LESSON PLAN TEMPLATE

Lesson Title	Unveiling the Map of Matter: The Periodic Table of Elements
Learning Area/s	Science
Name of Teacher/s	DepED Tambayan
Grade Level and Section	Grade 8
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:** ● Identify the names and symbols of the first 20 or several common elements of the periodic table. ● Explain that the arrangement of elements in the periodic table as 7 periods and 18 groups is based on their atomic structure and chemical properties, such as reactivity. **Content Standards:** ● Elements and compounds are identified as pure substances. ● The periodic table is a useful tool to determine the chemical properties of elements. ● The distribution of continents and oceans on Earth is related to the presence of the oceanic crust and continental crust. ● Volcanic terrain is built by the slow accumulation of erupted lava. ● The earth's surface is made of separate and movable plates. **Performance Standards:** By the end of the Term, learners demonstrate their knowledge and understanding of the periodic table by identifying the elements, their symbols, their valence electrons, and their positions within the groups and periods. They design and/or create timelines or documentaries as interesting learning tools. They demonstrate an appreciation of the large - scale features of the 'blue planet' Earth and relate those features to the geological characteristics of the upper crustal layers of the Earth. They identify and describe the nature and impact of volcanic activity in building new crust and identify

	that these crust forming processes account for patterns and changes in the distribution of volcanoes, earthquakes, and mountain chains that have occurred over time.			
	Session 1	**Session 2**	**Session 3**	**Session 4**
Learning Objectives:	By the end of the session, learners should be able to: ● Identify the names and symbols of the first 20 elements and selected common elements used in Filipino households and industries. ● Demonstrate mastery in translating element names to chemical symbols through a speed-matching activity.	By the end of the session, learners should be able to: ● Describe the organizational structure of the periodic table consisting of 7 periods and 18 groups. ● Navigate the periodic table to locate elements based on their specific group and period numbers.	By the end of the session, learners should be able to: ● Explain how the period number relates to the number of occupied energy levels (shells). ● Relate the group number (for representative elements) to the number of valence electrons.	By the end of the session, learners should be able to: ● Explain that elements in the same group share similar chemical properties and reactivity. ● Predict the reactivity of an element based on its position in the periodic table.
Learner Context:	Learners show high engagement with gamified activities but struggle with memorizing abstract symbols. A significant portion of the class performs better when chemical elements are linked to tangible objects found in their community (e.g., copper in	Learners are generally adept at spatial tasks but find the 18-group structure overwhelming. Visual learners respond well to color-coded charts. A few learners with lower reading comprehension require simplified instructions when navigating coordinates (Rows	Learners have a basic understanding of atomic parts (protons, electrons) from previous weeks but struggle to see the connection between the 'invisible' atom and the 'visible' table. Hands-on learners thrive when building physical or visual models of	Learners are highly motivated by real-world applications and demonstrations. They enjoy "detective work" where they have to predict outcomes. Some learners may have difficulty with the abstract concept of "chemical reactivity" without seeing its effects.

	electrical wires, iron in construction). Some learners exhibit a 'math-anxiety' that translates to chemical notation, requiring visual aids to bridge the gap between names and symbols.	vs. Columns).	atoms.	
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:	**"Element Scavenger Hunt: Home Edition"** ● Learners are presented with images of common local items (e.g., a rusty nail, a shiny coin, a banana, a salt packet). ● They must guess the primary element associated with each item (Iron, Copper, Potassium, Sodium). ● This activates prior knowledge about the	**"The Sari-Sari Store Challenge"** ● Students are given a list of 15 items and asked to organize them on a shelf (grid). ● Discussion: Why do we group soaps together? Why are snacks in a different row? This introduces the concept of systematic organization .	**"Bohr Model Blitz"** ● A quick review where learners draw a simple Bohr model of Helium and Lithium to count the circles (shells).	**"The Family Reunion"** ● Learners are given profiles of "people" with similar traits (e.g., all like to react quickly to news, all are very calm/noble). They must group these people. This introduces the concept of chemical 'Families'.

