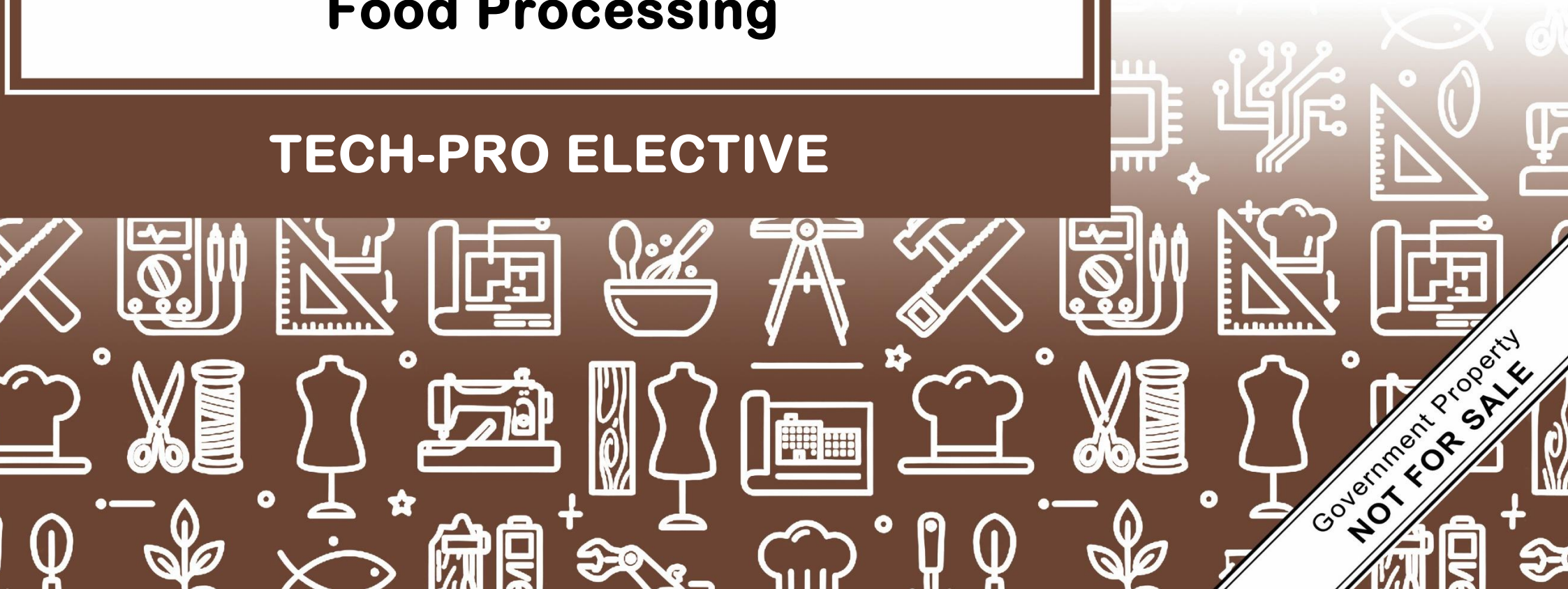
Strengthened Senior High School

DepED
DEPARTMENT OF EDUCATION

Lesson Exemplars for Food Processing

TECH-PRO ELECTIVE



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LESSON EXEMPLAR			
Learning Area	**FOOD PROCESSING**	**Grade Level**	**11/12**
Term	**1**	**Lesson Exemplar**	**1**

I. OBJECTIVES	
A. Content Standard	The learners demonstrate an understanding of the overview, use, and maintenance of tools and equipment, and Occupational Safety and Health (OSH) practices in food processing and fish product packaging.
B. Performance Standard	The learners perform maintenance of food processing and fish product packaging tools, materials, and equipment in accordance with industry standards.
C. Learning Competencies	Discuss the overview of food processing and fish product packaging
II. REFERENCES and MATERIALS	**REFERENCES (APA 7th Edition)** Bureau of Fisheries and Aquatic Resources. (n.d.). Post-harvest, aquaculture, and fishery regulatory manuals. https://www.bfar.da.gov.ph Department of Agriculture & Department of Health. (2013). Republic Act No. 10611: Food Safety Act of 2013. https://www.officialgazette.gov.ph/2013/08/23/republic-act-no-10611/ Department of Trade and Industry – Bureau of Philippine Standards. (n.d.). Philippine National Standards (PNS) for food products. https://www.bps.dti.gov.ph Food and Agriculture Organization & World Health Organization. (n.d.). Codex Alimentarius: International food standards. https://www.fao.org/fao-who-codexalimentarius Food Manufacturing Insights. (2022). GMP in food manufacturing [Video]. YouTube. https://www.youtube.com/watch?v=3cGNuBZzhoA Fish Processing Philippines. (2021). SSOP demonstration [Video]. YouTube. https://www.youtube.com/watch?v=XxUr6N2Suig

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Potter, N. N., & Hotchkiss, J. H. (1995). Food science (5th ed.). Springer.

Technical Education and Skills Development Authority. (n.d.). Food safety and sanitation NC II training materials. TESDA.

World Health Organization. (n.d.). Food safety information and education materials. https://www.who.int/foodsafety

YouTube Education Channel. (2020). HACCP, GMP, SSOP videos (Fish Processing) [YouTube playlist]. YouTube. https://www.youtube.com/playlist?list=PLFSeDvwOu2ooHGQ8jVe2oAHeXTDBj8Xd0

MATERIALS NEEDED

(Aligned with lesson sequence)

For Practical Application Activities

- Manila paper or bond paper for flowcharts
- Markers or pens
- Sample fish (printouts or actual)
- Traditional tools: drying rack photos, salting materials (optional mockups)
- Modern tools: QR code samples, mock smart labels

For Generalization & Discussion

- Reference charts comparing traditional vs. modern methods
- Visual aids on surimi production steps
- HPP (High Pressure Processing) diagrams

	For Evaluation Activities • Printed worksheets: o Surimi process worksheet o Concept map template o Short written task sheet • Rubrics for performance tasks • Sample product labels **For Enrichment** • Research articles (printed or digital) • Poster-making materials • Sustainability infographics
III. CONTENT	**Overview of Food Processing and Fish Product Packaging** • History of food processing and preservation • Emerging industry trends, technologies and innovations o Surimi-based products
IV. OBJECTIVES	✓ Describe the historical development of food processing and preservation, including traditional methods such as drying, salting, fermentation, and freezing, and explain their importance in early human survival and food safety; ✓ Explain emerging industry trends and modern technologies in food processing—such as high-pressure processing (HPP), automation, smart sensors, and sustainable packaging—and how they improve efficiency, safety, and product quality; ✓ Discuss innovations in fish product packaging, including smart packaging systems (e.g., QR codes, IoT-enabled traceability) and eco-friendly materials, and evaluate their role in enhancing consumer confidence and sustainability; and

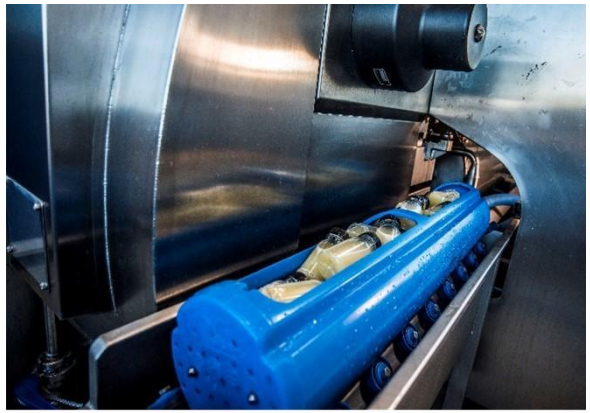
	✓ Analyze the development and production of surimi-based products, including market drivers, technological improvements, and regional trends, to understand their growing significance in the global seafood industry.	
IV. PROCEDURES		**ANNOTATIONS**
A. Activating Prior Knowledge	**Teacher & Learner Activities** **Recall Activity:** The teacher asks learners to identify familiar food preservation methods (e.g., drying, salting, fermentation, freezing). Learners share examples from home or local markets. Class, before we begin our new lesson on food processing and fish product packaging, let's think about something you already know. Can anyone tell me **a food that lasts for a long time** at home? Maybe something your family stores for weeks or even months? ***(Teacher calls on 2–3 students.)*** "Very good! Now, what **methods** were used to preserve those foods? For example, how do we keep fish from spoiling? How do we make fruits last longer?" ***(Expected learner answers: drying, salting, fermenting, smoking, freezing.)*** Teacher continues: Exactly! These are actually **traditional food preservation methods** used by ancient civilizations such as the Greeks, Egyptians, Romans, and Mesopotamians. They preserved food because they had no refrigerators or modern technology. They relied on what they had—sun, wind, salt, smoke, cold climate—to make food last longer.	These activities activate learners' prior knowledge by connecting everyday experiences with historical practices. Traditional methods such as drying, fermenting, sun drying, salting, and smoking were used by early civilizations like Greece, Egypt, Rome, and Mesopotamia, making them familiar entry points for new learning. These practices date back to as early as 12,000 B.C. (drying and sun-drying), helping students recall foundational concepts before transitioning to modern innovations.

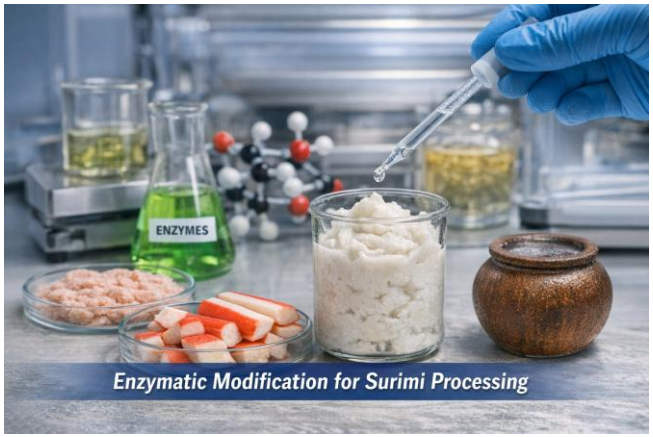
	Drying and sun-drying, for example, are some of the **oldest methods in human history**, with evidence dating back to around **12,000 B.C.** in the Middle East and Asia." **Expected Learner Response:** Learners share examples such as tuyo, daing, pickled vegetables, dried fruits, smoked fish, frozen meat, etc. "Now let's look at some pictures."  Fellows, P. J. (2017). Food processing technology: Principles and practice (4th ed.). Woodhead Publishing. (Teacher displays images of ancient drying racks, smokehouses, clay fermentation jars, and then modern facilities like HPP machines, stainless steel processing lines, automated packaging systems.)	

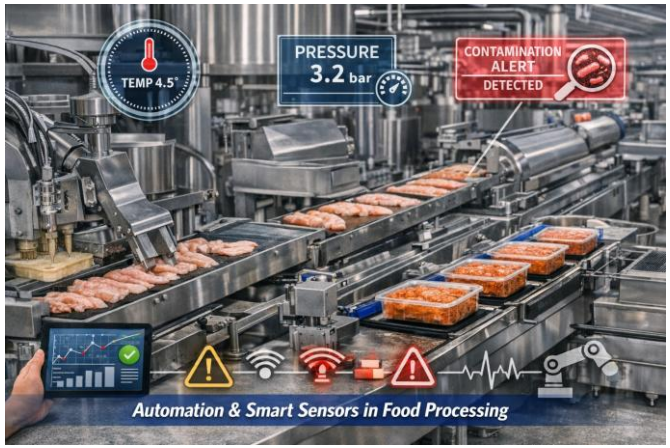
	Teacher asks: "Look closely at these pictures. Which among these do you think were used **thousands of years ago**? And which ones look **modern**?" (Teacher points to the images one by one.) "Good! These wooden racks and smokehouses were used long before electricity existed. Ancient people relied on **sunlight, wind, fire, salt**, and natural climate to preserve food." Then teacher transitions to modern images: "Now, compare that to these modern facilities. Today, we have **high-pressure processing machines**, automated mixers, and technologically advanced packaging equipment. These help improve **food safety, texture, and shelf life** far better than ancient methods." **Teacher Follow-Up Questions:** • "What do you notice is the biggest difference between old and modern preservation methods?" • "Do you think modern technologies make food safer? Why?" • "Which methods do you think are still used today, even if they are ancient?" **Expected Learner Responses:** • Old methods used natural processes; modern ones use machines. • Modern methods are cleaner, faster, and safer. • Drying, fermenting, and salting are still used today.	

	"Let's do a quick brainstorming. I want you to think: **Why did ancient people need to preserve food?** What was their purpose?" (Teacher writes on the board: "WHY PRESERVE FOOD?") Teacher prompts: "Think about the challenges people faced thousands of years ago… No refrigerators, no grocery stores, long travels, harsh weather, seasonal foods." **Expected Learner Responses:** • For survival • For long travels (e.g., fishing voyages, military expeditions) • To store food during winter or rainy season • To avoid spoilage • To feed large families • To trade food with other communities Teacher reinforces: "Correct! Food preservation was essential for survival. It allowed people to travel long distances, endure harsh seasons, and store enough food for their families. That is why these methods existed in every ancient culture." Teacher adds context: "In freezing climates, people stored food **in snow or ice**, which later inspired mechanical refrigeration. In tropical climates, people dried their food using the sun. These natural conditions shaped early food preservation techniques."	

B. Instituting New Knowledge	"Class, before modern food-processing machines were invented, people struggled to store food safely for long periods. But during the 1800s, several important breakthroughs completely changed how we preserve food." (Teacher displays timeline on board or projector.) **1809 – Appert's Canning Method** "A Frenchman named **Nicolas Appert** discovered that sealing food in bottles and heating them kept the food from spoiling. This was the birth of **canning**—and it was meant to help feed soldiers safely." **1810 – Durand's Tin Can** "One year later, **Peter Durand** patented the **tin can**, which made canning even more practical and durable. This allowed food to be transported across long distances without spoilage." **1862 – Pasteur's Pasteurization** "Then came **Louis Pasteur**, who discovered that heating liquids at a controlled temperature kills harmful microorganisms. Today, pasteurization keeps our milk, juices, and even some canned foods safe." **TEACHER FOLLOWS UP:** "As you can see, these three discoveries shaped the entire food industry. Without them, we would not have the safe canned goods or milk products we enjoy today."	This section introduces new information using concrete examples to build conceptual understanding. Historical advances such as canning, tin cans, and pasteurization paved the way for industrial food processing. Today, technologies like HPP and enzymatic modification enhance safety and quality in products like surimi, while automation and smart sensors increase efficiency. Smart packaging using IoT and QR codes improves traceability and consumer transparency. These activities allow learners to gradually build mastery of modern practices by connecting them to historical foundations.

	2. Concept Discussion (Teacher Explains Emerging Technologies) **TEACHER ACTION (Interactive Lecture):** "Now, let's look at how technology has transformed the food industry today. The innovations we use now are far more advanced than anything invented in the 1800s." **High-Pressure Processing (HPP):**  https://example.com/image "HPP uses extremely high pressure-up to 600 MPa to kill harmful bacteria **without using heat**. This means food stays safe **but still tastes fresh**, which is why it's used in seafood and surimi products." Teacher asks: "Why do you think a non-heat method is good for fish?" (Expected: Keeps texture, prevents overcooking.)	

	Enzymatic Modification: "This process uses natural enzymes to improve texture, firmness, and quality in seafood products especially useful in surimi processing." **Automation & Smart Sensors:**  https://example.com/image "In modern factories, machines perform cutting, washing, mixing, and packing. **Smart sensors** detect temperature, pressure, and contamination instantly. This avoids human error and ensures product safety." Teacher asks: "Have you ever seen videos of automated food factories? Imagine that for fish processing much cleaner and faster!"	

	Smart Packaging (IoT / QR Codes):  https://example.com/image "Today's packaging isn't just plastic it's **intelligent**. QR codes let consumers check freshness and origin. Some packaging even connects to IoT systems for real-time tracking." "These smart packaging systems greatly improve traceability and customer trust." **Teacher Transition:** "These innovations are especially important for **surimi-based products**, which depend on advanced processing to achieve the right texture and safety standards."	

