the possible consequences of not checking tools? <p>Write your answers in 3–5 sentences.</p> <p>Activity 6. Directions: You are now a “Tool Doctor.” Examine the tool assigned to your group (or the picture shown by your teacher).</p> <p>Check the following:</p> <ul style="list-style-type: none"> • Is the tool clean? • Is it sharp? • Are there loose parts (bolts, handles)? • Does it need oil or grease? <p>2. Discussing New Concept</p> <p>PRE-OPERATIVE CHECK UP OF FARM TOOLS, IMPLEMENTS AND EQUIPMENTS</p> <p>Farm tools and equipment help to make farm work easier and effective. They are designed to perform a specific</p>	<p><i>Present the scenario and allow learners time to analyze it independently. Learners identify the mistake, suggest solutions, and explain possible consequences. The teacher facilitates sharing and ensures that learners connect their answers to real-life situations.</i></p> <p><i>Organize learners into groups and assign tools or images for inspection. Clear instructions and a checklist are provided, and the teacher may demonstrate proper inspection procedures. While learners perform the task, the teacher monitors and ensures safety practices are followed.</i></p> <p><i>Explain the concepts of pre-operative checking using simple language, real-life examples, and demonstrations where applicable. Learners are</i></p>
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	<p>function. The design and shape of the tools and equipment should be given proper attention if they are to do their function for which they are made.</p> <p>Pre-operative checking of tools, implements, and simple equipment is a critical safety and efficiency measure. It ensures that equipment is in good working condition, prevents accidents, and reduces downtime due to unexpected failures.</p> <p>How to Clean Your Garden Tools</p> <p>1. Sharpen tools before and after use. When you sharpen tools, it reduces the amount of force you need to apply to accomplish the task. Blunt tools may break when being used.</p> <p>2. Oil or grease metal parts. This will prevent rust of metal parts of tools and equipment. Lubricating/oiling the movable parts makes the tools easy to work with. It also increases the efficiency of the tool and equipment.</p> <p>3. Wooden handles should be strong. Make sure tools with wooden handles are strong and durable. If there is any defect, replace them.</p> <p>4. Hang your garden tools. Keep your tools hanged, leaving them on the floor can cause rust as they may be in contact with moisture. Leaving the tools in the floor may also cause injury to the person or persons stepping on them or it may be broken or deformed once stepped on causing them to be unsuitable for work.</p> <p>5. Store tools in their original cases. Some tools and equipment come in their special cases to keep them protected from damage. Make sure to clean and keep them in their original cases.</p>	<p><i>encouraged to participate through guided questioning. The teacher checks for understanding and clarifies difficult concepts. This uses a Direct Instruction and Interactive approach, aligned with PPST 1.1.2, ensuring strong content knowledge delivery.</i></p>
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6. Dry tools after use.

After using tools or equipment, make sure they are cleaned and dried before packing or hanging them to prevent rusting.

CARE OF FARM IMPLEMENTS

Farm implements, like ordinary plow and wooden harrow, should be checked thoroughly before use. The following are pointers in checking farm implements:

1. Loosened bolts and nuts should be tightened firmly.
2. Disc plows and harrows should be lubricated on their moving parts like bearings.

FARM MACHINERIES PREVENTATIVE MAINTENANCE TIPS

Regular upkeep of farm machineries and equipment can make a big difference. A quick check in before you start work can save you money not to mention the time and energy needed for a big repair. Here are some few ideas that can help you to spot small problems or big ones.

1. Read the owner's manual.

-Know about your equipment

2. Reduce wear and tear

-Lubricating chains and cables according to the manufacturer's direction is another way to extend your equipment's life span.

3. Pressure wash after use.

-Mud caking up on the inside of a wheel is more than a mess. It can increase rust and erode enamel coating on your rims. So, take a few minutes to rinse off your equipment, particularly the tractor.

