

Lesson Plan 1: Exploring and Formulating Algebraic Expressions

1. Preliminary Information

Field	Details
Subject	Mathematics
Level	Form 1
Concept	Algebra
Sub-Concept	Algebraic Expressions
Topic	Algebra
Subtopic	Apply algebraic expressions in real life
Lesson Duration	40 minutes
Lesson Goal	Learners will formulate algebraic expressions to represent real-life scenarios, enhancing problem-solving and analytical thinking.
Competences	Analytical Thinking, Problem Solving, Creativity, Critical Thinking, Collaboration, Financial Literacy
Expected Target Competence	Apply algebraic expressions in real-life situations correctly.
Lesson Competencies	i. Identify variables and terms in real-life scenarios (knowledge-based). ii. Formulate algebraic expressions to model situations (cognitive-based). iii. Collaborate in groups to present expressions (skill-based).
Lesson Methodology and Strategies	Group work, discussion, hands-on activity, inquiry-based learning, real-life scenario analysis.
Assessment Strategies	i. Formative Assessment: Observe group discussions and check expressions for accuracy. ii. Summative: Evaluate presentations for clarity and correctness of expressions.
Learning Materials	Manila paper, markers, worksheets, scenario handouts (e.g., class tour scenario).
Learning Environment Setup	Artificial - Physical: Classroom with desks arranged for group work.
Prior Knowledge	Basic arithmetic operations, understanding of variables as unknowns.
Interdisciplinary Connections	Economics (budget planning), Social Studies (community activities like tours).

2. Lesson Progression

Stage	Learner Activity	Teacher Activity	Targeted Competency	Assessment Criteria
Engagement (Introduction) [5 min]	Discuss real-life situations where unknowns are involved (e.g., budgeting for a trip).	Pose key question: "How can we use letters to represent unknown costs in planning a tour?"	Creativity, Critical Thinking	Participation in discussion, relevance of examples shared.
Exploration (Development) [15 min]	In groups, analyze the class tour	Facilitate group work, provide scenario	Analytical Thinking, Collaboration	Accuracy of expressions, group

	scenario and formulate expressions for total cost (Activity 1.1).	handouts, and guide learners to use variables (e.g., (n) , (x) , (y) , (z)).		cooperation.
Explanation (Conceptualization) [10 min]	Present group expressions to the class, explaining variable choices.	Highlight terms, variables, and structure of expressions (e.g., $(n(x + y + z))$). Clarify concepts like terms and coefficients.	Problem Solving, Communication	Clarity and correctness of presentations.
Synthesis (Continuity and Extension) [5 min]	Discuss alternative expressions for the same scenario (e.g., $(nx + ny + nz)$).	Guide discussion on equivalent expressions and their real-life applicability.	Critical Thinking	Ability to identify equivalent expressions.
Evaluation and Reflection (Conclusion) [5 min]	Reflect on how algebraic expressions simplify real-life planning.	Ask: "How can these expressions help in budgeting?" Collect feedback on group work.	Financial Literacy	Quality of reflections, understanding of real-life application.

3. Competence Continuity and Strategy

- **Continuity:** Build on this activity by introducing coefficients and like terms in the next lesson (Learning Activity 2).
- **Strategy:** Use more complex scenarios in future lessons to deepen application skills, incorporating digital tools like spreadsheets for budgeting.

Lesson Plan 2: Distinguishing Coefficients and Variables

1. Preliminary Information

Field	Details
Subject	Mathematics
Level	Form 1
Concept	Algebra
Sub-Concept	Algebraic Expressions
Topic	Algebra
Subtopic	Apply algebraic expressions in real life
Lesson Duration	40 minutes
Lesson Goal	Learners will identify and differentiate coefficients and variables in algebraic expressions to enhance analytical thinking.
Competences	Analytical Thinking, Critical Thinking, Collaboration
Expected Target Competence	Correctly distinguish coefficients and variables in algebraic expressions.
Lesson Competencies	i. Define coefficients and variables (knowledge-based). ii. Analyze expressions to identify their components (cognitive-based). iii. Discuss findings in groups to clarify concepts (skill-based).
Lesson Methodology and Strategies	Group brainstorming, discussion, think-pair-share, interactive questioning.
Assessment Strategies	i. Formative Assessment: Monitor group discussions for understanding. ii. Summative: Evaluate responses to discussion questions for accuracy.
Learning Materials	Whiteboard, markers, expression cards, notebooks.
Learning Environment Setup	Artificial - Physical: Classroom with flexible seating for group work.
Prior Knowledge	Basic algebraic expressions from Learning Activity 1.
Interdisciplinary Connections	Language Arts (understanding terminology like "coefficient").