	Developing Mastery: (Guided & Independent Practice) **ACTIVITY 1: Classifying Traditional vs. Modern Methods** **Teacher Instructions:** On your worksheet, you will see two columns: **Traditional Methods** and **Modern Technologies**. Work with a partner and classify each method I mention." Examples provided orally: • Drying, fermenting, smoking • Canning, pasteurization • HPP, automated filleting, smart packaging **Expected Learner Output:** Traditional → drying, salting, fermenting Modern → HPP, automation, IoT packaging, enzymatic modification **ACTIVITY 2: Understanding How HPP Improves Safety & Texture** **Teacher Explanation:** HPP removes harmful bacteria **without heat**, which helps fish maintain its natural texture. Heat can make fish tough—but HPP keeps it soft and fresh while still safe to eat. **Task for Learners:** Write a short explanation: Why is HPP better than traditional boiling or heating for fish products?	

	Expected Learner Answers: • Doesn't change texture • Maintains flavor • Increases shelf life • Kills harmful microorganisms without cooking **ACTIVITY 3: Studying Surimi Production Steps** **Teacher Action:** "Now let's watch a short video diagram of **surimi production**."  https://example.com/image Teacher explains while pointing at each step: 1. **Washing** → removes fat, blood, and odor 2. **Mincing** → breaks fish flesh into fine particles 3. **Refining** → improves texture 4. **Adding cryoprotectants** → protects the protein structure during freezing 5. **Forming and packaging** → shapes into crab sticks or fish cakes	

	"These steps ensure surimi has its signature firm, elastic texture." **Learner Task:** "Copy the steps and draw a simple flowchart."	
C. Demonstrating Knowledge and Skills	**Finding Practical Application** **Teacher Action (Actual Delivery):** "Class, now that you already understand both the historical and modern methods of food processing, let's apply what you've learned." **Activity: Creating a Simple Process Flow** "On your paper, I want you to create a **simple process flow** for either: A. A traditional fish preservation method (e.g., drying, salting, smoking), OR B. A modern packaging method using smart technologies." (Teacher gives sample.) "For example, if you choose drying, your flow might look like this: **Wash fish → Salt lightly → Arrange on drying rack → Sun-dry for 2–3 days → Store in airtight container**." If learners pick modern packaging, teacher explains: "In modern settings, packaging may include **smart labeling** using QR codes or IoT tags, which help improve traceability and consumer safety." **Teacher Follow-Up:**	In this phase, learners demonstrate applied understanding by using knowledge in real or simulated contexts. This includes creating workflows, evaluating technology choices, and making connections between history and innovation. For example, surimi production—washing, mincing, stabilizing with cryoprotectants—demonstrates modern refinement of traditional fish preservation. Asia-Pacific's dominance in surimi production provides real-world context for market analysis. These tasks reinforce learning and prepare students for performance assessments aligned with industry standards.

	"I will walk around to guide you. Make sure each step is clear and logical. Think of it like explaining the process to someone who has never done it before." **Expected Learner Output:** Students produce flowcharts showing traditional or modern fish preservation/packaging concepts based on class discussions. **Making Generalization** **Teacher Action (Facilitated Reflection):** Let's now connect everything we learned. Look at your process flow and think about this question: **How did early preservation methods influence the modern technologies we use today?**" **Guided Discussion:** Teacher prompts: • "Drying, salting, and fermenting were essential for ancient survival. How do these compare to modern methods like freezing, canning, and HPP?" • "Why do you think companies today invest in technologies like HPP, enzymatic modification, and automation?" (Because they improve safety, efficiency, and product quality.)	

	Connecting to Surimi: "Think also about surimi. Early civilizations used simple mincing and drying of fish. Today, surimi production includes sophisticated steps such as **washing, mincing, refining, and adding cryoprotectants** to preserve texture and elasticity." **Teacher Wrap-Up:** "So in summary, traditional methods created the foundation for what we now call modern food science. Innovations didn't appear out of nowhere—they evolved from centuries of human experience." **Expected Learner Response:** A generalization such as: "Ancient preservation methods provided basic principles of food safety and storage. These methods evolved into modern industrial processes like HPP, automated fish processing, and the highly refined production of surimi products." **Evaluating Learning** **Teacher Action (Assessment Stage):** Before we end, let's check how well you understand today's lesson. **Assessment Options:** The teacher administers one or a combination of the following:	

	A. Short Written Task Prompt: "Explain how surimi is produced using the following steps: 1. Washing 2. Mincing 3. Refining 4. Adding cryoprotectants 5. Forming and packaging." (This assesses understanding of the surimi process.) **B. Concept Map** Students create a concept map linking: • Traditional preservation methods • Modern technologies (HPP, automation, smart packaging) • Surimi production • Global market trends (e.g., Asia-Pacific's dominant 63% market share) **C. Short Performance Task** Students explain: • "How does HPP improve food safety and texture in fish products?" (Answer expected: HPP kills harmful bacteria without heat, preserving natural texture.) Teacher collects outputs and provides quick feedback or clarifications.	

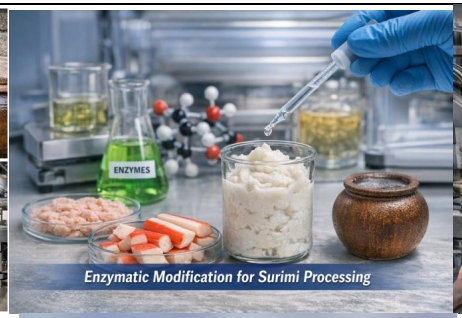
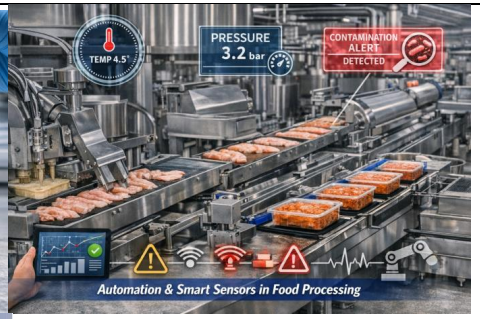
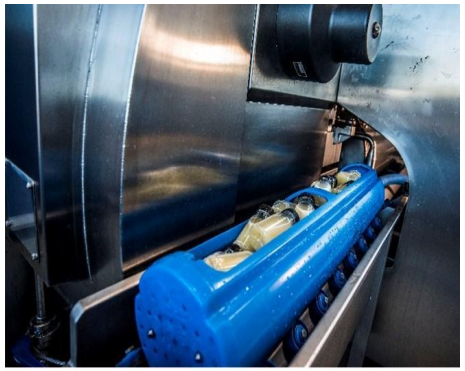
	4. Additional Activities (Enrichment, Reinforcement, Extension) **Teacher Action (For fast learners or extended learning):** "If you finish early or want to deepen your understanding, choose one of the following enrichment tasks." **Activity Options:** **A. Research Extension** "Research how the **Asia-Pacific region** became the world leader in surimi production, holding more than **63% of the global market share in 2025**." Learners summarize in 3–5 sentences. **B. Sustainability Analysis** "Investigate how modern seafood companies apply **sustainability practices**, such as eco-friendly sourcing and reduced waste, especially in surimi production." (Modern surimi producers increasingly adopt sustainable sourcing and eco-friendly production.) **C. Product Development (Creative Extension)**	

	"Design your own surimi-based product (snack, ready-to-eat food, gourmet offering). Identify its target market and explain why it fits current consumer trends." **Teacher Guidance:** "I'll walk around to help you refine your ideas. Remember, enrichment tasks help you engage with real-world industry practices."	
V. ASSESSMENT	**1. Written Assessment (Teacher-Led Explanation)** **Teacher Action (Actual Delivery):** "Class, we will begin with a **short written assessment** to check your understanding of today's lesson. This will help me see how well you grasp the **historical development** of food processing and the **modern innovations** we discussed." Teacher continues: "I will give you a set of questions that cover: • Ancient preservation methods (drying, salting, fermenting) • Key historical milestones such as **Appert's canning (1809)**, **Durand's tin can (1810)**, and **Pasteur's pasteurization (1862)** • Modern technologies like **HPP, automation, enzymatic modification, and smart packaging** These questions will help you recall important facts and show your comprehension." **Teacher Encouragement:**	

	"Answer them briefly but clearly. Don't worry this is just to check your learning, not to scare you. Just write what you understood from the lesson." **2. Performance Task (Teacher-Guided Project Introduction)** **Teacher Action (Actual Delivery):** "For your performance task, you will create an **illustrated timeline** showing how food processing evolved from ancient times until today." Teacher elaborates: "You will start your timeline with early methods such as **sun-drying (as early as 12,000 B.C.)**, then show developments like canning, tin cans, and pasteurization. After that, you will include **modern features** like HPP, automation, and smart packaging." Teacher then adds the second component: "Next, you will **design a modern fish product packaging concept**. This design must include: • A **sustainability feature** (recyclable material, biodegradable trays, etc.) • A **smart technology feature**, such as QR code traceability or IoT freshness monitoring, just like the innovations used in modern seafood packaging today." **Teacher Support:** "I will provide sample templates and colored markers, but you may also design digitally. Be creative, but make sure your work is grounded in correct concepts."

	3. Product Analysis (Teacher-Facilitated Higher-Order Task) **Teacher Action (Actual Delivery):** "Now we move to a more analytical activity. You will choose or I will provide you with an example of a **surimi-based product**, such as imitation crab sticks." Teacher explains expectations: "You will analyze the product by identifying: • The **processing method**, including steps like washing, mincing, stabilizing, and adding cryoprotectants essential in surimi production • The **market drivers**, such as high demand for high-protein, low-fat seafood options, and the rising global need for convenient foods • The **innovations**, like improved texture additives, plant-based surimi alternatives, and sustainability features used by modern producers This activity helps you understand **why surimi products are important in today's global seafood industry**, especially since Asia-Pacific holds over **63% of the market share**." **Teacher Prompt:** "You may work solo or in pairs. Your analysis should be detailed but clear. Think like someone evaluating a real food product for industry quality."
	4. Rubric-Based Evaluation (Teacher Clarifies Criteria) **Teacher Action (Actual Delivery):** "To make scoring fair and transparent, I will use a **rubric**. Before we proceed, let me explain what I'm looking for."

	Criteria Explained (Teacher Voice): **Accuracy:** "Are your facts correct? Dates, processes, and technologies must match what we learned." **Depth of Explanation:** "Do your descriptions go beyond surface-level answers? Are you explaining how and why, not just stating facts?" **Application of Concepts:** "Are you applying your knowledge to real-life examples? For instance, did you properly connect HPP to fish safety or smart packaging to traceability?" **Integration of Historical & Modern Practices:** "Great work combines the past and the present. For example, showing how drying and salting evolved into freezing or HPP." **Teacher Assurance:** "This rubric is not meant to scare you it helps you understand what excellent work looks like. I will show you sample outputs so you know what to aim for." **Teacher Closing Statement:** All these assessments written, performance-based, analytical, and rubric evaluated are designed to help you strengthen your understanding of food processing from its ancient origins to today's technological innovations. They also help prepare you for real-world applications, especially in fisheries, food technology, and food innovation careers."
VI. REFLECTION	This Senior High School Agri-Fishery Arts (AFA) Lesson Exemplar effectively bridges foundational food preservation history with modern industry standards. It systematically outlines how traditional methods like drying, salting, and fermenting laid the groundwork for today's advanced processing innovations. The integration of modern technologies such as High-Pressure Processing (HPP), automation, and smart packaging provides learners with a comprehensive understanding of current food safety and quality practices. Furthermore, detailed coverage of surimini production and global market trends offers valuable practical context for technical-vocational learners. Overall, the lesson

	design successfully blends historical perspectives, technical skills, and interactive assessments to prepare learners for real-world food technology applications.
VII. USE OF GENERATIVE AI	 Surimi: How Is the Product Made? To use these AI-generated images properly, first identify their purpose in your work such as illustrating the comparison between traditional and modern food processing methods. Place each image in the relevant section where it supports your explanation (e.g., traditional drying, smoking, fermentation, and modern automated processing). Provide clear captions describing what each image shows, and ensure that the images are used only as visual support to strengthen your discussion, not as the main content. Always acknowledge that the images are AI-generated or sourced from AI tools when applicable, and include appropriate citations or attributions following APA 7th edition guidelines. Lastly, maintain academic integrity by ensuring the images are relevant, accurately interpreted, and properly integrated into your analysis.

LESSON EXEMPLAR			
Learning Area	**FOOD PROCESSING**	**Grade Level**	**11/12**
Term	**1**	**Lesson Exemplar**	**2**

I. OBJECTIVES	
A. Content Standard	The learners demonstrate an understanding of the overview, use, and maintenance of tools and equipment, and Occupational Safety and Health (OSH) practices in food processing and fish product packaging.
B. Performance Standard	The learners perform maintenance of food processing and fish product packaging tools, materials, and equipment in accordance with industry standards.
C. Learning Competencies	Discuss halal principles and practices in food processing
II. REFERENCES and MATERIALS	Teacher Resources • DepEd Strengthened Senior High School Curriculum – Agri-Fishery Arts: Food Processing, Term 1. • Republic Act No. 10817 – Philippine Halal Export Development and Promotion Act of 2016. • Philippine National Standard (PNS) for Halal food – applicable standards/guidance available through the Bureau of Philippine Standards. • Relevant halal certification guidance from recognized halal certifying bodies. Learner Materials • Pictures/labels of halal and non-halal food products • Sample food-processing flow chart • Manila paper/cartolina, markers, activity sheets • Projector/video, if available
III. CONTENT	Halal Principles and Practices in Food Processing • Meaning of halal, haram, and mashbooh (doubtful) • Basic principles governing halal food • Halal ingredients and sources • Prevention of contamination with haram/najis materials

	• Halal practices in receiving, preparation, processing, storage, packaging, labeling, and handling • Importance of sanitation, traceability, documentation, and halal assurance	
IV. OBJECTIVES	At the end of the lesson, the learners should be able to: 1. explain the meaning of halal, haram, and mashbooh in relation to food; 2. identify basic halal principles applicable to food processing; 3. distinguish halal-compliant practices from practices that may compromise halal integrity; 4. analyze common food-processing situations and determine appropriate halal practices; and 5. demonstrate awareness of cleanliness, segregation, proper handling, and traceability in maintaining halal food integrity.	
V. PROCEDURES		**ANNOTATIONS**
A. Activating Prior Knowledge	A. ACTIVATING PRIOR KNOWLEDGE 1. Show learners pictures or actual labels of several commonly sold food products. 2. Ask: • What information do you usually check before buying a food product? • What does the word "halal" mean to you? • Have you seen a halal logo or certification mark on a food product? 3. Conduct a quick "Think–Pair–Share." Learners share what they know about halal food and why consumers may look for halal assurance. 4. Connect responses to the lesson: In food processing, halal is not limited to the finished product; the ingredients, equipment, processing methods, storage, packaging, and handling practices also matter.	This activity activates prior knowledge and connects learners' everyday experiences with food labels, purchasing decisions, and food-handling practices. Teacher emphasizes that learners should avoid making assumptions based only on appearance or a product name.
B. Instituting New Knowledge	B. INSTITUTING NEW KNOWLEDGE 1. Mini-discussion: Introduce the concepts of: • Halal – permissible or lawful. • Haram – prohibited or unlawful. • Mashbooh – doubtful or questionable and requiring further verification.	Use concrete examples familiar to food-processing learners. Emphasize process control rather than judging a product solely from its appearance.

	2. Discuss basic halal principles in food processing: • Ingredients must be permissible and appropriately sourced. • Food must be protected from contamination by prohibited or impure substances. • Equipment, utensils, work surfaces, containers, and storage areas should be properly cleaned and managed. • Halal materials should be appropriately segregated from non-halal materials when necessary to protect halal integrity. • Processing, packaging, labeling, transport, and storage should preserve the halal status of the product. • Records and traceability help verify ingredients, suppliers, processes, and product handling. 3. Present a simple food-processing flow: Receiving → Storage → Preparation → Processing → Packaging → Labeling → Storage/Transport 4. At each stage, ask learners: "What could compromise halal integrity at this step?" 5. Clarify that halal requirements may vary according to the applicable standard and certification requirements. Where certification is required or claimed, processors should follow the requirements of the competent authority/recognized certifying body. 6. Group activity: "Halal or Needs Verification?" Give groups short scenarios involving ingredients, equipment, storage, processing, and labeling. Learners classify each as: A. Halal-compliant practice B. Practice that may compromise halal integrity C. Needs verification	The activity develops decision-making, food-safety awareness, and workplace discipline.