	<p>4. Order spare parts now.</p> <p>-If you know that certain parts will need to be replaced, order those parts now. Having these items on hand when you need them can mean you've cut out the time spent waiting for delivery.</p> <p>INSPECTION OF TOOLS AND IMPLEMENTS</p> <ol style="list-style-type: none"> 1. Physical Condition: Check for cracks, dents, loose bolts, or worn-out parts. Replace or repair as needed. 2. Sharpness: Cutting tools (knives, shears, plows) must be sharpened to ensure efficiency and reduce operator fatigue. 3. Cleanliness: Remove dirt, rust, and debris to prevent contamination and equipment damage. 4. Functionality: Test moving parts (handles, levers, gears) to confirm smooth operation. 5. Lubrication and Greasing: Apply oil or grease to joints, bearings, and moving parts to reduce friction and wear. <p>SAFETY FEATURES AND PRECAUTIONS</p> <ol style="list-style-type: none"> 1. Protective Shields and Guards: Ensure guards are intact and properly positioned to prevent accidental contact. 2. Safety Switches: Test emergency stop buttons and switches for responsiveness. 3. Personal Protective Equipment (PPE): Operators should wear gloves, goggles, helmets, and protective clothing. 4. Warning Labels: Verify that hazard labels are visible and legible to alert users of risks. 	
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	<p>FUEL AND OIL CHECK</p> <ol style="list-style-type: none"> 1. Fuel Level: Confirm adequate fuel supply to avoid interruptions during operation. 2. Oil Level: Check engine oil and hydraulic oil levels; refill if necessary to prevent overheating and mechanical failure. <p>BATTERY CONDITION</p> <ol style="list-style-type: none"> 1. Inspect battery terminals for corrosion. 2. Ensure batteries are fully charged and securely connected. 3. Replace weak or damaged batteries to avoid power interruptions. <p>OPERATIONAL READINESS</p> <ol style="list-style-type: none"> 1. Environmental Consideration: Ensure the work area is free of hazards (slippery surfaces, obstructions). Check weather conditions if equipment is used outdoors. Confirm proper ventilation when using fuel-powered tools indoors. 2. Final Test Run: Operate equipment briefly to confirm readiness before actual use. <p>Processing questions</p> <ol style="list-style-type: none"> 1. Why is it important to check your tools before you start working? 2. What are two things you should do to prevent metal tools from rusting? 3. Why should you sharpen your tools before using them? 4. What should you do if you notice a wooden handle is cracked or defective? 	<p><i>Ask a series of questions from simple to complex (LOTS to HOTS), allowing sufficient wait time for learners to think and respond. The teacher encourages participation from different learners and provides feedback or clarification as needed. This uses a Socratic and Differentiated Questioning approach</i></p>
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	<p>5. Why is it a good idea to keep spare parts at the farm instead of ordering them only when something breaks?</p> <p>6. Why is hanging garden tools or storing them in their original cases considered both a maintenance practice and a safety measure?</p> <p>7. How does keeping spare parts on hand and reading the owner's manual contribute to "reducing downtime"?</p> <p>Activity 7. Directions: Write TRUE if the statement is correct and FALSE if the statement is incorrect based on the provided text.</p> <p>_____ 1. Sharpening tools both before and after use helps reduce the amount of force needed to accomplish a task.</p> <p>_____ 2. Leaving tools on the floor is a recommended storage method because it prevents them from being deformed.</p> <p>_____ 3. Oiling or greasing metal parts is done primarily to increase the weight of the tool for better stability.</p> <p>_____ 4. If a wooden handle has a defect, it should be replaced to ensure the tool remains strong and durable.</p> <p>_____ 5. Farm implements like plows and harrows should have their loosened bolts and nuts tightened firmly before use.</p> <p>_____ 6. It is unnecessary to read the owner's manual if you have used similar farm machinery before.