

LESSON PLAN TEMPLATE

Lesson Title	Exploring Life's Building Blocks: The World of Cells and Microscopes
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: • Use proper techniques in observing and identifying the parts of a cell with a microscope such as the cell membrane, nucleus, cytoplasm, mitochondria, and chloroplasts. • Recognize that some organisms consist of a single cell (unicellular) like in bacteria and some consist of many cells (multicellular) like in a human. 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
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	and arrangement of particles during changes of state. They demonstrate an understanding 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 parts 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:	By the end of the session, learners should be able to: - Identify the parts and functions of a compound microscope. - Demonstrate the proper techniques in handling and focusing a microscope to view a specimen. - Discuss the importance of the microscope in discovering the basic unit of life.	By the end of the session, learners should be able to: - Identify and describe the functions of the cell membrane, nucleus, cytoplasm, mitochondria, and chloroplasts. - Differentiate between plant and animal cells based on the presence of specific organelles. - Prepare a simple wet mount of a plant cell (e.g., onion skin) for observation.	By the end of the session, learners should be able to: - Define and distinguish between unicellular and multicellular organisms. - Classify examples such as bacteria (unicellular) and humans/plants (multicellular). - Explain the advantage of multicellularity in terms of specialized functions.	By the end of the session, learners should be able to: - Synthesize knowledge by identifying cell types and organelles in a performance task. - Communicate the relationship between cell structure and the type of organism (unicellular vs. multicellular). - Demonstrate mastery of microscope safety and technique.
Learner Context:	Learners in this Grade 7 section show high engagement during hands-on demonstrations but exhibit varying levels of fine motor skills when adjusting mechanical knobs.	Learners are generally visual and respond well to color-coded diagrams. A few learners struggle with abstract concepts like "organelles," so analogies relating to a Filipino	Learners are familiar with visible organisms (cats, dogs, trees) but find the concept of invisible, self-sustaining single cells (bacteria) counterintuitive. They perform well	The learners are now more confident with the equipment but require a structured environment to demonstrate their skills. They enjoy friendly competition and

	While many are familiar with basic magnifying glasses, the complexity of a compound microscope is a new challenge. Some learners may face barriers due to limited exposure to laboratory equipment, requiring step-by-step guidance and peer support.	"Barangay" or a household structure are effective. Their strength lies in collaborative work, though some may be hesitant to handle glass slides due to safety concerns.	when using sorting activities and real-life comparisons. Some learners may have misconceptions that all "germs" are bad and all unicellular organisms are harmful.	summative-style challenges that allow them to show off what they have learned over the week.
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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:	"Mystery View" Activity: Project highly magnified images of everyday Filipino items (e.g., a grain of rice, a piece of abaca fiber, or a salt crystal). Ask learners to guess what they are looking at and explain why they cannot see these details with the naked eye.	"The Barangay Cell": Present a diagram of a cell alongside a diagram of a local Barangay. Ask: "Who is the Kapitan (Nucleus)?" "What is the Fence (Cell Membrane)?" "Where is the Power Plant (Mitochondria)?"	"Solo vs. Team" Game: Ask learners to perform a task alone (e.g., lifting a heavy desk - impossible) vs. in a group. Discuss how some organisms work as a single cell while others need trillions of specialized cells.	"Quick-Fire Recap": 5-minute flashcard drill where images of organelles or organisms are flashed, and learners must shout "Unicellular," "Multicellular," or the name of the organelle.
Flow:	1. Introduction (Scaffolding): Briefly discuss the history of the microscope using a timeline on the board. Introduce	1. Modeling: Display high-resolution micrographs of plant and animal cells. Highlight the green chloroplasts	1. Direct Instruction: Define Unicellular (Uni = one) and Multicellular (Multi = many). Use bacteria and	1. The Micro-Quest (Performance Task): Set up 4 stations. Station 1: Focus a slide. Station 2: Identify