	7. Groups explain their answers and identify the principle involved.	
C. Demonstrating Knowledge and Skills	C. DEMONSTRATING KNOWLEDGE AND SKILLS Task: "Design a Halal-Compliant Processing Workflow" 1. In groups, learners select one food product (e.g., processed meat, fish product, bread/pastry, fruit preserve, or snack product). 2. Using a flowchart, identify the major processing steps from receiving of ingredients to packaging and storage. 3. For every step, indicate at least one halal-control practice, such as: • verifying ingredient/source information; • checking additives and processing aids; • preventing contact with prohibited/impure materials; • maintaining clean equipment and work areas; • segregating materials when needed; • using appropriate packaging and labels; and • maintaining records for traceability. 4. Groups present their workflow. 5. Teacher gives feedback and highlights practices that protect halal integrity. 6. Individual exit task: "One Practice I Will Apply" Learners write one specific halal practice they would apply in a food-processing workplace and explain why it is important.	Performance task allows learners to apply concepts to an actual food-processing sequence. Teacher checks accuracy, completeness, clarity, and practical applicability. The activity may be adapted for learners with limited materials by using paper-based flowcharts.

VI. ASSESSMENT	Assessment measures both conceptual understanding and application to food-processing situations. For situational items, accept answers that are appropriately justified and consistent with the principles discussed in class. The performance task may be assessed using an analytic rubric.
VII. REFLECTION	Reflection helps learners connect the lesson to actual workplace practices and helps the teacher identify areas requiring remediation or enrichment.
VIII. USE OF GENERATIVE AI	AI is used only as a support tool. Learners are reminded to verify information against authoritative sources and applicable standards.

Note: Halal requirements should be implemented with reference to the applicable Philippine standards and current requirements of the competent halal authority/recognized certifying body.

LESSON EXEMPLAR			
Learning Area	**FOOD PROCESSING**	**Grade Level**	**11/12**
Term	**1**	**Lesson Exemplar**	**3**

I. OBJECTIVES	
A. Content Standard	The learners demonstrate an understanding of the overview, use, and maintenance of tools and equipment, and Occupational Safety and Health (OSH) practices in food processing and fish product packaging.
B. Performance Standard	The learners perform maintenance of food processing and fish product packaging tools, materials, and equipment in accordance with industry standards.
C. Learning Competencies	Discuss the overview of food processing and fish product packaging
II. REFERENCES and MATERIALS	**Laws, Government Standards, and Official Sources** Department of Agriculture & Department of Health. (2013). Republic Act No. 10611: Food Safety Act of 2013. https://www.officialgazette.gov.ph/2013/08/23/republic-act-no-10611/ Department of Trade and Industry – Bureau of Philippine Standards. (n.d.). Philippine National Standards (PNS) for food products. https://www.bps.dti.gov.ph Bureau of Fisheries and Aquatic Resources. (n.d.). Post-harvest, aquaculture, and fishery regulatory manuals. https://www.bfar.da.gov.ph Food and Agriculture Organization & World Health Organization. (n.d.). Codex Alimentarius: International food standards. https://www.fao.org/fao-who-codexalimentarius
	Books and Educational Texts Potter, N. N., & Hotchkiss, J. H. (1995). Food science (5th ed.). Springer.

National Advisory Committee on Microbiological Criteria for Foods. (1998). Hazard Analysis and Critical Control Point principles and application guidelines. U.S. Department of Agriculture.

Technical Education and Skills Development Authority. (n.d.). Food safety and sanitation NC II training materials. TESDA.

EduRes PH. (n.d.). Principles of food sanitation, safety, and hygiene. EduRes PH Publishing.

Videos and Online Learning Materials

Camille Marie. (2020). HACCP, GMP, SSOP videos (Fish Processing) [YouTube playlist]. YouTube. https://www.youtube.com/playlist?list=PLFSeDvwOu2ooHGQ8jVe2oAHeXTDBj8Xd0

Class Central. (2023). SOP for seafood canning (P1) [Video]. Class Central. https://www.classcentral.com/course/youtube-sop-for-seafood-canning-p1-330230

Fish Processing Philippines. (2021). SSOP demonstration [Video]. YouTube. https://www.youtube.com/watch?v=XxUr6N2Suig

Food Manufacturing Insights. (2022). GMP in food manufacturing [Video]. YouTube. https://www.youtube.com/watch?v=3cGNuBZzhoA

Web-based Learning Platforms

Bureau of Fisheries and Aquatic Resources. (n.d.). Post-harvest technology guides. https://www.bfar.da.gov.ph

Food and Drug Administration Philippines. (n.d.). Food safety advisories and labeling guides. https://www.fda.gov.ph

Food and Agriculture Organization. (n.d.). Food safety and quality resources. https://www.fao.org/food-safety

	World Health Organization. (n.d.). Food safety information and education materials. https://www.who.int/foodsafety

	MATERIALS NEEDED (APA Style Not Required but Maintained for Consistency)
	
	For Demonstrations and Activities
	
	• Sample fish products (e.g., vacuum-packed bangus, tuna, sardines)
	• Packaging materials (vacuum bags, plastic trays, labels, pouches)
	• Sample food labels (printed or actual)
	• Printed flowchart sheets (receiving → washing → cutting → freezing → packaging)
	• Thermometer (digital or mock)
	• Sanitation supplies (gloves, hairnets, aprons, sanitizers)
	• Posters/visuals for:
	  ○ HACCP steps
	  ○ SSOP checklist
	  ○ GMP/CGMP practices

	For Worksheets • HACCP Plan Template • Packaging Inspection Checklist • Safety & sanitation log sheets • Concept map template • Quiz sheets (definitions, labeling, laws, safety systems)
	Teacher Resources • Printed RA 10611 summary • Copies of relevant PNS excerpts • BFAR handling and sanitation posters • FDA food labeling guidelines

III. CONTENT	**Overview of Food Processing and Fish Product Packaging** ● PNS (Philippine National Standards), Philippine Food safety Laws, RA 10611 (Food Safety Act)3 ● Principles of food quality and safety o Hazard Analysis and Critical Control Points (HACCP) o Sanitation Standard Operating Procedure (SSOP) o Good Manufacturing Practices (GMP) o Current Good Manufacturing Practice (CGMP)	
IV. OBJECTIVES	By the end of the lesson, learners will be able to: ✓ Describe Philippine National Standards (PNS), RA 10611, and other relevant food safety laws governing food processing and packaging. ✓ Explain the principles of HACCP, SSOP, GMP, and CGMP and how they ensure food quality and safety. ✓ Demonstrate understanding of how these standards apply to real food processing environments such as fish filleting, freezing, packaging, and distribution. ✓ Apply food safety principles in evaluating sample food processing workflows and packaging procedures.	
V. PROCEDURES		**ANNOTATIONS**
A. Activating Prior Knowledge	**A. ACTIVATING PRIOR KNOWLEDGE** **Activity 1: Law Recall Prompt** Teacher asks: "What food safety rules do you know from your home, market, or school canteen?" Learners connect everyday experiences with formal standards. **Activity 2: Visual Prompting** Teacher shows images of safe vs. unsafe processing environments. Learners identify what is wrong or correct in each scenario.	This lesson segment activates learners' prior knowledge and connects their everyday experiences with formal food safety standards. Activities guide students in identifying safe and unsafe practices through recall prompts, visual analysis, and mind-mapping. Learners observe sanitation issues, PPE use, cross-contamination risks, temperature control, and waste management, then relate these observations to HACCP, SSOP, GMP, CGMP, and RA 10611 principles. The teacher encourages critical thinking by asking learners to explain violations, hazards, and corrective

	 *Food Safety Authority. (2023). Food safety practices in processing environments [Infographic]. https://example.com* **Guide Learners to Observe the Following:** ✗ Dirty or cluttered surfaces This signals poor sanitation and increases microbial contamination risk. ✗ Absence of PPE Hands touching food directly without gloves, loose hair exposed, or unprotected clothing undermines food safety guidelines. ✗ Cross-contamination risks Raw seafood placed near cooked or ready-to-eat food, tools shared improperly, or packaging touching contamination sources.	actions. Real-life examples of foodborne illnesses demonstrate why laws like RA 10611 are essential in protecting public health, preventing contamination, supporting industry livelihoods, ensuring fair trade, and maintaining regulatory coordination. By the end of the activity, learners understand the purpose of food safety rules and can articulate their relevance to future careers in fisheries, food processing, hospitality, and entrepreneurship.

	✗ Uncontrolled temperature environment Fish left at room temperature instead of on ice or inside cold storage. ✗ Improper waste disposal Trash or scraps stored near food handling areas. Teacher Questions: 1. What do you notice that violates food safety laws or GMP rules? 2. Which hazards can happen if processing is done in this environment? 3. What corrective actions would you recommend? **Learner Output for This Activity** Students should be able to identify and articulate: ● For SAFE environments: ● Cleanliness ● Use of correct tools and equipment ● Proper storage and temperature control ● Compliance with SSOP, GMP, CGMP ● For UNSAFE environments: ● Unhygienic conditions ● Lack of PPE ● Risk of cross-contamination ● Improper food handling and storage ● Violations of RA 10611 and food safety protocols Teacher Guidance (How to Facilitate Learning) ✓ Encourage students to explain their observations, not just list them. ✓ Connect each observation to real food safety principles (HACCP, SSOP, GMP). ✓ Correct misunderstandings immediately by showing the correct practice. ✓ Reinforce that all food handlers must comply with	

	RA 10611 (Food Safety Act) and Philippine National Standards (PNS). ✓ Relate unsafe practices to real-world consequences, such as: Foodborne illnesses Business shutdowns Loss of consumer trust Legal penalties ✓ Ask students to suggest corrective actions (e.g., cleaning surfaces, separating raw from cooked products, wearing PPE, monitoring temperature). **Activity 3: Prior Knowledge Mapping** Learners create a quick mind map of words they associate with food safety (e.g., cleanliness, gloves, expiration date, temperature). **Teacher Guidance:** Help students relate informal practices to formal food safety standards. **Establishing the Purpose of the Lesson** **Activity 1:** Teacher explains why food safety laws such as RA 10611 are needed (public health, prevention of contamination, livelihood protection). **Why Food Safety Laws Like RA 10611 Are Needed** The Food Safety Act of 2013 (RA 10611) is one of the Philippines' most important laws in ensuring that all food—from production to consumption—is safe, properly regulated, and aligned with national and global standards. Its purpose is grounded in public health, prevention of contamination, and	

	protection of industry and livelihood, as mandated under the Philippine Constitution and explained in the law itself. **1. To Protect Public Health** RA 10611 was created to protect consumers from food-borne illnesses, unsafe food, and unsanitary practices. The law explicitly states that its primary objective is to protect the public from food-borne and water-borne diseases, as well as unsanitary, unwholesome, misbranded, or adulterated foods. [pntr.gov.ph], [faolex.fao.org] **Why this is important:** Food contamination can lead to serious outbreaks, hospitalization, or death. Many Filipinos consume fresh produce, seafood, and street-prepared foods, making safety crucial. Consumers have the constitutional right to safe and healthy food, and RA 10611 operationalizes that right. **2. To Prevent Contamination Across the Food Supply Chain** RA 10611 strengthens the entire farm-to-fork food safety regulatory system, ensuring that contamination is prevented at every stage—production, harvesting, processing, transport, and selling. [pntr.gov.ph], [faolex.fao.org] Key goals related to contamination prevention: ✓ Establish standards and control measures for food safety hazards.	

	✓ Ensure practices like temperature control, sanitation, and proper packaging. ✓ Require food businesses to comply with scientific, risk-based safety protocols. ✓ How this protects consumers: ✓ Prevents microbial contamination (e.g., bacteria, viruses) ✓ Prevents chemical hazards (e.g., toxins, residues) ✓ Prevents physical hazards (e.g., foreign objects) ✓ Ensures imported and exported foods meet safety thresholds The law creates clear responsibilities for the Department of Agriculture (DA) and Department of Health (DOH) to safeguard food handling and sanitary conditions. [digest.ph] **3. To Protect Livelihoods and Support Economic Growth** RA 10611 is not only a health law; it is an economic protection law. The law aims to enhance industry and consumer confidence in the Philippine food regulatory system and promote fair trade practices. [pntr.gov.ph], [digest.ph] Why this matters: ■ Foodborne illness outbreaks can destroy the reputation of entire food sectors (e.g., seafood exports). ■ Contaminated products lead to product recalls, financial losses, and job loss.	

	■ Compliance with international food standards increases market access for local producers. **How it protects livelihoods:** Filipino farmers, fisherfolk, processors, exporters, and food businesses rely on safe, high-quality food to maintain competitiveness. Unsafe products may be banned internationally, harming communities dependent on seafood and agricultural exports. RA 10611 requires capacity building for farmers, fisherfolk, food operators, and regulatory agencies. [pntr.gov.ph] **4. To Promote Fair Trade and Prevent Fraud** RA 10611 ensures that foods are not: Misbranded Adulterated Substandard Falsely advertised The law protects consumers from trade malpractices and hazardous products. [pntr.gov.ph], [faolex.fao.org] Example: A food product labeled “fresh” or “premium” must genuinely meet those standards. Deceptive practices can lead to penalties under the law. **5. To Strengthen National Food Safety Governance** RA 10611 clarifies and links the roles of regulatory agencies:	

	• DA regulates food produced in farms, fisheries, and raw agricultural commodities. • DOH regulates processed food and monitoring in markets. • Local Government Units (LGUs) enforce food safety in public markets, food stalls, and community-level establishments. • The law mandates coordination and accountability among these agencies. This prevents gaps, duplication, and confusion in enforcement. [pntr.gov.ph] **6. To Align the Philippines With International Standards** The law mandates compliance with global food safety systems, which helps ensure that Philippine products can be sold in foreign markets. [digest.ph] International considerations include: ■ Codex Alimentarius ■ International SPS (Sanitary and Phytosanitary) measures ■ Standards for imported/exported foods **Why alignment matters:** • It enhances global competitiveness of Philippine seafood, fruit, processed foods, and agricultural products. • It prevents international trade bans due to food safety violations. • It opens high-value markets to Filipino products.	

	Summary: **Why RA 10611 Is Essential?** RA 10611 is needed because it: ■ Protects public health from foodborne illness and unsafe foods. ■ Prevents contamination through science-based, farm-to-fork standards. ■ Protects livelihoods of farmers, fisherfolk, processors, and exporters. ■ Promotes fair trade and prevents fraud. ■ Strengthens regulatory coordination among DA, DOH, LGUs. ■ Ensures international compliance for market access and economic growth. All these reasons make food safety laws not only essential for consumer well-being but also critical for national development and industry competitiveness. **Activity 2:** Teacher presents real-life examples of foodborne illnesses and explains how standards prevent these. **Example of Foodborne Illness:** **Contaminated, Unsanitary, or Adulterated Food** RA 10611 specifically identifies the danger of **"unsanitary, unwholesome, misbranded, or adulterated foods"**, which can lead to foodborne and waterborne illnesses if consumed. **How this happens in real life:**	

	• Fish left at unsafe temperatures can allow harmful bacteria to multiply. • Poor handling practices—such as dirty cutting boards or unclean equipment—introduce pathogens. • Adulterated foods (e.g., products diluted or mixed with unsafe substances) can cause poisoning. **How RA 10611 prevents it:** RA 10611 requires a **farm-to-fork safety system**, meaning food is monitored during harvesting, processing, packaging, transport, and distribution. It mandates: • Strict sanitation rules • Proper temperature control • Regular inspection • Removal of unsafe, misbranded, or adulterated products This protects consumers from contaminated food before it reaches the market. **2. Example of Foodborne Illness: Food-Borne Disease Outbreaks** RA 10611 identifies foodborne illnesses as a major threat to public welfare. One of its primary goals is to **protect the public from food-borne and water-borne illnesses**. **Real-life scenarios include:** • Seafood contaminated with pathogens due to improper handling	

	• Fish sold in open markets exposed to flies, dirt, and ambient temperatures • Ready-to-eat foods contaminated through cross-contamination **How standards prevent this:** HACCP, SSOP, GMP, and CGMP require: • Identifying hazards (biological, chemical, physical) • Monitoring critical points (e.g., cooking, cooling, packaging) • Establishing sanitation procedures • Implementing temperature and hygiene controls RA 10611 strengthens these measures by making them **legal requirements** and assigning accountability to food businesses and government agencies. **3. Example of Foodborne Illness: Poor Market and Processing Conditions** Many cases of foodborne illness in the Philippines come from **unsanitary marketplaces**, **improperly stored fish**, or **lack of hygiene** among handlers. **RA 10611's response:** The law mandates that the government maintain a **coordinated food safety regulatory system**, where DA, DOH, and LGUs share responsibility for ensuring that: • Markets maintain sanitary conditions • Fish and seafood are handled correctly • Unsafe products are removed	

	• Proper licensing and inspection are enforced These responsibilities are detailed in RA 10611's assignment of duties to DA, DOH, DILG, and LGUs. **4. Example of Foodborne Illness: Lack of Traceability (Food Cannot Be Tracked)** Foodborne outbreaks become more dangerous when authorities cannot identify: • Where food came from • Who handled it • Whether it passed through contaminated facilities **How RA 10611 prevents this:** RA 10611 requires **traceability systems** for food and all production inputs. This means: • Every stage of production must be documented • Food businesses must keep records • Unsafe products can be traced, recalled, and removed quickly This system helps prevent widespread outbreaks and protects consumers and businesses.	