</p> <p>_____ 7. Pressure washing a tractor after use helps prevent mud from eroding the enamel coating on the rims.</p> <p>_____ 8. Personal Protective Equipment (PPE) such as gloves and goggles should only be worn during the actual repair of tools, not during operation.</p> <p>_____ 9. Checking engine oil and hydraulic oil levels is essential to prevent overheating and mechanical failure.</p> <p>_____ 10. A final test run of the equipment should be performed briefly to confirm readiness before beginning actual work.</p>	<p><i>Administer the activity as an individual task to assess understanding of the lesson. After completion, the teacher checks answers with the class and explains misconceptions. Immediate feedback is provided to reinforce learning.</i></p>
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	<p>_____ 11. Tools should be stored in their original cases, if provided, to keep them protected from damage.</p> <p>_____ 12. To save time, tools should be packed away immediately after use even if they are still wet.</p> <p>_____ 13. Ordering spare parts in advance can reduce downtime by cutting out the time spent waiting for deliveries.</p> <p>_____ 14. Corrosion on battery terminals does not affect the performance of farm machinery and can be ignored.</p> <p>_____ 15. Pre-operative checking is a critical measure that helps prevent accidents and reduces unexpected equipment failure.</p> <p>3. Developing Mastery</p> <p>Activity 8. Directions: Study the sample farm tool shown by your teacher (actual tool, picture, or video). With a partner, answer the following guide questions:</p> <p>Is the tool clean and dry? Are there any loose parts (bolts, handles)? Does it need sharpening or lubrication?</p> <p>Use the checklist below to evaluate the tool:</p> <ul style="list-style-type: none"> ✓ Cleanliness ✓ Sharpness ✓ Physical Condition ✓ Functionality ✓ Safety Features <p>Share your findings with the class.</p>	<p><i>Pair learners and assign a tool or image for evaluation using a checklist. Learners discuss their observations with their partner before sharing with the class. The teacher monitors, guides, and validates responses.</i></p>
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	<p>Activity 9. Directions: Form a group of 3–4 members. Assign roles: Inspector, Farmer, and Safety Officer. Perform the following:</p> <ul style="list-style-type: none">✓ Act out a pre-operative inspection scenario.✓ Show correct and incorrect practices. <p>After the role play, discuss: What did you learn? Why is inspection important?</p>	<p>Assign roles and explain the expectations for the role play. Learners are given time to prepare and perform. The teacher observes the performance and provides feedback, highlighting correct and incorrect practices.</p>										
<p>C. Demonstrating Knowledge and Skills</p>	<p>1. Finding Practical Application</p> <p>Activity 10. Directions: Choose one tool, implement, or equipment. Carefully check and inspect it. Then write your observations on the table below.</p> <table><tr><th>Criteria</th><th>Observation</th></tr><tr><td>Cleanliness</td><td></td></tr><tr><td>Condition</td><td></td></tr><tr><td>Functionality</td><td></td></tr><tr><td>Safety</td><td></td></tr></table> <p>Activity 11. Directions: Form a group of 3–4 members. Perform a role play showing:</p> <ul style="list-style-type: none">✓ Proper inspection of tools/equipment✓ Correct safety practices✓ Identification of problems and solutions	Criteria	Observation	Cleanliness		Condition		Functionality		Safety		<p>Guide learners in selecting a tool and completing the inspection table based on given criteria. Learners apply what they have learned in a practical context. The teacher monitors their work and provides assistance when needed.</p> <p>Explain the rubric and criteria before the activity. Learners perform a role play demonstrating proper inspection and safety practices. The teacher observes and evaluates performance based on the rubric, providing constructive feedback afterward.</p>
Criteria	Observation											
Cleanliness												
Condition												
Functionality												
Safety												

