LESSON PLAN TEMPLATE

Lesson Title	Innovations in Sound and Light: Enhancing Daily Filipino Life
Learning Area/s	General Science
Name of Teacher/s	DEPED TAMBAYAN PH
Grade Level and Section	Grade 11
No. of Sessions	4 Sessions
References	Lesson Exemplar (LE) | Uploaded Files: SHS_GS_Q1_LE1.pdf, SHS_GS_Q1_LE2.pdf, SHS_GS_Q1_LE3.pdf, SHS_GS_Q1_LE4.pdf, SHS_GS_Q1_LE5.pdf, SHS_GS_Q1_LE6.pdf, SHS_GS_Q1_LE7.pdf, SHS_GS_Q1_LE8.pdf, SHS_GS_Q1_LE9.pdf, SHS_GS_Q1_LE10.pdf
Declaration of AI use	This lesson plan was co-created using Gemini AI to assist with unpacking competencies into a 4-session learning design, structuring activities, and assessment formulation.

Intentions.

Meaningful learning experiences are anchored in how we frame them. Start by deciding what you want learners to master by the end of the lesson – keep it clear and simple.

Learning Competency and Curriculum Standards:	**Learning Competency:** • Identify innovations related to sound and light, such as soundproofing, sound amplifiers, LEDs, holograms, and lasers. **Content Standards:** Physics principles apply to numerous aspects of everyday living. Understanding linear and angular quantities to describe motion helps in the design of efficient machines. The efficiency of simple and compound machines can be improved by applying basic physics principles. Hydraulic systems exploit the relationship between pressure, force, and area to multiply forces and perform tasks. Analysis of electricity generation, consumption patterns, and energy-efficiency practices can lead to better energy supply and management. An understanding of the properties of light and sound leads to their safe and productive application. Past research in the field of chemistry provides the foundations for the development of helpful products and processes. Household and personal care products contain chemical substances that determine their properties and guide their proper use and disposal. **Performance Standards:**

	By the end of the term, learners identify general physics principles and their applications in daily life. They use scientific principles to solve problems, make informed decisions, and illustrate the applications of physics for self, society, and the environment. They design simple and compound machines and hydraulic systems to demonstrate applications of force, torque, center of mass, and hydraulic-related principles. They evaluate energy-efficient practices in electricity supply and consumption at home and local businesses and explore the advantages and drawbacks of light and sound in medical imaging, security, communication, and entertainment.			
	Session 1	**Session 2**	**Session 3**	**Session 4**
Learning Objectives:	● Describe the physics principles behind soundproofing and sound amplification. ● Identify common sound innovations used in Filipino households and public spaces. ● Analyze how soundproofing addresses noise pollution in high-density local communities.	● Explain the functionality and energy efficiency of Light Emitting Diodes (LEDs). ● Compare LEDs with traditional lighting in terms of cost and environmental impact. ● Discuss the significance of LED technology in local festivals and household energy conservation.	● Define lasers and holograms based on properties of light (reflection and refraction). ● Identify the diverse applications of lasers in Philippine industries such as retail and medicine. ● Evaluate the safety precautions necessary when interacting with laser technology.	● Synthesize knowledge of sound and light innovations to propose a solution for a community problem. ● Demonstrate understanding of the relationship between physics principles and technological design. ● Critique peer innovations based on feasibility and social impact.
Learner Context:	Learners demonstrate a high interest in mobile technology and local music but often struggle with the abstract nature of wave behavior.	Learners are visually oriented and show a strong connection to local cultural symbols like the 'Parol'. They have recently performed well in	Learners are highly motivated by 'futuristic' technology and gaming. They possess a strength in identifying patterns. A barrier	Learners thrive in creative, project-based environments but require clear rubrics to stay focused. A potential barrier is

	Recent assessments show they are highly responsive to hands-on demonstrations. A few learners have auditory processing sensitivities, making high-decibel activities a potential barrier. Most exhibit strong collaborative skills during group tasks.	lessons involving logical comparisons. Some learners require large-print text and high-contrast visuals due to visual impairments. Many come from households where energy costs are a significant concern.	for some is the lack of prior exposure to advanced medical or industrial tools, making these concepts feel 'distant' from their daily lives. Collaborative skills are strong, though some tend to dominate discussions.	'perfectionism' or fear of making mistakes in design. They are proud of their local identity and enjoy tasks that allow them to give back to their community. Peer feedback is generally well-received when structured.
Learning Experience. **A learning experience is like a thoughtfully designed journey. Each activity and interaction builds towards meaningful understanding and growth. Identify activities and interactions to help learners gain knowledge, skills, or understanding in a purposeful way.**				
Pre-Lesson:	• Quick Recall: Students use a 'Sound Scavenger Hunt' to list 3 objects in the room that produce or change sound. • Social Learning: Pair-share on why a crowded 'palengke' (market) is louder than a library.	• Visual Prompt: Show a picture of a traditional Christmas Parol lit by incandescent bulbs versus one lit by LEDs. • Think-Pair-Share: Why are we encouraged to switch to LED bulbs at home?	• **Retrieval:** A 2-minute 'Brain Dump' of everything they know about lasers from movies versus real life. • Flashcard drill: Definitions of reflection and refraction.	• **Active Retrieval:** 'Innovation Speed Dating'—students have 30 seconds to explain one innovation from the previous three days to a partner.
Flow:	• **Active Retrieval:** Review of	• **Active Retrieval:** Recall of	• **Scaffolding:** Using a laser pointer	• **Active Learning (InnoVentor**