	5. Example of Foodborne Illness: Lack of Training and Awareness Food handlers who lack knowledge about hygiene or safety protocols can unintentionally cause contamination. **How RA 10611 responds:** The law mandates: • Training for farmers, fisherfolk, food handlers, and government personnel • Capability building for safe production and handling of food By upgrading knowledge and skills, RA 10611 reduces the likelihood of contamination caused by human error. **Why These Examples Matter in the Classroom** When students understand real-life situations where unsafe practices cause illness, they clearly see why: • Regulations exist • Inspections are necessary • Sanitation rules must be followed • Proper packaging and temperature control matter • Workers need continuous training These laws protect both **consumers' health** and **the livelihood and reputation of Filipino food producers**.	

	Teacher Script (You May Use This Directly): "Foodborne illnesses happen whenever food is contaminated, mishandled, or improperly stored. RA 10611 exists to prevent these dangers by ensuring that every step— from the farm, to the processing plant, to the market—follows standards that keep consumers safe. Without these laws, unsanitary or contaminated products could reach the public, leading to sickness, lost income for businesses, and damage to our food industry. The Food Safety Act requires proper sanitation, hazard control, training, fair trade practices, and traceability, so that all food sold in the Philippines is safe and high-quality. **Activity 3:** Students answer: **"Why is learning about food safety important for my future career or business?"** **Teacher Guidance:** Emphasize relevance to fisheries, hospitality, food entrepreneurship, food processing employment, and public safety.	
B. Instituting New Knowledge	**Presenting Examples – Activities** **PNS and RA 10611 Overview** Teacher Explanation: "Class, before we go deeper into food safety practices, let's begin with a simple overview of the Philippine National Standards (PNS) and RA 10611, also known as the Food Safety Act of 2013. First, PNS provides the technical guidelines and specifications that food businesses in the Philippines must follow to ensure quality and safety. These standards help maintain uniform	**This lesson introduces learners to essential food safety laws and systems used in the Philippines.** Students first gain an overview of **PNS** and **RA 10611**, understanding how national standards and the Food Safety Act ensure safe, hygienic, and regulated food production. Through video demonstrations, learners observe real applications of **HACCP, SSOP, GMP,** and **CGMP** in fish processing. These clips visually

	practices across the country—so whether food is processed in Cebu, Manila, or Mindanao, it must meet the same safety requirements. Now, let's connect this with RA 10611. RA 10611 is a national law created to strengthen the food safety regulatory system, protect public health, and ensure that foods produced, sold, or imported into the country are safe, hygienic, and compliant with national and international standards. The law specifically aims to: Protect the public from food-borne illnesses and unsafe, contaminated, or adulterated foods. [dehydratorlab.com] Promote fair trade practices and boost confidence in the food regulatory system. Support economic growth by helping local foods meet global safety requirements. RA 10611 also establishes a farm-to-fork food safety system, making sure food is monitored at every stage—from production, to processing, packaging, storage, transport, and sale. This ensures that unsafe products do not reach consumers. Together, PNS + RA 10611 form the backbone of food safety in the Philippines. These standards help keep consumers healthy, protect local businesses, and ensure that the food we produce meets global expectations." **Activity 1: HACCP, SSOP, GMP, CGMP Demonstration** Teacher shows short clips demonstrating each principle in action in a fish processing environment. "Class, in this activity, we will watch short clips showing how HACCP, SSOP, GMP, and CGMP are actually applied inside a	reinforce how hazards are prevented, sanitation is maintained, and modern manufacturing practices protect consumers. A real packaged fish product is shown to connect legal requirements with actual industry practices. The mini-lecture defines key concepts—**food processing, preservation, packaging, sustainability, and OSH**—to build foundational knowledge. Students then follow a step-by-step HACCP discussion, learning hazard identification, CCP determination, and monitoring procedures, all aligned with RA 10611's farm-to-fork safety system. Hands-on reinforcement is done through a GMP/CGMP simulation where learners practice hygiene, sanitation, and contamination-prevention behaviors. To develop mastery, learners classify methods (traditional vs. modern, preventive vs. corrective, regulatory vs. voluntary), strengthening understanding of the nature and purpose of different food safety practices.

	fish processing and other foods facility. These systems work together to ensure that all fish products and other foods are processed safely, hygienically, and according to national and international standards. https://www.youtube.com/playlist?list=PLFSeDvwOu2ooHGQ8jVe2oAHeXTDBj8Xd0 [youtube.com] As you watch the clips, pay attention to the following: **HACCP (Hazard Analysis and Critical Control Points)** The video will show how workers identify points in the process where contamination can occur—such as filleting, washing, cooling, or packaging. You will see how they monitor temperature, cleanliness, and equipment to prevent biological, chemical, or physical hazards. HACCP focuses on preventing hazards before they happen, which supports the goal of protecting the public from food-borne illnesses. [dehydratorlab.com], [linkedin.com] https://www.classcentral.com/course/youtube-sop-for-seafood-canning-p1-330230 [classcentral.com] SSOP (Sanitation Standard Operating Procedures) SSOP clips will demonstrate cleaning and sanitizing equipment, washing hands properly, disinfecting surfaces, and proper waste management. These procedures help eliminate unsanitary conditions, which RA 10611 specifically aims to prevent. https://www.youtube.com/watch?v=XxUr6N2Suig [youtube.com]	Problem-based and worksheet activities allow students to apply knowledge in real situations—such as choosing proper preservation methods and identifying safe handling, tools, and labeling requirements.

	GMP (Good Manufacturing Practices) You will see workers: Wearing proper protective equipment Handling fish properly Keeping raw and cooked products separated Using safe, well-maintained tools GMP ensures that food handlers follow consistent, safe practices throughout production. https://www.youtube.com/watch?v=3cGNuBZzhoA [youtube.com] **CGMP (Current Good Manufacturing Practice)** CGMP clips will show updated, technology-enhanced practices such as: Using monitoring devices Documenting each processing step Following stricter hygiene and facility layout requirements These reflect the modernized version of GMP, aligned with the farm-to-fork safety system mandated by RA 10611. [linkedin.com]	

	Teacher Wrap-Up: "Together, these systems work to keep food safe—HACCP prevents hazards; SSOP maintains sanitation; GMP ensures proper operations; and CGMP updates these practices to meet modern standards. These are essential because our food safety law, RA 10611, requires a coordinated, science-based approach to protect public health and ensure fair, safe food trade." **Activity 2: Real Product Example** Teacher displays packaged fish (vacuum-packed, labeled product) and explains safety measures applied from processing to packaging.  *Food Safety Authority. (2023). Food safety practices in processing environments [Infographic]. https://example.com*	

	Teacher Guidance: Use concrete examples to show how laws translate into workplace requirements. **Discussing New Concept – Activities** **Mini-Lecture** **1. Food Processing** Food processing refers to the **transformation of raw ingredients into safe, edible, and marketable food products** through mechanical, chemical, biological, or thermal methods. It includes basic steps like washing and cutting, as well as advanced techniques such as pasteurization, freezing, and canning. Its goals include improving shelf life, enhancing flavor, and ensuring safety and convenience for consumers. **2. Preservation** Food preservation involves **treating and handling food to prevent spoilage** caused by microorganisms, enzymes, and oxidation. Preservation methods—such as drying, salting, fermenting, canning, or freezing—help maintain food texture, color, nutritional value, and safety while extending shelf life and reducing waste. **3. Packaging** Food packaging is **the system of enclosing or protecting food** to maintain quality, prevent contamination, extend shelf life, and communicate essential information to consumers.	

	Packaging provides physical protection, barrier control (against moisture, oxygen, microbes), proper handling efficiency, and labeling with storage instructions and safety warnings. It also enhances traceability and supports logistics. **4. Sustainability** In the food industry, sustainability means implementing **eco-friendly, efficient, and responsible practices** that reduce environmental impact while maintaining food safety, quality, and economic viability. This includes using recyclable or biodegradable packaging, reducing waste, conserving resources, and adopting circular-economy models that balance consumer needs with environmental protection. **5. OSH (Occupational Safety and Health)** Occupational Safety and Health refers to **practices, policies, and regulations that protect workers** in food processing and packaging environments from hazards such as equipment-related injuries, contamination risks, chemical exposure, and poor sanitation. OSH ensures safe working conditions, proper use of protective equipment, adherence to hygiene protocols, and compliance with safety standards to protect both workers and consumers. **Activity 3: HACCP Step-by-Step Discussion** Teacher walks students through hazard identification, CCP determination, and monitoring. Class, today we will walk through the basic steps of HACCP—**Hazard Analysis and Critical Control Points**. This system is required under our food safety law, **RA 10611**, which aims to	

	protect consumers from food-borne illnesses and unsafe or contaminated foods. HACCP is a preventive, science-based system that identifies where hazards may occur and puts controls in place to keep food safe." **1. Hazard Identification (Analyzing Possible Risks)** **Teacher says:** "In this first step, we identify every possible hazard that could happen during fish processing. Hazards include: • **Biological hazards** (bacteria, parasites) • **Chemical hazards** (detergents, toxins, residues) • **Physical hazards** (bones, metal fragments) We look at each stage—receiving the fish, storing, cutting, washing, freezing, packaging—and ask: '**What could go wrong here that might harm consumers?**'" **Connection to RA 10611:** This matches the law's requirement to protect the public from **food-borne illnesses, unsanitary conditions, and adulterated foods**. **2. CCP Determination (Identifying Critical Control Points)** **Teacher says:** "After identifying hazards, we determine the **Critical Control Points (CCPs)**. These are the exact steps where control is essential to prevent or eliminate a hazard. Examples in fish processing include: • **Temperature control** (to prevent bacterial growth) • **Metal detection** (to catch physical hazards)	

	• **Handwashing and sanitation points** • **Proper cooking or chilling temperatures** A CCP is any point in the process where losing control could make food unsafe." **Connection to RA 10611:** RA 10611 requires a **farm-to-fork safety system**, meaning hazards must be controlled at every point from production to distribution.	
	3. Monitoring Procedures (Ensuring Controls Are Working) **Teacher says:** "Once we have our CCPs, we need monitoring procedures. This means regularly checking that each CCP is working correctly. Monitoring may include: • Measuring temperature of fish during storage and transport • Observing sanitation practices • Inspecting packaging for damage or contamination • Recording data in log sheets Monitoring ensures food stays within safe limits. If something goes wrong, we can detect it immediately and take corrective action." **Connection to HACCP and RA 10611:** Monitoring is a legal requirement under RA 10611's directive to maintain a **scientific, accountable food safety system**.	

	Teacher Wrap-Up Statement "So in summary, HACCP keeps food safe by: 1. **Identifying hazards** that can harm consumers. 2. **Determining CCPs** where we must apply strict controls. 3. **Monitoring those controls** to ensure safety at all times. These steps are essential because RA 10611 requires a comprehensive food safety regulatory system to protect public health, ensure fair trade, and strengthen consumer confidence." **Activity 4: GMP/CGMP Simulation** Students observe or role-play how workers wash hands, sanitize tools, check temperatures, and prevent cross-contamination. Teacher Guidance: Ask students to restate concepts in their own words to confirm understanding. 3. Developing Mastery – Activities Activity 1: Classification Exercise Students classify methods into: Traditional vs. modern Preventive vs. corrective Regulatory vs. Voluntary	

	Teacher Introduction (Script): "Class, we have discussed different food processing and safety methods—some traditional, some modern, some preventive, some corrective, and some regulatory. Your task now is to **classify each method** into the correct categories." This activity strengthens learners' understanding of how food safety methods are **applied**, **regulated**, and **modernized** through laws and standards such as RA 10611, HACCP, SSOP, GMP, and CGMP. **A. Classification Category 1: Traditional vs. Modern Methods** **Traditional Methods** These methods have been used for centuries and rely on simple, natural processes. Examples: • **Drying** – One of the oldest known preservation methods used since early civilizations. • **Salting** – Used historically for long-term storage. • **Smoking** – Common in ancient preservation practices. • **Fermentation** – A traditional technique discovered long before modern science. **Modern Methods** These developed during industrial and scientific advancement:	

	• **Canning** (Appert's method, 1809; Durand's tin can, 1810) • **Pasteurization** (Louis Pasteur, 1862) • **Freezing and cold-chain logistics** • **High-Pressure Processing (HPP)** – Enhances safety and shelf life. • **Automation and Smart Sensors** in modern facilities for efficiency and safety. • **Smart Packaging using QR or IoT** for traceability. **B. Classification Category 2: Preventive vs. Corrective Methods** **Preventive Methods** These methods aim to **prevent hazards before they happen**. Examples: • **HACCP Hazard Identification & CCP Controls** – Designed to prevent foodborne illnesses. • **GMP (Good Manufacturing Practices)** – Ensures consistency and sanitation to avoid contamination. • **SSOP (Sanitation Standard Operating Procedures)** – Prevents unsanitary conditions and microbial risks. • **Cold storage / freezing** – Prevents bacterial growth. • **Proper packaging (vacuum seal, MAP)** – Prevents contamination and oxidation. **Corrective Methods** These are actions taken **after** a deviation or hazard has occurred. Examples:	

	• Correcting temperature deviations (returning food to safe ranges) • Discarding contaminated or adulterated food • Cleaning and sanitizing contaminated areas • Reprocessing food to eliminate hazards • Withdrawing/recalling unsafe products as mandated by RA 10611. **C. Classification Category 3: Regulatory vs. Voluntary Methods** **Regulatory Methods** These are **required by law** and overseen by the government under **RA 10611** through DA, DOH, and LGUs. Examples: • **RA 10611 (Food Safety Act)** – Ensures farm-to-fork safety, fair trade, and protection from unsafe food. • **PNS (Philippine National Standards)** – Technical rules for compliance. • **Mandatory HACCP for certain food industries** – Required for food processors to protect consumers. • **GMP / CGMP compliance** – Ensures facilities follow regulated standards. • **Licensing, inspection, and traceability systems** mandated by RA 10611. **Voluntary Methods** These are **optional but beneficial** practices used by companies to improve quality or gain competitive advantage.	

	Examples: • Eco-friendly packaging initiatives (biodegradable materials, CSR projects) • Additional quality certifications (ISO 22000, HALAL, Organic Certification) • Industry-led best practices beyond legal requirements • Extra sanitation checks beyond SSOP requirements **Learner Task Instructions** "Class, I will provide you with a list of methods. Your job is to classify each one into **Traditional / Modern**, **Preventive / Corrective**, and **Regulatory / Voluntary**." Examples to classify: • Drying • Freezing • HACCP • GMP / CGMP • SSOP • Recall / product withdrawal • Canning • Smart packaging • RA 10611 • Eco-friendly packaging Students write their answers in a 3-column or 3-table format. **Teacher Guidance (How to Facilitate)** • Move around the room to observe how students think through the classifications. • Ask probing questions such as:	

	○ "Why do you consider this method modern?" ○ "Is this method preventing a hazard or correcting one?" ○ "Is this required by law or chosen by companies voluntarily?" • Clarify misunderstandings by referring back to the legal and historical foundations of the methods. • Reinforce the link between these classifications and **real-world food processing safety**. **Activity 1: Problem-Based Scenario** Teacher presents: "You must transport fish long distances. What preservation and packaging methods will you use?" Students choose freezing, vacuum sealing, insulated containers, etc.	
	Activity 2: Skill Application Worksheet This contains **three sections**—Safe Practices, Tools & Equipment, and Proper Labeling & Packaging Requirements—written in a way learners can work through the activity easily. No mention of blurred faces is included.	
	Activity 3: Skill Application Worksheet (Detailed Version) **Teacher Instructions:** "Class, you will now complete a worksheet that helps you apply what you learned about food safety standards, proper	

	handling, packaging, and compliance with regulations like RA 10611, HACCP, SSOP, GMP, and CGMP. You must identify **safe practices**, **correct tools/equipment**, and **proper labeling and packaging requirements**."	
	SECTION A — Identify Safe Practices Learners must read each item and identify whether the practice is **SAFE** or **UNSAFE**, then briefly explain why. **Examples of SAFE Practices:** • Washing hands and sanitizing equipment before handling fish • Wearing PPE such as gloves, aprons, hair covers • Keeping fish at proper cold temperatures • Separating raw fish from ready-to-eat or cooked products • Cleaning tables, knives, trays, and cutting boards regularly • Using potable water for washing seafood • Following sanitation schedules (SSOP) **Examples of UNSAFE Practices:** • Allowing seafood to stay at room temperature too long • Using dirty or unclean cutting boards • Handling raw fish and cooked fish with the same tools • Touching fish with unwashed hands • Leaving packaging materials on wet or contaminated surfaces • Not maintaining proper waste disposal	

	Learner Task: "Mark each item as SAFE or UNSAFE, then write a short explanation." **Worksheet** **Topic:** Safe Practices, Tools & Equipment, Proper Labeling & Packaging **Instructions:** Read each section carefully. Write your answers in the spaces provided.	
	SECTION 1 — SAFE PRACTICES **Directions:** Read each item. Write **SAFE** or **UNSAFE**, then explain why the practice is safe or unsafe.	
	A. Items to Assess 1. A worker washes hands before handling fresh fish. **Your Answer:** _____ **Why?** _____ 2. Fish is left on the preparation table at room temperature for 1 hour. **Your Answer:** _____ **Why?** _____	

	3. The processor uses separate knives for raw fish and cooked fish. **Your Answer:** _____ **Why?** _____ 4. Packaging materials are stored on a wet table. **Your Answer:** _____ **Why?** _____ 5. The staff cleans and sanitizes cutting boards every after use. **Your Answer:** _____ **Why?** _____ 6. Fish is washed using potable (clean and safe) water. **Your Answer:** _____ **Why?** _____ 7. A worker handles fish without wearing gloves or hair cover. **Your Answer:** _____ **Why?** _____ 8. Waste bins in the processing area are overflowing. **Your Answer:** _____ **Why?** _____	
	SECTION 2 — TOOLS & EQUIPMENT **Directions:** Match the tool/equipment to its correct use in fish handling and processing. Write the **letter** of the correct answer.	