Criteria	4 (Excellent)	3 (Good)	2 (Fair)	1 (Needs Improvement)
Accuracy of Content	All steps are correct and complete	Minor errors	Some incorrect steps	Many incorrect ideas
Demonstration Skills	Very clear and realistic	Clear	Somewhat clear	Not clear
Teamwork	Excellent cooperation	Good teamwork	Limited cooperation	Poor teamwork
Application of Safety	All safety practices shown	Most shown	Few shown	Not shown
Creativity	Very engaging	Engaging	Slightly engaging	Not engaging

2. Making Generalization

Activity 12. Directions: Answer the given reflective questions.

1. Beyond just following a checklist, how does maintaining sharp tools and clear work environments demonstrate a commitment to the safety and well-being of everyone working on the farm?
2. How does the cleanliness of farm machinery impact the longevity of the equipment and the overall organization of the farm environment?
3. How does a well-maintained tool change the physical and mental effort required to complete a day's work?

3. Evaluating Learning

Directions: Read and analyze the following items. Choose the letter of the best correct answer.

Facilitate a reflective discussion by asking learners to answer deeper questions about safety, responsibility, and tool maintenance. The teacher synthesizes responses and highlights key takeaways.

	<p>1. Why is it important to sharpen tools before and after use?</p> <p>A. Reduce the force needed and prevent the tool from breaking.</p> <p>B. Make the tools look newer.</p> <p>C. Increase the weight of the tool.</p> <p>D. Change the original shape of the tool.</p> <p>2. What is the primary purpose of applying oil or grease to the movable parts of tools?</p> <p>A. Make them easier to handle.</p> <p>B. Prevent rust and increase efficiency.</p> <p>C. Keep the tools smelling fresh.</p> <p>D. Change the color of the metal.</p> <p>3. According to the text, what can happen if tools are left on the floor?</p> <p>A. They will stay cleaner.</p> <p>B. They may come in contact with moisture and rust.</p> <p>C. They will be easier to find.</p> <p>D. They will become sharper over time.</p> <p>4. When should you replace a wooden handle on a farm tool?</p> <p>A. Only when it breaks completely</p> <p>B. When you want a different color</p> <p>C. If any defect is found to ensure it remains strong</p> <p>D. Every six months regardless of condition</p> <p>5. Which of the following is a specific maintenance step for farm implements like disc plows?</p> <p>A. Painting the handles</p> <p>B. Lubricating moving parts like bearings</p> <p>C. Sharpening the bolts</p> <p>D. Washing with soapy water only</p> <p>6. Why is reading the owner's manual considered a preventative maintenance tip?</p> <p>A. To improve your reading skills</p> <p>B. To know your equipment and its specific requirements</p> <p>C. Because it is a legal requirement</p> <p>D. To find out the price of the machine</p>	
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	<p>7. How does caked-on mud inside a wheel affect a tractor?</p> <p>A. It makes the tractor move faster. B. It acts as a protective layer. C. It can increase rust and erode the enamel coating on rims. D. It provides better traction in the field.</p> <p>8. What is the benefit of ordering spare parts before they are actually needed?</p> <p>A. It is cheaper to buy them early. B. It reduces downtime spent waiting for deliveries. C. It prevents the machine from ever breaking. D. It takes up extra space in the storage room.</p> <p>9. Which safety feature should be checked to prevent accidental contact with moving parts?</p> <p>A. Safety switches B. Warning labels C. Protective shields and guards D. Fuel levels</p> <p>10. What should be done during a "Final Test Run" before actual use?</p> <p>A. Operate the equipment briefly to confirm readiness. B. Use the equipment at full capacity immediately. C. Check if the tool needs to be painted. D. Leave the engine running for several hours.</p> <p>4. Additional Activities</p> <p>Directions: Read the case then answer the following questions in 3 to 4 sentences.</p> <p><i>"A farmer was injured because the handle of the tool broke during use."</i></p>	<p><i>Guide learners in analyzing the given case and performing the inspection task. Clear instructions and criteria are provided. The teacher monitors performance, ensures safety, and facilitates reflection after the activity</i></p>
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	<p>Answer:</p> <ol style="list-style-type: none"> 1. What caused the accident? 2. Which step in pre-operation checking was missed? 3. How could this have been prevented? 	
VI. ASSESSMENT	<p>Directions: You are preparing for a day's work on a farm. Before starting, you must inspect and prepare the tools, implements, and equipment to ensure safety, efficiency, and durability. Your role is to act as the farm operator responsible for preventing accidents and downtime. Document each step performed and note any issues found.</p> <p>You need to perform the following:</p> <p>a. Tool Inspection</p> <ul style="list-style-type: none"> ✓ Select three common farm tools (e.g., hoe, shovel, pruning shears). ✓ Check for cracks, dents, or loose handles. ✓ Sharpen cutting edges and oil metal parts. ✓ Demonstrate proper storage (hanging or casing). <p>b. Implement Check</p> <ul style="list-style-type: none"> ✓ Inspect a plow or harrow (real or model). ✓ Tighten bolts and nuts. ✓ Lubricate moving parts such as bearings. ✓ Record findings in a checklist. <p>c. Role-play wearing PPE (gloves, goggles, helmet).</p>	

