LESSON PLAN TEMPLATE

Lesson Title	Mastering the Tools of Inquiry: Science Equipment and the Compound Microscope
Learning Area/s	Science
Name of Teacher/s	DEPED TAMBAYAN PH (Visit www.depedtambayanph.net for more downloads.)
Grade Level and Section	Grade 7
No. of Sessions	4 Sessions
References	None specified
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:** • Demonstrate proper use and handling of science equipment. • Identify the parts and functions, and demonstrate proper handling and storing of a compound microscope. **Content Standards:** • Scientists use models to explain phenomena. • The particle model explains the properties of solids, liquids, and gases and the processes involved in changes of state. • Diagrams and flowcharts are very useful in demonstrating and explaining the motion and arrangement of particles during changes of state. • There are specific processes for planning, conducting, and recording scientific investigations. • The properties of solutions such as solubility and reaction to litmus determine their use. • Familiarity and proper use of a compound microscope are essential to observe cells. • The organelles of plant and animal cells can be identified using a compound microscope. **Performance Standards:** By the end of the Term, learners recognize that scientists use models to describe the particle model of matter. They use diagrams and illustrations to explain the motion and arrangement of particles during changes of state. They demonstrate an

	understandin g of the role of solute and solvent in solutions and the factors that affect solubility. They demonstrate skills to plan and conduct a scientific investigation making accurate measurements and using standard units. They demonstrate understanding of the par ts and function of a compound microscope and use this to identify cell structure and recognize that the cell is the basic unit of life and that some organisms are unicellular and some are multicellular.			
	Session 1	**Session 2**	**Session 3**	**Session 4**
Learning Objectives:	● Identify common laboratory equipment used in scientific investigation s. ● Demonstrat e the proper handling and safety protocols for basic science tools found in the local laboratory.	● Identify the different parts of a compound microscope. ● Explain the specific function of each part of the microscope in magnifying and resolving images.	● Demonstrat e the proper way of carrying, placing, and focusing a compound microscope. ● Practice the 'low-power objective first' rule when viewing a specimen.	● Demonstrat e the correct procedure for cleaning and storing the microscope after use. ● Evaluate the importance of proper equipment maintenanc e in scientific research and community developmen t.
Learner Context:	Learners show a strong interest in hands-on activities but often exhibit excitement that may lead to the careless handling of materials. While many can identify tools visually, there is a recurring difficulty in using the correct technical terms for equipment. A few students have physical coordination barriers that require more deliberate pacing	Students are highly motivated by the novelty of using a microscope, as many have only seen it in textbooks. However, the technical vocabulary (e.g., 'diaphragm', 'revolving nosepiece') is a significant barrier for those with lower English proficiency. They perform better when these terms are compared to familiar objects like	Learners are anxious about the cost of the equipment, which sometimes leads to hesitation in touching the microscope. They require clear, step-by-step guidance and physical modeling. Those with visual impairments may need assistance in aligning their eye with the eyepiece correctly. Collaborative groupings allow more confident	Students are starting to show more confidence but may become complacent with cleaning routines as the period ends. They value equipment more when they realize it belongs to the school community and must last for future learners. Peer monitoring is very effective for this group to ensure nothing is left out.

	during demonstrations. Most students respond well to collaborative tasks where they can assist one another.	camera lenses or eyeglasses.	students to coach their peers.	
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:	● A 'Mystery Bag' activity where students feel hidden laboratory objects (e.g., beaker, test tube, thermometer) and describe their shapes to the class. ● Short review of 'Safety First' rules using a poster showing a local laboratory setting.	● Visual Puzzle: Groups assemble a cut-out image of a compound microscope and try to guess what the parts are for. ● Brief discussion on how the microscope changed how Filipinos understand diseases and biology.	● Demonstration of the 'Two-Hand Carry' (one on the arm, one on the base) by the teacher, followed by a 'Simon Says' game with carrying movements.	● Review of the 'Four Cs': Carry, Clean, Cover, and Coordinate (Storage). ● Short story about a scientist who couldn't finish a discovery because their microscope was broken due to poor care.
Flow:	● **Scaffolding :** The teacher models the 'Pick up, Hold, and Pass' technique for fragile glassware	● **Scaffolding :** Using a 'Giant Microscope Diagram', the teacher labels parts sequentially from top to bottom	● **Scaffolding :** 'Watch-One, Do-One' approach. The teacher demonstrates how to focus on a 'letter e'	● **Scaffolding :** Use of a 'Storage Checklist' that students must sign off on before leaving the lab.