	wave properties (amplitude and frequency) using a chalkboard diagram. ● **Scaffolding:** Introduction to soundproofing through a 'Mystery Box' experiment where students compare sound levels of a phone inside a plain box vs. an egg-carton-lined box. ● **Check for Understanding:** 'Stop-and-Process' questions about why soft materials absorb sound better than hard surfaces. ● **Social Learning:** Group discussion on the use of sound amplifiers in Jeepneys and stethoscopes in local clinics.	basic electrical circuits. ● **Scaffolding:** Step-by-step breakdown of how a diode differs from a filament using a digital simulation. ● **Check for Understanding:** A quick 'Thumbs Up/Down' quiz on LED facts (e.g., 'Do LEDs produce more heat than incandescent bulbs?'). ● **Social Learning:** Small groups calculate potential savings for a local family switching 5 bulbs to LED using a provided worksheet.	and a glass of water to demonstrate refraction and 'Total Internal Reflection' (TIR) as the basis for high-tech light transmission. ● **Check for Understanding:** Students use mini-whiteboards to draw the path of a laser light through a prism. ● **Social Learning:** Group 'Jigsaw' activity where different teams research different applications: Barcode scanners in supermarkets, Laser surgery in hospitals, and Holographic security on ID cards. ● **Safety Segment:** Explicit instruction on the dangers of direct eye	**Challenge):** Groups are tasked to 'invent' or 'improve' a device for their school or barangay using sound/light innovations (e.g., a sound-amplified school bell for noisy areas or an LED-based safety path for dark alleys). ● **Scaffolding:** The teacher provides a 'Design Blueprint' template to guide their thinking process (Problem -> Principle -> Innovation -> Impact). ● **Checks for Understanding:** Teacher circulates during the 'Gallery Walk' where groups present their blueprints, asking 'How does the physics of light/sound apply here?'. ● **Social**

			exposure to lasers.	**Learning:** Peer critique using 'Two Stars and a Wish' (two things done well, one area to improve).
Learning Resources:	• Laptop and Projector • Mobile phone with Decibel Meter App • Egg cartons, foam, and cardboard boxes • Worksheets for data recording	• Smart TV/Projector • Sample LED and Incandescent bulbs • Meralco sample bill (anonymized) • Infographic on LED efficiency	• Laser pointer (low power) • Clear container with water and a drop of milk • Prism or glass block • Printed case studies on local laser applications	• Art supplies (Manila paper, markers) • 'InnoVentor' Blueprint Templates • Peer Feedback Rubric
Opportunities for integration:	**Health Integration:** Discussing the role of stethoscopes in medical diagnostics and the impact of noise pollution on mental health in urban Philippine settings.	**Mathematics and Economics:** Integration of percentage savings and basic cost-benefit analysis related to the Meralco electricity rates.	**ICT Integration:** Discussing how fiber optics (using light pulses) provide the high-speed internet used for social media in the Philippines.	**Social Studies Integration:** Discussing how community-based innovations align with local government initiatives for safety and accessibility.
Assessment. **Assessments reveal what learners have gained and what they still need help with. These are helpful in providing you with information to guide your future instruction throughout the entire session.**				
Formative Assessment:	• **Exit Ticket:** Students must write one specific way soundproofing could be applied to a	• **Tangible Evidence:** Completion of the 'Energy Savings Table' where students	• **Tangible Evidence:** A labeled diagram showing how a laser is used in a specific	• **Tangible Evidence:** The completed 'InnoVentor Blueprint' which must explicitly link

	typical Filipino 'sari-sari' store located near a busy road. ● Observation of group participation during the 'Mystery Box' data collection.	correctly identify the energy reduction percentage of LEDs. ● Peer review of group calculations.	local context (e.g., scanning a QR code at a local store). ● Correct identification of TIR in the water-laser demonstration.	a physics principle (e.g., refraction) to a functional innovation (e.g., a simple hologram for a museum). ● Peer-evaluation scores.
Ways Forward. **Meaningful learning can also happen beyond the classroom – for both the learners and the teacher. Pause and reflect on what happened today.**				
Extended learning opportunities:	● Home Activity: Identify materials in their own homes that act as natural sound insulators (e.g., thick curtains, pillows).	● Community Task: Create a simple 'LED Awareness' poster for their barangay hall highlighting energy efficiency.	● Safety Checklist: Students write a 5-point safety guide for using laser pointers at home or school.	● Reflection Paper: Write a short paragraph on which innovation discussed this week has the most potential to improve the lives of the Filipino 'masa' (masses).
Reflections:	Reflect on whether the tactile nature of the soundproofing experiment helped the learners with auditory sensitivities engage more comfortably with the concept of sound intensity.	Consider if the use of a real electricity bill increased the perceived relevance of the physics principles for the learners.	Evaluate if the 'Jigsaw' method successfully balanced the participation of dominant and quiet learners during the research phase.	Reflect on how the 'InnoVentor' challenge empowered learners to see themselves as problem-solvers rather than just consumers of technology.