2. Lesson Progression

Stage	Learner Activity	Teacher Activity	Targeted Competency	Assessment Criteria
Engagement (Introduction) [5 min]	Review expressions from previous lesson and identify letters and numbers.	Pose key question: "Why do we use letters and numbers together in expressions?"	Critical Thinking	Participation in review, relevance of responses.
Exploration (Development) [15 min]	In groups, list expressions from Activities 1.1-1.3 and discuss questions (e.g., role of letters vs.	Facilitate brainstorming, provide expression cards, and guide discussion on variables and	Analytical Thinking, Collaboration	Depth of group discussions, accuracy in identifying components.

	numbers) (Activity 5.2.2).	coefficients.		
Explanation (Conceptualization) [10 min]	Share findings with the class, explaining why letters represent variables and numbers are coefficients.	Clarify that variables (e.g., (x)) change, coefficients (e.g., 4 in $(4x)$) multiply variables, and constants (e.g., 5) are fixed.	Critical Thinking, Communication	Clarity of explanations, correct identification of terms.
Synthesis (Continuity and Extension) [5 min]	Discuss what happens if coefficients change (e.g., $(3x)$ to $(5x)$).	Guide learners to understand the impact of coefficient changes on expressions.	Analytical Thinking	Ability to predict expression changes.
Evaluation and Reflection (Conclusion) [5 min]	Reflect on the importance of distinguishing components in solving problems.	Ask: "How does identifying coefficients help in budgeting?" Collect feedback.	Critical Thinking	Quality of reflections, understanding of concepts.

3. Competence Continuity and Strategy

- **Continuity:** Transition to grouping like and unlike terms in the next lesson (Learning Activity 3).
- **Strategy:** Incorporate visual aids (e.g., color-coded expressions) to reinforce component identification in future lessons.

Lesson Plan 3: Grouping Like and Unlike Terms

1. Preliminary Information

Field	Details
Subject	Mathematics
Level	Form 1
Concept	Algebra
Sub-Concept	Algebraic Expressions
Topic	Algebra
Subtopic	Apply algebraic expressions in real life
Lesson Duration	40 minutes
Lesson Goal	Learners will group like and unlike terms in algebraic expressions to simplify real-life scenarios.
Competences	Problem Solving, Critical Thinking, Collaboration
Expected Target Competence	Correctly group like and unlike terms in expressions.
Lesson Competencies	i. Define like and unlike terms (knowledge-based). ii. Categorize terms based on variables and powers (cognitive-based). iii. Work collaboratively to sort terms (skill-based).
Lesson Methodology and Strategies	Group work, card sorting, discussion, hands-on activity.
Assessment Strategies	i. Formative Assessment: Observe sorting activity for accuracy. ii. Summative: Evaluate table grouping for correctness.
Learning Materials	Cards with algebraic terms, worksheets, manila paper.
Learning Environment Setup	Artificial - Physical: Classroom with group workstations.
Prior Knowledge	Variables, coefficients, and basic expressions.
Interdisciplinary Connections	Economics (grouping costs in budgets).

2. Lesson Progression

Stage	Learner Activity	Teacher Activity	Targeted Competency	Assessment Criteria
Engagement (Introduction) [5 min]	Discuss how similar items are grouped in shopping (e.g., fruits).	Pose key question: "How can we group terms in expressions like we group shopping items?"	Critical Thinking	Participation, relevance of analogies.
Exploration (Development) [15 min]	In groups, solve the shopping list scenario (Activity 3.1) and sort cards into like/unlike terms (Activity 3.2).	Provide scenario and cards, guide learners to identify like terms (e.g., $(3x + x)$).	Problem Solving, Collaboration	Accuracy in grouping, group cooperation.

Explanation (Conceptualization) [10 min]	Present grouped terms, explaining why they are like or unlike.	Clarify like terms (same variables, same power) and unlike terms (different variables/powers).	Critical Thinking, Communication	Clarity of presentations, correctness of groupings.
Synthesis (Continuity and Extension) [5 min]	Discuss how grouping simplifies expressions (e.g., total cost).	Guide learners to combine like terms (e.g., $(3x + x = 4x)$).	Problem Solving	Ability to simplify grouped terms.
Evaluation and Reflection (Conclusion) [5 min]	Reflect on how grouping helps in real-life calculations.	Ask: "How does grouping terms make budgeting easier?" Collect feedback.	Critical Thinking	Quality of reflections, understanding of simplification.

3. Competence Continuity and Strategy

- **Continuity:** Progress to simplifying expressions in the next lesson (Learning Activity 4).
- **Strategy:** Use digital tools (e.g., interactive apps) to practice grouping terms in future lessons.