	Tools & Equipment List: A — Fillet Knife B — Cutting Board C — Sanitizing Solution D — Weighing Scale E — Insulated Cooler F — Food-Grade Packaging G — Thermometer **Items** 1. _____ Used to check and maintain cold temperatures of fish. 2. _____ Used for cutting and portioning fish safely. 3. _____ Holds cleaned fish to keep them chilled during transport. 4. _____ Used to disinfect tables, knives, trays, and utensils. 5. _____ Used to measure the weight of packaged or processed fish. 6. _____ Provides a clean, flat surface for cutting fish. 7. _____ Protects fish from contamination and helps maintain quality during storage.	
	SECTION 3 — PROPER LABELING & PACKAGING REQUIREMENTS **Directions:** Read each requirement. Write **YES** if it is required for proper labeling/packaging, or **NO** if it is incorrect or incomplete. 1. ___ Product name is clearly printed on the package.	

2. ___ The label includes production date and expiration/use-by date.
3. ___ Package does not mention allergens even if present.
4. ___ Packaging is clean, food-grade, and free from damage.
5. ___ Label includes storage instructions (e.g., “Keep Frozen”).
6. ___ No manufacturer or processor information included.
7. ___ Packaging is placed on a dirty or wet surface during sealing.
8. ___ Lot or batch number is included for traceability.

SECTION B — Identify the Correct Tools and Equipment

Learners match tools to their correct uses in fish processing and packaging.

Tools & Their Proper Uses:

Tool / Equipment	**Correct Use**
Filleting Knife	Cutting, trimming, and portioning fish properly
Thermometer / Temperature Probe	Monitoring safe temperature during storage and transport
Vacuum Sealer	Removing air and sealing fish to prevent contamination

Weighing Scale	Ensuring correct product portioning and packaging weight	
Sanitizing Solution	Cleaning and disinfecting surfaces and equipment	
Hair Cover / Gloves / Aprons	Protecting food from physical and microbial contamination	
Insulated Containers / Ice Boxes	Maintaining cold chain safety during transport	
Label Printer	Printing correct labels for packaging compliance	

Learner Task:
"Match each tool with its correct use. Then write why using the correct tool is important for food safety."

SECTION C — Identify Proper Labeling and Packaging Requirements

Learners examine sample packaging (teacher may show printed examples) and identify mandatory elements.



Food Safety Authority. (2023). Food safety practices in processing environments [Infographic]. https://example.com

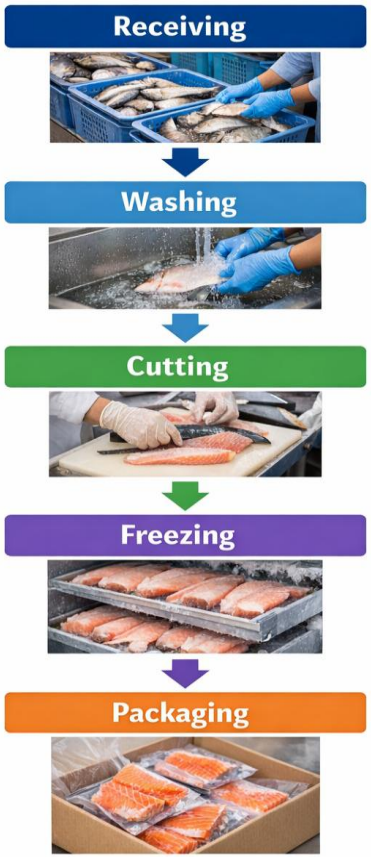
Correct Labeling Requirements:

(Aligned with food safety regulations)

- **Product name**
- **Net weight / quantity**
- **Ingredients list**
- **Allergen information**
- **Manufacturing date (MFG)**
- **Expiration or Best Before date (EXP/BB)**

	• **Storage instructions** (e.g., Keep Refrigerated) • **Batch/Lot number** (for traceability and recall) • **Name/address of the manufacturer or processor** • **QR code or tracking information** (optional but used in modern smart packaging) **Proper Packaging Requirements:** Packaging must: • Be clean and free from damage • Protect fish from contamination and physical impact • Maintain temperature (e.g., vacuum sealed + cold storage) • Follow GMP/CGMP guidelines for sanitary handling • Be food-grade and safe for direct contact • Prevent leakage and spoilage • Support traceability requirements under RA 10611 **Learner Task:** "List all correct labeling elements you see. If anything is missing, write what should be added. Explain why labeling is important for consumer safety."	
	Teacher Guidance (How to Facilitate the Worksheet) • Walk around and check if learners understand why each practice/tool/label matters. • Ask guiding questions such as: o "Why must we separate raw and cooked fish?" o "How does proper labeling help in food recalls?" o "Why is temperature control critical for seafood?"	

	• Correct misconceptions immediately and reinforce principles from HACCP, SSOP, GMP, and RA 10611.	
C. Demonstrating Knowledge and Skills	**1. Finding Practical Application – Activities** **Activity 1: Students Create a Simple HACCP Plan for a Fish Product** Learners choose a fish item (e.g., bangus fillet, tuna chunks, surimi sticks) and create a **basic HACCP plan**, including: • Identifying possible hazards (biological, chemical, physical) • Determining CCPs (e.g., chilling, cooking, packaging) • Proposing monitoring steps (temperature checks, sanitation logs) **Activity 2: Students Analyze a Sample Processing Flowchart and Identify CCPs** Teacher provides a flowchart showing steps like receiving → washing → cutting → freezing → packaging.	This part of the lesson allows learners to **apply, generalize, and evaluate** their understanding of food safety systems. Students practice real-world skills such as creating a simple HACCP plan, analyzing a processing flowchart, and inspecting food packaging—activities that mirror actual industry tasks in fish processing and food manufacturing. Learners deepen their understanding by summarizing key laws and standards (PNS, RA 10611) and creating concept maps that show how HACCP, SSOP, GMP, and CGMP work together. Discussions highlight the importance of integrating **safety, quality, and sustainability** in food production. Assessment activities—quizzes, demonstrations, and label inspections—ensure students can correctly apply definitions, identify CCPs, recognize proper labeling, and practice sanitation and GMP/CGMP procedures. These evaluate not just knowledge but practical competence. Enrichment tasks extend learning through research and poster-making, while remediation provides simplified

	 *Food Processing Institute. (2023). Steps in fish processing and preservation [Infographic]. https://example.com*	materials, visuals, and guided support for learners needing additional help. Overall, this section ensures that students move beyond memorization and develop **actual food safety skills**, aligning with industry standards and legal requirements.

	Students must: • Go through each step • Identify points where hazards may occur • Mark CCPs (e.g., freezing at safe temperatures to prevent bacterial growth) **Activity 3: Learners Inspect Mock Packaging** Students examine sample fish packaging (printed or actual) and check if it meets standards such as: • Proper labeling (product name, lot number, expiry, storage instructions) • Clean and intact packaging material • Regulation compliance (traceability information, safety instructions)  *Food Processing Institute. (2023). Steps in fish processing and preservation [Infographic]. https://example.com*	

	Teacher Guidance: Encourage real-life application by asking: • "How do these safety practices protect consumers from harm?" • "How do safe products benefit businesses, exporters, and workers?" • "Why do food companies follow HACCP and labeling rules?" Connect answers to actual industry scenarios.	
	2. Making Generalization – Activities **Activity 1: Students Summarize Importance of PNS, RA 10611, and Food Safety Systems** Learners write a short paragraph answering: "Why are PNS, RA 10611, HACCP, SSOP, GMP, and CGMP important in ensuring safe food?" They should emphasize: consumer protection, hazard prevention, fair trade, and quality assurance. **Activity 2: Groups Create a Concept Map Linking HACCP–SSOP–GMP–CGMP** The concept map must show: • How SSOP supports sanitation • How GMP/CGMP maintain consistent quality • How HACCP prevents hazards	

	• How they all work together to ensure food safety **Activity 3: Learners Explain Why Safety, Quality, and Sustainability Must Work Together** Groups discuss and share: • How safety prevents illness • How quality ensures market competitiveness • How sustainability protects the environment and future food security **Teacher Guidance:** Facilitate sharing, ask clarifying questions, and correct incorrect assumptions about safety or laws. Reinforce that food safety systems work together—not separately.	
	3. Evaluating Learning – Activities **Activity 1: Short Quiz on Definitions and Principles** Students answer brief questions on: • HACCP steps • SSOP and GMP definitions • RA 10611 purpose • Labeling requirements	

Activity 2: Group Report or Demonstration

Groups demonstrate or present how a food safety system is applied in a processing environment. Examples:

- Demonstrating a CCP check
- Showing proper sanitation steps
- Presenting a GMP/CGMP checklist

Activity 3: Label Inspection Activity



Food Processing Institute. (2023). Steps in fish processing and preservation [Infographic]. https://example.com

	Students inspect sample food labels and check if they contain: • Product name • Lot/Batch number • Expiry or Best Before date • Storage instructions • Manufacturer details • Appropriate safety/traceability marks **Teacher Guidance:** Ensure assessment aligns with competencies by checking that students can: • Apply principles correctly • Identify errors or safety issues • Demonstrate practical understanding, not just memorization **4. Additional Activities (Enrichment / Remediation)** **Enrichment Activities:** • **Research Task:** Learners investigate Philippine food recall cases caused by violations of RA 10611 and present what went wrong and how it could have been prevented. • **Poster Creation:** Students design a poster promoting GMP or SSOP practices for display in a food processing facility. **Remediation Activities:** • Provide **simplified handouts** showing step-by-step diagrams of HACCP, SSOP, and GMP.	

	• Offer **one-on-one guided explanations** for learners who need extra support. • Use **visual aids**, charts, or simple examples to clarify difficult concepts.	
VI. ASSESSMENT	**CULMINATING ASSESSMENT** This assessment evaluates mastery of BOTH the Content Standard and the Performance Standard. **A. WRITTEN ASSESSMENT** **Description:** Learners answer a set of written questions designed to measure knowledge and understanding of **RA 10611**, **HACCP**, **SSOP**, **GMP**, and **CGMP**. **Components:** • **Multiple-choice questions** on definitions, principles, and legal requirements • **Short-answer items** requiring explanation of concepts such as: o Why RA 10611 is needed o Purpose of HACCP o Key features of GMP and CGMP • **Diagram labeling**, including: o Identifying **Critical Control Points (CCPs)** in a fish processing flowchart o Labeling sanitation steps in an SSOP diagram **Purpose:** To check learners' comprehension before they move on to practical tasks.	

A. MULTIPLE-CHOICE QUESTIONS

Choose the correct answer. Write the letter that corresponds to your choice.

1. **What is the main purpose of RA 10611 (Food Safety Act of 2013)?**
A. To promote export of marine products
B. To strengthen the food safety regulatory system and protect consumers
C. To increase seafood production
D. To regulate fish prices

2. **Which of the following best describes HACCP?**
A. A cleaning procedure for tools
B. A system that identifies and controls hazards in food production
C. A type of packaging requirement
D. A labeling law

3. **Which step is a** Critical Control Point (CCP) **in fish processing?**
A. Label design
B. Temperature control during storage
C. Truck scheduling
D. Paying suppliers

4. **SSOP refers to:**
A. Sanitation Standard Operating Procedures
B. Seafood Safety Operations Protocol
C. Supplier Safety Obligations Procedure
D. Standard Storage Operations Plan

5. **GMP is a set of guidelines that ensures:**
A. A product tastes good
B. Proper hygiene, facility maintenance, and controlled processing
C. Packaging is colorful
D. Fish are cut into equal sizes

6. **CGMP differs from GMP because:**
A. It focuses only on export facilities
B. It includes modern, updated requirements in line with new food safety laws
C. It applies only to large companies
D. It removes hygiene requirements

B. SHORT-ANSWER QUESTIONS

Answer briefly but clearly.

1. **Why is RA 10611 important for consumers and food handlers?**
2. **Explain the main purpose of HACCP in seafood processing.**
3. **Give two examples of Good Manufacturing Practices (GMP).**
4. **What makes CGMP different from older GMP standards?**
5. **Why is proper sanitation essential in SSOP? Give one example.**

C. DIAGRAM LABELING

1. HACCP FLOWCHART — IDENTIFY CCPs

Below is a food processing flow sequence. Label the steps that may be considered **Critical Control Points (CCPs)**.

Receiving → Washing → Cutting → Freezing → Packaging → Storage → Distribution

Write at least **two** CCPs:
CCP 1: _____
CCP 2: _____

2. SSOP SANITATION STEPS — LABEL THE PROCESS

Label the sanitation steps in the correct order:

Cleaning → Rinsing → Sanitizing → Drying

Step 1: _____
Step 2: _____
Step 3: _____
Step 4: _____

Purpose of the Assessment

This written assessment checks learners' understanding before performing hands-on tasks. It ensures they know:

✓ The legal basis for food safety (RA 10611)
✓ Preventive hazard control (HACCP)
✓ Sanitation systems (SSOP)
✓ Facility and process hygiene (GMP / CGMP)

B. PERFORMANCE TASK

Description:

Students create a **mini HACCP plan** for a chosen fish product (e.g., bangus fillet, sardines, frozen tuna, surimi sticks).

The HACCP Plan Must Include:

1. Hazard Identification

	Learners identify **biological**, **chemical**, and **physical** hazards in each stage of processing (receiving → handling → processing → packaging). **2. Critical Control Points (CCPs)** Students determine which steps require strict control to prevent hazards (e.g., temperature control, metal detection). **3. Monitoring Procedures** Clear instructions for checking temperatures, sanitation, equipment condition, and other critical parameters. **4. Corrective Actions** Specific steps to take if monitoring shows a deviation (e.g., re-chilling fish, re-sanitizing equipment, discarding compromised products). **5. Verification and Documentation** Learners create mock log sheets where staff would record: • Temperature readings • Sanitation checks • CCP monitoring records **Purpose:** To evaluate learners' ability to apply food safety systems in **realistic industry situations**.