	like beakers and test tubes. ● **Active Retrieval:** Students participate in a 'Tool Matching' game where they pair equipment names with their functions on the board. ● **Social Learning:** In small groups, students move through 'Equipment Stations' to practice holding tools correctly while peers provide feedback using a simplified rubric. ● **Checks for Understanding:** The teacher uses 'Stop-and-Think' questions throughout the station rotation to ask why specific tools must be held in certain ways.	(Eyepiece to Base). ● **Checks for Understanding:** Use of 'Red/Green' cards: The teacher points to a part, and students raise Green if they know the name/function or Red if they need a re-explanation. ● **Social Learning:** 'Think-Pair-Share' where students explain the function of the diaphragm and lenses to their seatmates using local analogies (e.g., the diaphragm is like a window curtain). ● **Active Retrieval:** A 'Fill-in-the-Blanks' worksheet completed without looking at the board.	slide, then students replicate the steps at their tables. ● **Checks for Understanding:** The teacher moves around the room checking if the stage is at the lowest point before students start focusing. ● **Social Learning:** Working in pairs, one student acts as the 'Technician' (operating the microscope) and the other as the 'Observer/Safety Officer' (checking the checklist), then they switch roles. ● **Active Retrieval:** Students must list the steps of focusing from memory before they are allowed to turn the adjustment knobs.	● **Social Learning:** Group 'Clean-Up' challenge where teams race to properly wrap cords and cover their microscopes following all safety rules. ● **Active Retrieval:** 'Exit Ticket' where students must write down the most critical step in microscope storage and why. ● **Checks for Understanding:** Teacher performs a 'Final Walkthrough', pointing out well-stored equipment as examples for the class.

Learning Resources:	• Real laboratory equipment (beaker, test tube, graduated cylinder, magnifying lens) • Printed Worksheets with equipment diagrams • Whiteboard and markers	• Compound Microscope (one for demonstration) • Projector and Slide Presentation showing magnified images of common Filipino items (e.g., rice grain, cloth fiber) • Labeled diagrams/posters	• Compound Microscopes • Prepared slides (letter 'e' or local plant fibers) • Instructional 'How-To' placards placed on each table	• Lens paper and cleaning solution • Microscope covers (or clean cloth) • Storage cabinets • Exit Ticket slips
Opportunities for integration:	• Health and Safety: Discussing workplace safety standards similar to those in local manufacturing or culinary industries in the Philippines.	• Language Arts: Building vocabulary through etymology (e.g., 'micro' meaning small and 'scope' meaning to look).	• Physical Education: Emphasizing posture and the importance of fine motor control during delicate tasks.	• Values Education: Discussion on 'Malasakit' (stewardship) of shared community and school resources.
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:	• Performance Checklist: A 'Safety License' check where students must demonstrate	• 'Point-and-Name' Quiz: The teacher points to a physical part of the microscope, and	• Focus Check: The teacher checks if the student can clearly bring the specimen	• Summative Weekly Rubric: A final check of the microscope stations. If the

	the correct way to hold three assigned tools to the teacher or a student leader.	students write the name and one function on a piece of paper.	into focus under the Low Power Objective within a set time frame.	microscope is correctly stored (stage down, LPO in place, cord wrapped, covered), the group receives full marks for the day's performance .
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:	● Ask students to interview a local health worker or high school science teacher about how they maintain their tools at work.	● Provide a take-home coloring sheet where different parts of the microscope are color-coded based on their category (Support, Magnifying, Illuminating) .	● Encourage students to draw what they saw through the eyepiece and describe how the image changed (e.g., inverted or magnified).	● Ask students to create a simple 'Care Guide' poster in English or the local dialect to be posted in the science laboratory.
Reflections:	● Which specific tools did the learners find most difficult to handle? ● How many learners were able to successfully pass the 'Safety	● Were the analogies used effective in helping students remember the functions? ● Which parts of the microscope	● How did the learners respond to the 'Technician/ Safety Officer' roles? ● Did the 'letter e' slide effectively	● Did the students show a sense of ownership/r esponsibility during the cleanup? ● Are there any logistical improvemen

	License' check on the first try?	were most frequently confused by the learners?	illustrate the concept of image inversion?	ts needed for the storage area to make it safer for the learners?