	the microscope as the "scientist's eye." 2. Direct Instruction: Using a physical microscope and a projector, demonstrate the "Carry, Clean, and Connect" protocol. Explicitly name parts: eyepieces, objectives, stage, and adjustment knobs. 3. Guided Practice (Social Learning): In small groups, learners practice moving the stage and switching objectives without a slide first to build muscle memory. Peer-check using a provided checklist. 4. Active Retrieval: Conduct a "Point and Name" drill where the teacher points to a part and the class responds in chorus with its function.	in plant cells as the "solar panels." 2. Laboratory Activity (Hands-on): Demonstrate how to peel a thin layer of onion skin (sibuyas) and prepare a wet mount with iodine. Learners follow in groups. 3. Observation & Identification (Checks for Understanding): Learners view their slides. They must locate the nucleus and cell wall. Teacher circulates to ask: "Is that the cytoplasm or a bubble?" 4. Social Learning: Groups compare their onion skin slides with a pre-prepared slide of animal cells (cheek cells) provided via projector.	humans as the primary anchors. 2. Scaffolding (Visual Aids): Show videos of Amoeba moving (unicellular) vs. a video of human muscle cells contracting (multicellular). Point out that the human is made of many types of cells. 3. Active Retrieval (Sorting): Provide a list of local organisms (e.g., Yeasts for bread, E. coli in water, Mango tree, Carabao). Learners sort them into two columns on the board. 4. Social Learning: Discussion on how a multicellular organism is like a Philippine choir—many voices (cells) doing different parts to make one song (life).	the organelle marked with a pointer. Station 3: Classify the organism shown in a photo. Station 4: Explain one function. 2. Collaborative Review: After the quest, groups discuss the answers. Learners who mastered the technique act as "peer mentors" for those still struggling with focusing. 3. Synthesis Discussion: Connect the particle model of matter (previous lessons) to the cell—how atoms make molecules, which make organelles, which make cells. 4. Reflection Time: Learners write a short "Thank You" letter to a specific organelle (e.g., "Dear Mitochondria, thanks for the energy to play basketball...").
Learning Resources:	● Compound Microscopes ● Projector/Smart TV ● PowerPoint Presentation on Microscope Parts ● Microscope	● Onion (Sibuyas), Iodine solution, Droppers ● Glass slides and coverslips ● Printed "Cell Map"	● Sorting Cards (Pictures of bacteria, humans, plants, yeast) ● Short Video Clips of microscopic	● Station Task Cards ● Microscope Stations ● Micrograph images ● Evaluation Rubrics

	Parts Checklist	worksheet • Projector for digital micrographs	life • Whiteboard and markers	
Opportunities for integration:	History and Language: Integrating the etymology of "microscope" (Greek: micron/skopein) and the historical context of the Scientific Revolution.	Arts: Creating color-coded 2D models of cells. Health: Discussing how mitochondria provide energy for physical activities like folk dancing or sports.	Values Education: Cooperation and division of labor (Bayanihan) as seen in multicellular organisms.	Communication Arts: Writing reflections and creative letters. Physical Education: Connecting cellular energy to physical performance.
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:	Practical Check: Each learner must successfully bring a letter "e" slide into focus under the Low Power Objective (LPO) and have it verified by the teacher or a designated "Student Lab Assistant."	Scientific Drawing: Learners draw what they see under the microscope and label the 5 target organelles. They must write a one-sentence function for each.	T-Chart/Venn Diagram: Learners complete a Venn diagram comparing a bacterium and a human, focusing on cell count and complexity.	Exit Ticket: Answer three questions: 1. One technique for focusing. 2. One difference between plant and animal cells. 3. One example of a unicellular organism.
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:	Assign learners to draw a simple diagram of the microscope in their notebooks and label the parts they found most difficult to manipulate,	Learners research why humans don't have chloroplasts and what would happen if we could perform photosynthesis like plants.	Interview a local health worker or research about "Good Bacteria" (Probiotics) used in Filipino fermented foods like 'Atchara' or 'Bagoong'.	Create a "Cell Model" using recycled local materials (plastic bottles, seeds, string) to be displayed in the school's Science

	explaining why.			Corner.
Reflections:	Reflect on: How many learners successfully focused the slide independently? Which specific parts of the microscope caused the most confusion?	Reflect on: Did the "Barangay" analogy help the struggling learners? Were the wet mount preparations successful or too messy?	Reflect on: Did learners grasp the scale difference between a single bacterium and a multicellular organism? Are there lingering misconceptions about bacteria?	Reflect on: Which learners need further intervention on microscope use? Did the 4-day progression effectively bridge the gap from tools to concepts?