	C. PRODUCT OR PROCESS EVALUATION **Description:** Students analyze a sample packaged fish product (real or printed mock-up) and evaluate whether it follows required standards. **Standards to Check:** **1. Compliance with PNS (Philippine National Standards)** Learners check if the packaging meets technical requirements for: • Food-grade materials • Proper sealing • Protection from contamination **2. Proper Labeling (Required by Law)** Students must verify the presence of: • Product name • Ingredient list • Net weight • Manufacturer/Processor name & address • Batch/Lot number • Manufacturing & expiry/best-before date • Allergen information • Storage instructions (**e.g., Keep Refrigerated**) • Traceability details (e.g., QR code, if applicable) **3. GMP/CGMP Compliance** Learners identify whether the packaging reflects: • Hygienic practices

	• Proper handling • Correct storage temperature • Quality control procedures **Purpose:** To strengthen learners' understanding of **real-world packaging compliance** and **food safety regulations**.
	D. RUBRIC-BASED EVALUATION **Description:** A rubric is used to assess both written and performance components. This ensures objective scoring aligned with the standards. **Rubric Criteria:** **1. Accuracy of Explanations** • Correct use of terminology • Accurate understanding of RA 10611, HACCP, SSOP, GMP, CGMP **2. Application of Laws and Standards** • Proper integration of legal and regulatory requirements • Correct identification of hazards and CCPs **3. Completeness of HACCP Plan** • All required sections present • Logical, realistic, and technically sound steps • Clear monitoring and corrective actions

4. Safety and Correctness of Procedures

- Demonstrates understanding of food-safe practices
- Shows awareness of sanitation, handling, and packaging requirements

5. Quality of Analysis and Justification

- Clear reasoning for decisions made in HACCP planning
- Proper justification of packaging compliance or non-compliance
- Ability to connect theory to practical situations

Purpose:

To provide a fair, comprehensive assessment of both **knowledge** and **skills**, supporting the learner's readiness for real-world food industry tasks.

📊 **RUBRIC-BASED EVALUATION TABLE**

Criteria	5 – Excellent	4 – Proficient	3 – Satisfactory	2 – Developing	1 – Beginning
1. Accuracy of Explanations	Uses all terminology correctly; demonstrates highly accurate understanding of RA 10611, HACCP, SSOP, GMP, and CGMP.	Mostly accurate explanations with minor errors in terminology or concepts.	Shows general understanding, though some terms are misused or unclear.	Limited accuracy; several incorrect concepts or weak explanations.	Major inaccuracies; does not demonstrate basic understanding.

		2. Application of Laws & Standards	Correctly applies legal and regulatory requirements; accurately identifies hazards and CCPs in all scenarios.	Applies most laws and standards correctly; identifies most CCPs and hazards.	Some application present but incomplete; misses some hazards or CCPs.	Minimal correct application; struggles to connect laws to real situations.	No understanding of how to apply laws; unable to identify hazards/CCPs.	
		3. Completeness of HACCP Plan	All components included; steps are logical, technically sound, and include clear monitoring and corrective actions.	Most components included; minor gaps but still logically structured.	HACCP plan is partially complete; monitoring actions somewhat unclear.	Incomplete plan; missing major elements; weak or unrealistic steps.	Little to no structure; missing most HACCP components.	
		4. Safety & Correctness of Procedures	Demonstrates excellent understanding of safe practices; sanitation, handling, and packaging principles fully applied.	Generally safe and correct procedures with minor lapses.	Basic safety understood but inconsistently applied.	Procedures often unsafe or technically incorrect.	Lacks understanding of safe handling and sanitation protocols.	
		5. Quality of Analysis & Justification	Provides strong reasoning, thorough justification, and clear	Reasoning is logical and supported	Provides basic explanations	Reasoning is weak and often	No justification or unclear reasoning.	

	connection between theory and practice.	but may lack depth.	with limited justification.	unsupported .	

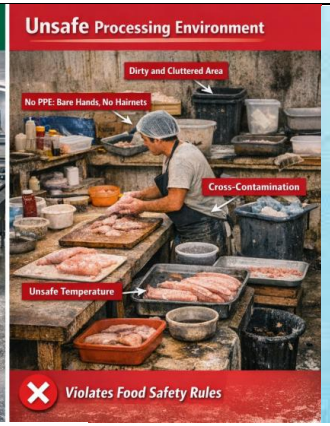
SCORING GUIDE

Total Score	Performance Level
22–25	Outstanding
18–21	Proficient
14–17	Satisfactory
10–13	Developing
5–9	Beginning

VII. REFLECTION	This learning exemplar gives understanding on the importance of food safety, quality, and proper food processing practices. It includes PNS, RA 10611, HACCP, SSOP, GMP, and CGMP that is essential in protecting consumers from unsafe food. This LE also gives knowledge and skills that are important not only in school but also in future career of the learners. Overall, the lesson strengthened the responsibility to practice safe, clean, and quality food processing at all times.

VIII. USE OF GENERATIVE AI











To effectively use these AI-generated images, organize them according to their function: food safety practices (safe vs. unsafe environments), processing stages (receiving to packaging), and finished or labeled food products. Insert each image in the appropriate section of your work to support your explanation, ensuring it clearly illustrates the concept being discussed. Include brief captions explaining what each image shows, such as hygiene standards, workflow steps, or labeling examples, and connect them directly to your discussion. Use the images only as visual aids to enhance understanding, not as replacements for written analysis. Finally, clearly acknowledge that the images are AI-generated and provide proper APA 7th edition citations to maintain academic integrity.

LESSON EXEMPLAR			
Learning Area	**FOOD PROCESSING**	**Grade Level**	**11/12**
Term	**1**	**Lesson Exemplar**	**4**

I. OBJECTIVES	
A. Content Standard	The learners demonstrate a comprehensive understanding of Halal principles and practices, including their foundations, requirements, and application in food processing and preparation.
B. Performance Standard	The learners perform maintenance of food processing and fish product packaging tools, materials, and equipment in accordance with industry standards.
C. Learning Competencies	Discuss halal principles and practices in food processing
II. REFERENCES and MATERIALS	**Books & Academic Sources** Al-Qaradawi, Y. (2013). The lawful and the prohibited in Islam. Islamic Book Trust. Al-Mazeedi, H. M. (2015). Halal food: A comprehensive guide. International Halal Integrity Alliance. Fellows, P. J. (2017). Food processing technology: Principles and practice (4th ed.). Woodhead Publishing. Jay, J. M., Loessner, M. J., & Golden, D. A. (2005). Modern food microbiology (7th ed.). Springer. Park, J. W. (2014). Seafood processing: Technology, quality, and safety. Wiley-Blackwell. **Halal Certification & Food Labeling References**

Halal Food Council USA. (2024). How to read halal food labels: A consumer's guide. https://halalfoodcouncilusa.com/how-to-read-halal-food-labels-a-consumers-guide/ [guidetohalal.com]

Guide to Halal. (2025). Halal certification 101: Understanding halal labels and logos. https://guidetohalal.com/halal-basics/halal-certification-guide/

Number Analytics. (2025). Halal food labeling and packaging guide. https://www.numberanalytics.com/blog/halal-food-labeling-and-packaging-regulations

Videos Used in Lesson (All Verified Sources)

Islamic Knowledge Network. (2025). What is Halal food certification? [YouTube Video]. https://www.youtube.com/watch?v=rIUf2_NG6mk [youtube.com]

Halal Code Check. (2025). Halal food label guide [YouTube Video]. https://www.youtube.com/watch?v=ROiAeHdY6c8 [youtube.com]

Food Productions. (2026). Inside a certified Halal meat factory: Complete process [YouTube Video]. https://www.youtube.com/watch?v=Pm3CZBmZDOk [guidetohalal.com]

Karachi Insight Media. (2026). Step-by-step Halal slaughter system (simple) [YouTube Video]. https://www.youtube.com/watch?v=OCM3vYVoyrQ [youtube.com]

Halal Certification Bodies (Philippines & Global)

IDCP – Islamic Da'wah Council of the Philippines
HICCIP – Halal International Chamber of Commerce & Industries of the Philippines
JAKIM – Department of Islamic Development Malaysia
IFANCA – Islamic Food and Nutrition Council of America

B. MATERIALS

1. For Teacher

- Laptop or mobile device
- Projector or TV display
- Lesson PowerPoint / Slides
- Short video clips on:
  - Halal labels
  - Halal-certified products
  - Halal food processing
  - Simple Halal slaughter demonstration
- Real food product packages (Halal, Haram, and Mashbooh)
- Sample ingredient labels (printed or actual)
- Halal Inspection Checklist (teacher-provided)
- Simplified Halal Certification Requirement Sheet
- Visual sorting cards (Halal/Haram/Mashbooh)
- Manila paper, markers, and tape for group activities

2. For Learners

- Notebook and pen
- Printed activity sheets
- Halal Sorting Cards (images of food items)
- Concept Map Worksheet
- Product Evaluation sheets
- Colored cards (for choosing Allowed / Not Sure / Not Allowed)

3. Digital / Visual Materials

- Printed **ingredient labels** (gelatin, enzymes, vanilla extract, snacks)

	• Images of:
	  ○ Halal logos
	  ○ Halal slaughter diagram (non-graphic)
	  ○ Halal vs Haram food categories
	• Video links used for instruction
	• Photos or generated images of food packages, snacks, beverages, meat, etc.

III. CONTENT	**Halal Principles and Practices** • Concept of halal and its significance to Islamic principles and practices • Halal dietary laws, permissible and prohibited foods, and food preparation guidelines • Process of halal certification • Principles and procedures of halal slaughter for meat and poultry
IV. OBJECTIVES	By the end of the lesson, the learners should be able to: ✓ Explain the concept of Halal and its significance to Islamic beliefs and daily practices, particularly in relation to food consumption and preparation; ✓ Identify permissible (halal) and prohibited (haram) foods, and describe the key dietary laws and preparation guidelines required to maintain Halal integrity; ✓ Describe the steps and requirements of the Halal certification process, including documentation, inspection, and compliance with Halal standards; and ✓ Explain the principles and proper procedures of Halal slaughter (dhabiha) for meat and poultry, emphasizing humane handling, cleanliness, and adherence to Islamic law.

V. PROCEDURES		ANNOTATIONS
A. Activating Prior Knowledge	**DAY 1** **A. Activating Prior Knowledge** The teacher prepares **real food packages** or **images** of different food items such as: • Halal-certified noodles, biscuits, chicken • Pork products (bacon, ham, sausages) • Gelatin candies • Cheese with enzymes • Packaged snacks without Halal logo • Flavored drinks with unknown additives • Seafood, vegetables, and beef cuts **Teacher says:** "Before we begin our lesson on Halal principles, let's recall what we already know about food rules or restrictions. Many families or cultural groups follow guidelines about what foods can or cannot be eaten." **The teacher asks the following questions:** 1. Do you know these foods? Have you eaten or seen them before? 2. Which of these items do you think are allowed or not allowed for certain religions or cultures? 3. Have you heard the words Halal, Haram, or Mashbooh before? 4. Does your family follow any food rules or avoid certain foods? What has been your experience?	This part of the lesson is designed to help learners connect their existing knowledge to the new topic of Halal principles and practices. By using real food packages, visual images, and sorting activities, the teacher creates an engaging and familiar starting point that supports all learners, regardless of background. The approach is relevant because students encounter these food items daily at home, in markets, and in stores allowing them to immediately see the value of learning Halal identification. It is reflective as the guiding questions prompt learners to think about their personal, family, or cultural food experiences, helping them recognize that food rules affect their daily choices and community practices. The strategy is inclusive: realia and images meet the needs of visual, auditory, and kinesthetic learners, while sorting tasks support those who learn best through hands-on interaction. It is ideational since students express their understanding by describing, comparing, and categorizing food items, activating their conceptual thinking. It is also experience-based, allowing students to share home practices involving allowed or restricted foods,

	Short Activity: Sorting Foods Into Categories **Teacher says:** "Class, I will show you different food items. Your task is to place them into three groups: **Allowed (Halal)**, **Not Sure (Mashbooh)**, and **Not Allowed (Haram)**. Observe the pictures carefully and think about what you already know." **Teacher displays images of:** **Allowed (Halal)** • Beef cuts • Chicken parts • Seafood (fish, shrimp, squid, crab) • Vegetables (carrots, cabbage, tomatoes, leafy greens) • Packaged goods with clear Halal logos **Not Allowed (Haram)** • Pork belly • Bacon • Ham • Pork sausages • Hotdogs without Halal seal • Alcoholic beverages (wine, beer, cooking wine) **Not Sure (Mashbooh)** • Gelatin candies • Cheese with enzymes • Snacks without a Halal logo • Flavored drinks with unknown additives	strengthening their connection to the lesson. Overall, this section prepares students for deeper learning by giving them a familiar, meaningful entry point to understand the more formal concepts of Halal, Haram, and Mashbooh foods, Halal certification, and proper food preparation.

	Teacher Instructions:
	
	1. Display the images one by one.
	2. Ask learners to classify them into:
	  - Allowed (Halal)
	  - Not Sure (Mashbooh)
	  - Not Allowed (Haram)
	3. Learners may:
	  - Raise a colored card
	  - Move to labeled corners of the room
	  - Sort printed cards
	  - Drag items on a digital screen
	4. Ask learners to explain their choices.
	5. Clarify misconceptions immediately.	

	Learning Connection (Teacher says): "This activity helps you recall what you already know about food rules. Later in the lesson, we will learn the exact principles and guidelines so you can correctly classify foods based on Islamic dietary laws." **Visual Prompt & Discussion** **Teacher shows images of mixed foods and asks:** "Why do you think certain foods are restricted in some religions or cultures?"	

	Purpose This part helps learners connect prior knowledge family habits, cultural practices, and common foods to the new topic. It activates curiosity, builds confidence, and prepares them for deeper learning about Halal rules. **B. Establishing the Purpose of the Lesson** **Teacher says:** "Today, we are going to learn about Halal principles and practices. This lesson is important because Halal guidelines protect not only religious beliefs but also food cleanliness, safety, and ethical preparation. Whether you work in food processing, culinary arts, agriculture, or simply buy food in stores, understanding these principles helps you make informed choices." **Teacher continues:** "At the end of the lesson, you will be able to: 1. Explain the meaning and importance of Halal in Islamic beliefs and daily life; 2. Identify which foods are Halal or Haram and describe preparation rules for Halal integrity; 3. Describe the steps in Halal certification and why companies undergo this process;and 4. Explain the proper Halal slaughter (Dhabiha) procedures and why humane handling is required."	

	Teacher reinforces real-life relevance: "These principles are used in food factories, restaurants, markets, and international export businesses. Understanding Halal practices helps ensure that food is safe, clean, and ethically prepared."	
	Teacher Annotation (as in your example) This part of the plan is **relevant and reflective**. It is **relevant** because learners can immediately relate the food examples to daily life, home practices, and community shopping habits. It is **reflective** because the guiding questions prompt students to think about personal experiences with food restrictions, deepening ownership of learning. The approach is **inclusive**, using real objects and visuals that support varied learning styles. It is **ideational**, encouraging students to share ideas and existing knowledge about food rules. It is also **experience-based**, as students connect lessons to family habits, cultural traditions, and personal encounters with Halal or non-Halal products.	
B. Instituting New Knowledge	1. **Presenting Examples** Teacher says: "Class, before we begin learning the full lesson on Halal principles and practices, let's start by looking at real examples. Observe carefully, because these will help you understand what Halal means, which foods are allowed or prohibited, how certification works, and how Halal slaughter is carried out."	This section provides a structured flow for introducing new content on Halal principles and practices. **Presenting Examples** allows learners to anchor new information on concrete, relatable visuals—such as Halal labels, certified products, food packages, and simplified slaughter demonstrations. These examples help ignite curiosity,

	Teacher shows: • Images or short video clips of: Halal food labels - **https://www.youtube.com/watch?v=rIUf2_NG6mk** Halal-certified packaged products - **https://www.youtube.com/watch?v=ROiAeHdY6c8** Halal food processing - **https://www.youtube.com/watch?v=Pm3CZBmZDOk** Simple representations of Halal slaughter - **https://www.youtube.com/watch?v=OCM3vYVoyrQ** • Real objects such as food packages, ingredient lists, or sample products  *Unknown author. (n.d.). Examples of processed foods highlighting ingredients and additives*	activate visual understanding, and make the topic meaningful. In **Discussing the New Concept**, the teacher clearly defines essential terms, breaks down complex ideas into simple steps, and uses analogies to make abstract religious and food-processing concepts easier to grasp. The comprehension questions encourage critical thinking, ensure understanding, and correct misconceptions early. **Developing Mastery** gives learners opportunities to apply their knowledge through guided and independent tasks. Students examine real products, check ingredient labels, classify foods, analyze scenarios, and role-play as Halal inspectors. This practice strengthens their ability to identify Halal, Haram, and doubtful items; explain the significance of Halal; describe certification procedures; and understand the key steps in Dhabiha slaughter. Overall, this structured sequence supports deep learning by moving students from **observation → explanation → application**, ensuring that by the end of the lesson they can confidently meet the four learning objectives.