Criteria	Excellent (4 pts)	Satisfactory (3 pts)	Needs Improvement (2 pts)	Unsatisfactory (1 pt)
Tool Inspection	Inspects 100% of tools for cracks, dents, and defects; correctly sharpens and oils all tools; demonstrates proper storage procedures consistently.	Inspects 75–99% of tools ; sharpening and oiling performed with minor errors; storage procedures mostly correct.	Inspects 50–74% of tools ; sharpening/oiling incomplete or inconsistent; improper storage observed.	Inspects below 50% of tools or fails to inspect; incorrect sharpening/oiling; improper or unsafe storage.
Implement Check	Tightens all bolts/nuts correctly ; lubrication properly applied to all required parts; checklist 100% complete and accurate .	Tightens most bolts/nuts ; lubrication applied but incomplete; checklist 75–99% accurate .	Tightens few bolts/nuts ; lubrication missing in several areas; checklist 50–74% complete .	No proper implement inspection conducted; lubrication absent; checklist missing or below 50% completion .
Safety Verification	Wears complete PPE correctly at all times ; all shields/guards intact; all warning labels verified and checked.	Wears most PPE correctly ; shields/guards checked; minor safety procedures overlooked.	PPE incomplete; some shields/guards or warning labels not checked.	No PPE worn or safety procedures demonstrated.
Checklist & Documentation	Inspection checklist is 100% complete, detailed, and accurate ; reflection report is insightful, organized, and well-written.	Checklist mostly complete and accurate (75–99%); reflection report adequate and understandable.	Checklist partially complete (50–74%); reflection report vague or lacking detail.	Checklist and reflection report not submitted or below 50% completion .
Demonstration	Demonstrates inspection procedures clearly and confidently with 90–100% correct techniques .	Demonstration mostly correct with 75–89% accuracy ; minor errors in technique.	Demonstration unclear with 50–74% correct techniques ; several procedural errors evident.	No demonstration provided or below 50% accuracy in performing procedures.

Scoring Guide

- **18–20 points** – Outstanding Performance
- **14–17 points** – Very Satisfactory
- **10–13 points** – Satisfactory
- **5–9 points** – Needs Improvement

VII. REFLECTION	<p>EXIT TICKET:</p> <p>At the end of the activity, have the learners write down one new thing they have learned the overview of agricultural crops production on a customized ticket by completing the statement below.</p> <p>One new thing I learned today about pre-operative checking of tools, farm implements, and equipment is _____.</p> <p>LEARNING LOG:</p> <p>Have students reflect on their learning and assess their own understanding and skills. Use prompts like: What did you find most challenging about this lesson?” How confident are you in identifying and maintaining farm tools? Let the learners rate their confidence level from 1-5 (5 as the highest and 1 is the lowest).</p>
VIII. USE OF GENERATIVE AI	<p>In preparing this Learning Exemplar (LE), the author(s) used MS Copilot in order to create performance rubrics. The author(s) reviewed and finalized the writing of the content. The author(s) take(s) full responsibility for the content of this LE.</p>