	presence of elements in daily life.			
Flow:	**Introduction (5 mins):** Discuss the concept of elements as the building blocks of everything in the Philippines, from the mountains of Sierra Madre to the gadgets they use. **Direct Instruction (15 mins):** Present the first 20 elements. Use mnemonic devices tailored to Filipino phonetics to help memorize symbols (e.g., "H-He-Li-Be-B-C-N-O-F-Ne"). **Active Retrieval (15 mins):** "Symbol Bingo." Learners fill a 3x3 grid with element names. The teacher calls out symbols (e.g., "Na!"), and learners mark the corresponding name ("Sodium"). **Social Learning (15 mins):** Pair work where learners quiz each other using flashcards, focusing on the common pitfalls like Ag (Silver) vs. Au (Gold).	**Modeling (10 mins):** Compare the Periodic Table to a map. Define 'Periods' as horizontal rows (side-to-side like the horizon) and 'Groups/Families' as vertical columns (up-and-down like pillars of a Bahay Kubo). **Guided Practice (15 mins):** "Periodic Coordinates." The teacher provides coordinates (e.g., Period 3, Group 1) and learners identify the element (Sodium). **Scaffolding (15 mins):** Learners use colored pencils to shade their own blank periodic table—one color for periods, another for groups—to visually distinguish the two axes. **Social Learning (10 mins):** "Find My Neighbor." In small groups, students take turns naming an element and having others describe its 'address' (Group and Period).	**Direct Instruction (15 mins):** Explain the "Secret Code" of the table. The Period Number = Number of Shells. The Group Number (A) = Number of Valence Electrons. **Scaffolding (15 mins):** "The Shell Builder." Learners draw the Bohr models for the first three elements of Group 1 (H, Li, Na). They observe that while the size grows (more periods/shells), the outer electron remains the same (Group 1). **Active Retrieval (10 mins):** Teacher flashes an element; learners hold up fingers representing the number of valence electrons based on its group. **Collaborative Task (10 mins):** Pairs compare elements in the same period (e.g., Na and Mg) to see how they have the same number of shells but different valence electrons. **Check for**	**Inquiry-Based Discussion (10 mins):** Show a video clip or describe the reaction of Group 1 metals (Alkali) with water. Ask: "Why do they all explode? What do they have in common?" (Answer: 1 valence electron). **Direct Instruction (15 mins):** Define Reactivity. Explain that Group 18 (Noble Gases) are 'mababait' or stable because their shells are full, while Group 1 and 17 are very 'active' or reactive. **Social Learning (15 mins):** "Predictive Pairs." Students are given two elements (e.g., Potassium and Neon). Based on their group, they must predict which one is more likely to react in a chemical experiment and explain why. **Elaboration (10 mins):** Discuss the importance of reactivity in daily life, such as why

	Check for Understanding (10 mins): A quick "Show-Me Board" activity where the teacher says a name and students raise a slate with the symbol.	**Check for Understanding (10 mins):** Randomly calling students to identify elements at specific intersections on the classroom's large wall chart.	**Understanding (10 mins):** Quick-fire questions: "If an element is in Period 4, how many shells does it have?"	we use Gold for jewelry (unreactive) and Chlorine for disinfecting water (highly reactive). **Check for Understanding (10 mins):** "Truth or Myth" game where the teacher makes claims about element groups and students vote.
Learning Resources:	● Periodic Table posters ● Flashcards of first 20 elements ● Localized visual aids showing common Philippine ores and minerals	● Blank Periodic Table templates ● Coloring materials ● Large-forma t Periodic Table of Elements	● Compass or circular templates for drawing shells ● Whiteboard markers ● Atomic structure diagrams	● Video clips of chemical reactions (Alkali metals in water) ● Property cards for different groups ● Local examples of reactive substances (e.g., muriatic acid/chlorine)
Opportunitie s for integration:	**Araling Panlipunan:** Discussing the history of mining in the Philippines and the economic importance of elements like Gold (Au) and Nickel (Ni).	**Mathematics:** Reinforcing the concept of Cartesian coordinates and grid systems used in graphing.	**Arts:** Creating symmetrical and concentric circle designs (Mandala-style) representing atomic structures.	**Health/DRRM:** Discussing the safe handling of reactive household chemicals like bleach and acids based on their elemental properties.
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:	**Symbol-to-Name Matching Worksheet:** A 20-item formative quiz focusing on the first 20 elements plus 5 common metallic elements (Fe, Cu, Au, Ag, Zn).	**"Element Address Card":** Learners are given 5 elements and must write down their specific Group Number and Period Number. Success is defined as 100% accuracy in navigation.	**Exit Ticket:** "Identify the element in Period 2, Group 14. Draw its Bohr model and label the valence electrons."	**Predictive Paragraph:** "If you discovered a new element and placed it in Group 1, Period 5, what would you predict about its reactivity and its atomic structure? Write 3-5 sentences."
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:	Learners who mastered the first 20 will be tasked to research the symbols for elements used in local agriculture, such as those found in fertilizers (N-P-K).	Students who finish early will identify which group contains the most elements they recognize from Session 1.	Learners are asked to predict how many shells and valence electrons an element in Period 5, Group 2 would have, even if they haven't memorized its name.	Design a "Wanted Poster" for a specific element group (e.g., The Halogens), describing their 'personality' (properties), their 'hangouts' (where they are found), and their 'behavior' (reactivity).
Reflections:	● Which symbols were most difficult for the students to recall? ● Did the localized examples (e.g., banana for Potassium) effectively	● Did the Sari-Sari store metaphor clear up the confusion between rows and columns? ● Are students still confusing the group	● Did the visual of drawing shells help students internalize the 'Period' concept? ● Which students are still struggling to connect	● How well did the students connect valence electrons (Session 3) to reactivity (Session 4)? ● Was the distinction between groups and periods

	aid memory retention?	number with the period number?	group numbers to valence electrons?	clearly reflected in their final predictive paragraphs?