	• A demonstration scenario (e.g., How to check if a product is Halal-certified) Teacher picks up one food item and says: "Let's inspect this product together. Follow my steps." **✓ Step 1: Check for a Halal logo** "Do you see any Halal certification seal on the front or back?" **✓ Step 2: Check the ingredient list** "Read the ingredients carefully. Do you spot any doubtful items such as gelatin or enzymes?" **✓ Step 3: Identify Haram content** "Is there any alcohol, pork, or pork derivatives?" **✓ Step 4: Decide the category** "Based on what we found, is this product **Halal**, **Haram**, or **Mashbooh**?" Students follow and repeat this process with other real objects. Teacher asks: • "What do you notice first about these products?" • "Where can we find the Halal logo?" • "Which of these seem allowed or prohibited?"	

	b. Guide students to notice important details Teacher asks: • "Why do you think these logos are important to consumers?" • "What differences do you see between Halal and non-Halal food items?" • "Which foods here look doubtful or uncertain?"	
	c. Connect examples to prior knowledge Teacher says: "Think back to foods you eat at home or in your community. Do you see similarities to the items shown? Do you know of any food rules or restrictions practiced by your family or culture?"	
	How this step supports your objectives: • **Objective 1:** Learners see the real-world significance of Halal. • **Objective 2:** Learners observe which foods are Halal, Haram, or questionable. • **Objective 3:** Learners see examples of Halal certification seals. • **Objective 4:** Videos/images show simplified versions of Halal slaughter requirements.	

	2. **Discussing New Concept** Teacher says: "Let's define our key words so we all have the same understanding." Teacher writes on board: • **Halal** – permissible or allowed according to Islamic law • **Haram** – forbidden or prohibited • **Mashbooh** – doubtful or uncertain • **Dhabiha** – proper Islamic method of animal slaughter (Objective 4) • **Halal Certification** – confirmation that a product meets Halal standards (Objective 3) Teacher emphasizes: "These terms guide what foods can be eaten, how they must be prepared, and how they should be certified."	
	b. Break down complex ideas into simple parts Teacher says: "I will break these ideas into clear, simple steps so they're easier to understand." Teacher explains: **Objective 1 – Concept & Significance of Halal** 1. Halal is rooted in Islamic beliefs and daily practices. 2. It promotes cleanliness, purity, and ethical eating. 3. It builds consumer trust and ensures safety.	

	Objective 2 – Halal vs. Haram Foods 1. Halal sources: beef, chicken, vegetables, seafood. 2. Haram sources: pork, carrion, alcoholic drinks, blood. 3. Proper Halal preparation avoids contamination. **Objective 3 – Halal Certification** 1. Document submission 2. Plant/facility inspection 3. Verification of ingredients and methods 4. Approval and logo issuance **Objective 4 – Halal Slaughter (Dhabiha)** 1. Animal must be healthy and treated humanely. 2. A Muslim slaughterman invokes the name of Allah. 3. Slaughter involves cutting specific vessels using a sharp knife. 4. Blood is drained completely. Teacher pauses after each point to ensure clarity.	
	c. Use analogies and comparisons Teacher says: "Sometimes big ideas become easier to understand through simple comparisons." Examples: • "Halal certification is like a safety warranty; it proves the product meets strict standards."	

	• "Cross-contamination is like mixing dirty and clean clothes once mixed; everything becomes dirty." • "Halal slaughter is similar to humane slaughtering practices found in animal welfare standards." Purpose: To make abstract religious and processing concepts easier to understand.	
	d. Ask comprehension questions Teacher asks: • "Why is Halal important to Muslim consumers?" • "Which foods are always considered Haram?" • "What must happen during Halal slaughter?" • "How can you check if a product is Halal-certified?" Teacher encourages volunteers, pairs, or group answers.	
	Purpose for Students: • Build accurate understanding • Connect new knowledge to real life • Understand roles of religion, safety, and ethics • Clarify misconceptions early	

	3. **Developing Mastery** Teacher says: "Let's answer the first activity together. Watch how I analyze whether a product is Halal, Haram, or Mashbooh." Teacher models: • Checking ingredient lists • Looking for the Halal logo • Identifying doubtful substances (e.g., gelatin, enzymes) • Reviewing sample certification forms Learners follow step-by-step.	
	b. Move to independent or small group practice (aligned to all objectives) Teacher says: "Now it's your turn. Work independently or with your group. I will walk around to help." Activities include: **Objective 1:** • Writing the significance of Halal in daily life **Objective 2:** • Sorting foods (Halal/Haram/Mashbooh) • Identifying forbidden ingredients	

	Objective 3: • Highlighting requirements in a sample certification document **Objective 4:** • Sequencing the steps in Dhabiha slaughter	
	c. Provide feedback as learners work Teacher walks around: • Corrects errors gently • Gives hints ("Check the ingredients again…") • Challenges fast learners ("Why is this item doubtful?") • Supports struggling students	
	d. Include application-based tasks (real-world use) Teacher says: "Now let's apply what we learned to a real situation." Examples: **Problem-solving:** "Your group must inspect three food items. Which are Halal?"	

	Scenario analysis: "This candy contains gelatin. How will you determine if it is Halal?" **Product evaluation:** Evaluate real packaged foods. **Mini-performance:** Learners act as Halal inspectors.	
C. Demonstrating Knowledge and Skills	**1. Finding Practical Application** Class, it's now time to apply what we have learned about Halal principles. You will use your knowledge of Halal, Haram, Mashbooh foods, certification, and slaughter guidelines to solve real-world scenarios." **Activity A: Product Inspection Simulation** **Teacher Instructions:** 1. Give each group a set of **real food packages** or printed labels.  *Unknown author. (n.d.). Assortment of processed and fresh food products with additives and packaging*	This section focuses on helping learners apply, internalize, and demonstrate their understanding of Halal principles and practices through meaningful activities. The **Finding Practical Application** tasks allow students to use what they learned in real-life scenarios such as product inspection, ingredient analysis, and certification evaluation—strengthening their ability to transfer knowledge to authentic contexts. The **Making Generalization** phase enables students to reflect on key ideas, identify patterns, and summarize the most important concepts through discussions or concept mapping. **Evaluating Learning** ensures that students' understanding of Halal concepts, dietary rules, certification processes, and slaughter guidelines is accurately assessed through quizzes, performance tasks, or demonstrations aligned with the lesson objectives. Finally, the **Additional Activities** provide enrichment, reinforcement, or remediation to support diverse

	2. Provide a Halal Inspection Checklist 📋 **HALAL INSPECTION CHECKLIST** **(For Classroom Use – Product Evaluation, Simulations, Performance Tasks)** **A. PRODUCT IDENTIFICATION** **Item** / **Details** Product Name / _____ Brand / _____ Type of Food / ☐ Meat ☐ Snack ☐ Beverage ☐ Condiment ☐ Other: _____	learners and ensure mastery. Overall, this section strengthens critical thinking, promotes practical skills, and prepares students for the unit performance task.
	B. HALAL LOGO / CERTIFICATION CHECK **✓ Step 1: Check for an Official Halal Certification Seal** Is there a Halal logo on the packaging? ☐ **Yes** ☐ **No** ☐ **Unclear / Fake looking** Is the certifying body identified? (IDCP, HICCIP, IFANCA, JAKIM, MUIS, etc.)	

☐ **Yes**
☐ **No**

Is the logo clear and properly printed?
☐ **Yes**
☐ **No**

Notes:

C. INGREDIENT LIST EXAMINATION

✓ Step 2: Identify Halal, Haram, and Doubtful Ingredients

Check for Haram Ingredients

(Pork, alcohol, blood, gelatin from non-Halal sources, lard, enzymes of unknown origin)

Ingredient	Present?	Remarks
Pork / Pork Derivatives	☐ Yes ☐ No	_____
Alcohol (including cooking wine, extracts)	☐ Yes ☐ No	_____
Gelatin	☐ Yes ☐ No	Source known? ☐ Yes ☐ No

Enzymes / Rennet	☐ Yes ☐ No	Source? _____
Lard / Animal Fat	☐ Yes ☐ No	_____
Other Questionable Additives	☐ Yes ☐ No	_____

D. PROCESSING & HANDLING (If Known or Provided)

✓ Step 3: Check Processing Information

Requirement	Yes	No	Not Sure
Product processed in a Halal-certified facility	☐	☐	☐
Separate equipment used from non-Halal foods	☐	☐	☐
Proper hygiene and sanitation documented	☐	☐	☐
No cross-contamination risk	☐	☐	☐

Notes:

E. FOR MEAT PRODUCTS (Dhabiha Compliance)

✓ Step 4: Verify Slaughter Requirements

Dhabiha Requirement	Met	Not Met	Unknown
Animal is Halal species (cow, chicken, lamb)	☐	☐	☐
Slaughter performed by a Muslim	☐	☐	☐
Name of Allah invoked ("Bismillah Allahu Akbar")	☐	☐	☐
Major vessels cut with sharp knife	☐	☐	☐
Blood drained completely	☐	☐	☐

Product labeled as "Halal-slaughtered"	☐	☐	☐	

Notes:

F. FINAL PRODUCT CLASSIFICATION

✓ Step 5: Decide the Correct Category

After checking all the details, this product is:

☐ HALAL

- Contains no Haram ingredients
- Has valid Halal certification
- Meets all requirements

☐ MASHBOOH (Doubtful)

- Ingredients unclear
- No Halal logo
- Gelatin/enzymes/additives not verified
- Certification missing or questionable

☐ HARAM

- Contains pork, alcohol, or forbidden substances
- Fails Dhabiha requirements

	• Cross-contaminated or uncertified **G. INSPECTOR NOTES** **Summary of Findings:**	
	Inspector Name: _____ **Date:** _____	
	3. Guide them through the process: Teacher says: "Inspect these items as if you are Halal inspectors. Check for: ✓ Halal logo ✓ Haram ingredients ✓ Doubtful additives ✓ Certification details ✓ Missing information" **Learners complete:** • Classification: Halal, Haram, Mashbooh • Written justification	

	Activity B: Scenario-Based Decision Making Teacher reads a scenario: "A restaurant wants to add chicken sausages to their menu. However, the supplier cannot confirm the slaughter method. As a Halal consultant, what is your decision? Explain why." Learners: • Identify the issue • Apply Halal slaughter rules • Suggest solution (e.g., find certified supplier) Teacher circulates, guiding struggling groups with questions: • "Is the source confirmed?" • "Does the scenario meet Dhabiha requirements?"	
	Activity C: Halal Certification Mini-Audit Teacher provides a simplified certification requirement sheet.	
	SIMPLIFIED HALAL CERTIFICATION REQUIREMENT SHEET	

	This simplified sheet outlines the **basic requirements** a food manufacturer must meet in order to receive **Halal Certification** from an accredited Halal certifying body. **A. COMPANY & PRODUCT INFORMATION** The company must provide: 1. **Company Name** 2. **Product Name(s)** 3. **List of Ingredients Used** 4. **Flowchart of Manufacturing Process** 5. **Packaging and Labeling Sample** Learners check: ☐ Complete ☐ Incomplete	
	B. INGREDIENT COMPLIANCE All ingredients must be: ✓ Halal-certified OR ✓ Plant-based OR ✓ Free from Haram sources Check for: • ☐ No pork or pork derivatives • ☐ No alcohol or alcohol-based flavorings • ☐ No gelatin from non-Halal sources • ☐ Enzymes/rennet are from Halal or microbial sources	

	• ☐ Additives (E-numbers) must be Halal-approved Learners check: ☐ Ingredients comply ☐ Some ingredients doubtful ☐ Not compliant **C. FACILITY & EQUIPMENT REQUIREMENTS** The production area must ensure: • ☐ Clean and hygienic environment • ☐ No cross-contamination with non-Halal products • ☐ Equipment exclusively used for Halal items (or fully cleaned according to Halal standards) • ☐ Proper storage separating Halal and non-Halal items Learners check: ☐ Fully compliant ☐ Partially compliant ☐ Not compliant	
	D. PROCESSING REQUIREMENTS The company must demonstrate: • ☐ Halal handling practices • ☐ Proper cleaning procedures (Taharah) • ☐ Traceability from raw materials to final product • ☐ Documentation for all ingredients and suppliers	

	Learners check: ☐ Meets standards ☐ Needs verification **E. HALAL SLAUGHTER REQUIREMENTS (For Meat & Poultry)** If the product involves meat, the slaughter process must follow **Dhabiha**: • ☐ Animal is Halal species • ☐ Slaughterer is Muslim • ☐ "Bismillah, Allahu Akbar" is recited • ☐ Major vessels are cut swiftly with a sharp knife • ☐ Blood is completely drained • ☐ No stunning (or only approved reversible stunning methods) Learners check: ☐ Meets Dhabiha standards ☐ Incomplete information	
	F. LABELING REQUIREMENTS The product label must show: • ☐ Valid Halal certification logo • ☐ Name of certifying body • ☐ No misleading or fake symbols • ☐ Ingredient list visible and accurate	

	Learners check: ☐ Acceptable ☐ Needs revision **G. FINAL VERDICT (Learner Judgment)** After checking all requirements, classifies the product: ☐ **HALAL CERTIFICATION APPROVED** (Meets all basic Halal requirements) ☐ **HALAL CERTIFICATION PENDING** (Some documents or ingredients need verification) ☐ **HALAL CERTIFICATION DENIED** (Contains Haram ingredients or failed major compliance points) Learners write a brief justification:	
	Learners act as auditors and answer: • Are documents complete? • Does the facility follow Halal guidelines?	

	• Would you approve certification? Why or why not? **2. Making Generalization** "Let's reflect on what we learned today. Based on everything we explored, what conclusions can you make about Halal principles and their importance?"	
	Activity A: Reflection Discussion Teacher asks: • "What is the most important thing you learned about Halal principles?" • "Why do Halal rules emphasize ethical treatment and cleanliness?" • "How does Halal certification protect consumers?" Students share in pairs or groups.	
	Activity B: Concept Mapping Students create a concept map linking: **Halal Concept → Halal vs Haram Foods → Certification → Dhabiha → Real-life Application**	

	Teacher circulates, looking for accurate connections such as: • Cleanliness → Certification requirements • Slaughter rules → Humane treatment • Ingredient checking → Avoiding Mashbooh items **3. Evaluating Learning** To check your understanding, we will have a short assessment. This will help us see how well you grasped Halal concepts, food rules, certification, and slaughter procedures."	
	Activity A: Written Check-in Short quiz or reflection questions: 1. Define Halal and Haram. 2. List two Halal foods and two Haram foods. 3. Why is Halal certification important? 4. What are the steps of proper Dhabiha?	
	Activity B: Performance Task (Mini-Demonstration) Learners: • Inspect one real product • Identify category (Halal/Haram/Mashbooh) • Write a short explanation referencing correct rules	

	Teacher assesses using: ✓ Accuracy of classification ✓ Correct use of terminology ✓ Ability to apply guidelines ✓ Clarity of explanation This activity directly supports the summative assessment. **4. Additional Activities** **A. Enrichment Activities (For Advanced Learners)** • Research a Halal certification body in the Philippines (e.g., IDCP, HICCIP). • Create a poster explaining Halal certification steps. • Investigate global Halal markets and consumer trends.	
	B. Reinforcement Activities (For Struggling Learners) • Simplified sorting cards: Halal vs Haram • Picture-based matching activity (food to category) • Guided reading on Halal definitions with teacher support	
	C. Remediation Activities • One-on-one review using sample food labels • Watch short explainer videos again with guided questions	

	• Step-by-step worksheet on Dhabiha process	
	D. Extension Activities (For Fast Learners) • Create a mock Halal seal/logo with explanation • Write a short reflection: "Why is Halal important in global food industries?" • Interview a local store (real or simulated) about their Halal products	
VI. ASSESSMENT	📘 **ASSESSMENT: Halal Principles and Practices** **A. WRITTEN ASSESSMENT (10–15 points)** Measures understanding of Halal concepts, food classifications, certification, and Dhabiha. **Part I — Identification (5 points)** Write **Halal**, **Haram**, or **Mashbooh** for each item: 1. Beef from a certified slaughterhouse: _____ 2. Gummies with unknown gelatin source: _____ 3. Vanilla extract containing alcohol: _____ 4. Fresh fish: _____ 5. Pork sausage: _____	
	Part II — Short Answer (5 points) Answer in 1–2 sentences.	

1. Why is Halal important to Muslim consumers?
2. What is the purpose of Halal certification?
3. Give two examples of Haram foods and explain why they are prohibited.
4. What is cross-contamination and why must it be avoided in Halal food preparation?
5. What phrase must the slaughterer recite during Dhabiha?

Part III — Concept Application (5 points)

Study the scenario and answer the question.

1. A snack package has **no Halal logo**, contains **cheese powder**, and lists "**enzymes**" without a source.

- How will you classify this product?
- What should a consumer do next before eating it?

B. PERFORMANCE TASK (20 points)

Learners use the Halal Inspection Checklist you provided.

Task: "Inspect a Food Product for Halal Compliance"

Teacher instructions:

- Provide each group with **one real food package** or a printed ingredient label.
- Give them the **Halal Inspection Checklist**.
- Ask them to inspect the product and classify it.

Student Output Must Include:

1. Completed **Halal Inspection Checklist**

2. Final classification (Halal / Haram / Mashbooh)
3. A **5-sentence justification** explaining:

    - Presence/absence of Halal logo
    - Ingredient concerns
    - Possible Haram components
    - Certification status
    - Final conclusion and recommendation

Rubric (20 points)

Criteria	Points
Accuracy of classification	
Correct use of checklist	
Clear explanation of ingredients	
Logical justification	
Neatness and completeness	

C. CHECKLIST-BASED ASSESSMENT (10 points)

Teacher evaluates learners during simulation/performance.

Observation Checklist

Skill / Behavior	Yes	No
Identifies Halal logo correctly	☐	☐
Reads and interprets ingredient list	☐	☐

Recognizes Haram ingredients	☐	☐
Recognizes doubtful ingredients	☐	☐
Applies Dhabiha rules correctly	☐	☐
Makes evidence-based decisions	☐	☐
Works well with group members	☐	☐

D. ADDITIONAL ASSESSMENT OPTIONS

Choose any depending on learner needs.

1. Oral Quiz (Quick Assessment)

- "What is Halal?"
- "Give one Haram ingredient."
- "Why must blood be drained in Dhabiha?"
- "What do you look for on a Halal-certified product?"

2. Concept Map Assessment

Learners create a concept map connecting:
Halal → Foods → Certification → Slaughter → Real-life application

3. Reflection (2–3 sentences)

"What new understanding about Halal practices will help you in real life? Give one example."

	ANSWER KEY (Sample) 1. Halal 2. Mashbooh 3. Haram 4. Halal 5. Haram 6. Halal ensures food is safe, clean, and permitted in Islam. 7. To verify that food meets Halal standards and contains no Haram ingredients. 8. Examples: pork (prohibited), alcohol (intoxicant). 9. Mixing Halal and Haram materials makes the food unacceptable. 10. "Bismillah, Allahu Akbar" 11. Classification: Mashbooh. Action: verify certification or ingredient source.
VII. REFLECTION	This learning exemplar will help learners and teachers understand the importance of Halal principles and practices in food processing. It will will them learn how to distinguish between Halal, Haram, and Mashboosh foods and understand the importance or proper food preparation and certification.
VIII. USE OF GENERATIVE AI	













To properly use these AI-generated images, first organize them based on their categories, such as fresh/raw foods (meat, vegetables, seafood), processed foods (sausages, canned goods, snacks), and food ingredients or additives (cheese, enzymes, beverages). Insert each image in the appropriate section of your work where it best supports your explanation, ensuring that it directly relates to the topic being discussed. Add clear and concise captions describing what each image represents, and use them as visual aids to enhance understanding rather than replace written analysis. Always acknowledge that the images are AI-generated or sourced from AI tools, and include proper APA 7th edition citations. Lastly, ensure the images are used ethically, accurately interpreted, and relevant to your discussion to maintain academic integrity.

LESSON EXEMPLAR			
Learning Area	**FOOD PROCESSING**	**Grade Level**	**11/12**
Term	**1**	**Lesson Exemplar**	**5**

I. OBJECTIVES	
A. Content Standard	The learners demonstrate an understanding of the concepts, principles, and procedures in maintaining food processing and fish product packaging tools, materials, and equipment in accordance with industry and safety standards.
B. Performance Standard	The learners perform maintenance of food processing and fish product packaging tools, materials, and equipment in accordance with industry standards.
C. Learning Competencies	Determine the different tools, materials, and equipment in food processing, packaging, and labeling.
II. REFERENCES and MATERIALS	**Learner's Materials / Textbooks** 1. **K to 12 Technology and Livelihood Education (TLE) – Exploratory Course: Fish Processing** Department of Education (DepEd) Learner's Material Module 1: Tools, Equipment, and Utensils in Fish Processing 2. **K to 12 TLE: Food Processing NC II** DepEd Learning Module Module 2: Tools, Equipment, and Facilities 3. **Technology and Livelihood Education – Home Economics: Food Preservation and Processing** DepEd TV / MELCs Aligned Content 4. **Fish Processing Manual** – Bureau of Fisheries and Aquatic Resources (BFAR) Sections on tools, equipment, safety, and sanitation

Teacher's References

1. DepEd Curriculum Guide: **TLE – Fish Processing (Grades 7–10)**
2. TESDA Trainer's Methodology (TM I) reference material on Food Processing NC II
3. TESDA Training Regulations: **Fish Processing NC II & Food Processing NC II**
4. BFAR: Good Manufacturing Practices (GMP) Manual
5. Department of Health (DOH): Food Safety Guidelines

Online Resources (Supplementary)

For visuals, videos, and demonstrations.

1. DOST – Philippine Council for Agriculture and Aquatic Resources Research and Development (PCAARRD)
   – Videos on fish processing machinery and practices
2. BFAR YouTube Channel – Step-by-step fish processing demonstrations
3. TESDA Online Program (TOP) – Food Processing Courses
4. YouTube EDU – Demonstrations of sealing, weighing, deboning, and handling tools

B. MATERIALS, TOOLS, AND EQUIPMENT FOR THE LESSON

Visual and Teaching Aids

- Pictures or flashcards of various fish processing tools and equipment
- PowerPoint or printed charts showing classification of tools
- Videos demonstrating proper handling of tools
- Concept map templates (for group activity)
- Activity sheets and assessment sheets

	Tools, Materials, and Equipment for Demonstration (Depending on availability) **Cutting Tools:** • Fillet knife • Boning knife • Cutting board • Fish scaler • Kitchen scissors **Measuring Tools:** • Measuring cups • Measuring spoons • Weighing scale **Heating Equipment:** • Steamer • Boiler or cooking pot **Packaging Tools:** • Heat sealer • Vacuum sealer **Packaging Materials:** • Plastic pouches • Vacuum bags • Plastic containers and jars • Trays

	Sanitation Materials: • Dishwashing soap • Sanitizing solution • Clean towels • Aprons and gloves
	C. DIGITAL/TECHNOLOGY REQUIREMENTS • Laptop or projector for lesson presentation • Speakers for video demonstrations • Internet connection (optional for supplementary viewing)
	D. LEARNING ENVIRONMENT SETUP • Clean demonstration table • Organized tool display area • Group stations for simulated processing tasks • Waste segregation bins for proper disposal

III. CONTENT	**Tools, Materials, and Equipment in Food Processing and Fish Product Packaging** • Food processing and fish product packaging tools and equipment	
IV. OBJECTIVES	By the end of the lesson, the learners should be able to: 1. Identify the different tools, materials, and equipment used in food processing and fish product packaging through visual inspection and discussion; 2. Describe the functions and uses of each tool, material, and equipment in ensuring safe, efficient, and hygienic food processing and packaging operations; 3. Classify the tools and equipment according to their purpose (e.g., cutting, measuring, heating, sealing, storing, packaging); and 4. Demonstrate proper handling, cleaning, and maintenance procedures for basic food processing and packaging tools in accordance with industry safety standards.	
IV. PROCEDURES		**ANNOTATION**
A. Activating Prior Knowledge	**1. Activating Prior Knowledge** **Activity: "Tool Guessing Game" (Picture Reveal)** The teacher shows blurred or partial images of food processing tools (e.g., knife, weighing scale, fish scaler, sealer). Students guess what they are.	This warm-up activity activates prior knowledge and helps the teacher assess baseline familiarity with common tools. It builds curiosity and sets the tone for the lesson. This activity helps students recall what they already know about kitchen or fish processing tools and prepares them to connect new information with familiar objects.

	2. Establishing the Purpose of the Lesson Today, we will learn about the tools, materials, and equipment used in food processing and fish product packaging. By understanding their uses and how to handle them properly, you will become more confident, safe, and efficient in practicum activities.	This clarifies the learning direction, builds relevance, and motivates learners by connecting the lesson to real skills in food processing. Knowing the goals helps learners focus on what to learn and why it matters, especially for real-life food handling tasks.
B. Instituting New Knowledge	**1. Presenting Examples** **Activity: "Show and Tell: Tools and Equipment"** Teacher presents real items, pictures, or videos of tools such as: • Cutting tools (knife, scissors, fish scaler) • Measuring tools (cups, spoons, weighing scale) • Heating equipment (steamer, boiler) • Packaging tools (heat sealer, vacuum packer) • Packaging materials (plastic pouches, jars, trays) **2. Discussing New Concept** **Key Points Explained by the Teacher:** • Definitions of tools, materials, equipment • Proper functions and uses of each item • Why choosing the right tool matters (safety, efficiency, hygiene) • Standards in industry settings • Examples comparing improper vs. correct use	In this activity teachers provide concrete examples help students visualize the tools, understand their form, and connect them to practical usage. Using real objects enhances engagement. Seeing real tools helps students remember them better and understand how they look and what they are used for. This is the explicit teaching phase. The teacher provide clear explanations, use simple language, and cross-check understanding through questioning.

	3. Developing Mastery **Activity 1: Sorting Task** Students receive printed cards/pictures of tools and classify them into categories: • Cutting • Measuring • Heating • Sealing • Packaging • Storing **Activity 2: Function Matching** Match each item to its correct function. **Activity 3: Guided Practice – Proper Handling & Cleaning** In groups, students demonstrate how to properly handle and clean selected tools (knife, cutting board, sealer).	These mastery activities reinforce learning through active participation. Sorting and matching develop cognitive understanding; guided practice builds psychomotor skills.

C. Demonstrating Knowledge and Skills	**1. Finding Practical Application** **Activity: Simulated Food Processing Task** **Mini-scenarios:** • Measuring ingredients for fish pickling • Deboning using proper tools • Sealing plastic packaging • Setting up a clean workstation	In this activity, the teacher prepares all workstations in advance, ensuring that each group has complete tools and materials. The teacher begins by demonstrating each task step-by-step while students observe closely, emphasizing correct tool handling and safety procedures. After the demonstration, the teacher assigns students to small groups and gives each group a specific mini-scenario to perform. While students carry out the tasks, the teacher circulates around the room to provide supervision, point out incorrect techniques, reinforce hygiene practices, and ask guiding questions such as, "Why did you choose this tool?" or "How does this step ensure food safety?" The teacher gives timely feedback and models proper technique whenever necessary to support students' learning.
	2. Making Generalization **Activity: Concept Mapping** Students create a concept map that includes: • Types of tools • Their functions • Safety practices • Importance to food safety	In this activity, the teacher provides students with blank paper or pre-designed concept map templates to support their organization of ideas. Before students begin, the teacher briefly reviews key points from the lesson and presents an example structure on the board to guide them. Throughout the activity, the teacher encourages students to use clear labels, keywords, and arrows to show relationships among concepts. The teacher moves around the room to ask probing questions like, "Which tools are used for measuring?" or "How does this tool

	3. Evaluating Learning **Written & Practical Components** • **Part 1:** Identification of tools • **Part 2:** Functions of selected tools • **Part 3:** Classification by purpose • **Part 4:** Performance Task (Handling and Cleaning Tools) **4. Additional Activities** **Enrichment (for Fast Learners):** • Research on modern industrial packaging machines • Create a video demonstrating tool cleaning **Remediation (for Students Needing Support):** • Extra worksheets • Peer mentoring • Watching instructional videos	help maintain hygiene?" and offers clarifications when needed. After students finish, the teacher facilitates short presentations so learners can share and reinforce their understanding. In this assessment, the teacher prepares clear images or actual tools for the identification, function description, and classification tasks. The teacher explains the instructions slowly and checks for understanding before the exam begins. For the performance task, the teacher sets up stations and uses a prepared rubric to evaluate each student's technique, safety practices, and accuracy. During the demonstration phase, the teacher observes each learner carefully, taking notes on their performance, and provides fair and constructive feedback once the activity is completed. In this set of activities, the teacher assigns enrichment tasks to students who have demonstrated advanced understanding, allowing them to explore the topic more deeply or work on creative outputs. For learners who need additional support, the teacher provides simplified tasks, additional worksheets, and instructional videos to reinforce foundational skills. The teacher pairs students strategically for peer mentoring and monitors progress closely, offering follow-up guidance and reteaching when necessary.

V. ASSESSMENT	**I. WRITTEN ASSESSMENT** **A. Identification** Identify the following tools/equipment shown in images or described below. 1. A tool used for removing fish scales. 2. A device used to measure ingredients accurately (solid or liquid). 3. A machine used to remove air from packaging before sealing. 4. A tool used to cut or slice fish. 5. A container used to store processed fish products. 6. Equipment used for heating and cooking fish products through steam. 7. A tool used to remove fish intestines. 8. A machine used to seal plastic packaging. 9. A material commonly used to pack dried fish. 10. A board used as a safe surface for cutting fish. **B. Multiple Choice** Choose the letter of the correct answer. 1. Which tool is used for measuring small amounts of spices or curing ingredients? A. Weighing scale B. Measuring spoons C. Thermometer D. Knife 2. Which equipment ensures longer shelf life by removing air from packs? A. Steamer B. Vacuum sealer C. Boiler D. Fish scaler

	3. Which material is best for packaging smoked fish? A. Paper bag B. Plastic jar C. Vacuum pouch D. Foil wrapper 4. Which equipment is used in heating fish for canning or pasteurization? A. Knife B. Cutting board C. Steamer D. Vacuum packer 5. Which statement is **TRUE** about proper tool handling? A. Tools may be used for multiple purposes even if not intended for such. B. Tools do not need regular cleaning if used for the same product. C. Tools must be cleaned and dried after use to prevent contamination. D. Damaged tools can still be used if handled carefully. **C. Classification** Classify the following items according to their purpose. Write: **Cutting / Measuring / Heating / Sealing / Packaging / Storing** 1. Fillet knife → _____ 2. Heat sealer → _____ 3. Plastic tray → _____ 4. Steamer → _____ 5. Measuring cup → _____

II. PRACTICAL / PERFORMANCE TASK

Task: Proper Handling, Cleaning, and Use of Food Processing Tools

Instructions for Students:

Perform the following tasks in front of the teacher:

Select three tools from the following:

1. Fillet knife
2. Cutting board
3. Fish scaler
4. Measuring cup
5. Sealer

Demonstrate the correct way to use each tool.

Show the proper cleaning and maintenance procedure for the tools you used.

Observe safety and hygiene practices throughout the activity.

Organize your workstation before and after the demonstration.

III. PERFORMANCE TASK RUBRIC (100 points)

Criteria	Excellent (25)	Very Good (20)	Good (15)	Needs Improvement (10)
Proper Tool Use	Demonstrates correct and precise use of each tool with confidence	Uses tools correctly with minor errors	Shows partial understanding of tool use	Incorrect or unsafe tool use
Safety & Hygiene	Follows all safety and hygiene rules consistently	Follows most rules with minor lapses	Shows inconsistent application	Rarely follows safety/hygiene rules
Cleaning & Maintenance	Cleans and maintains tools properly and thoroughly	Cleans tools correctly but lacks detail	Attempts cleaning; some steps missing	Tools not cleaned or improperly handled
Workstation Organization	Very organized before, during, and after task	Mostly organized with minor issues	Some disorganization observed	Poorly organized workstation

Score Interpretation:

- 90–100 = Outstanding
- 80–89 = Very Satisfactory
- 75–79 = Satisfactory
- 74 ↓ = Needs Improvement

IV. ANSWER KEY

A. Identification

1. Fish scaler
2. Measuring tools (measuring cup/spoons/weighing scale)
3. Vacuum sealer
4. Knife
5. Jar/container
6. Steamer
7. Gutting tool
8. Heat sealer
9. Plastic pouch
10. Cutting board

B. Multiple Choice

1. B
2. B
3. C
4. C
5. C

C. Classification

1. Cutting
2. Sealing
3. Packaging / Storing
4. Heating
5. Measuring

VI. REFLECTION	This lesson exemplar provides a practical, industry-aligned framework for teaching tools, materials, and equipment in food processing and fish product packaging. It effectively bridges foundational identification skills with hands-on applications, ensuring learners understand the specific functions, safety standards, and proper hygienic maintenance of each tool.
VIII. USE OF GENERATIVE AI	The teacher may use different images from various sources, including AI; moreover, proper citation should be applied to avoid plagiarism.