MATHEMATICS

Grade 8

Three-Term Budget Of Work (BOW)
for Learning Competencies

GENERAL MATHEMATICS
Grade 8

Three-Term Budget Of Work
For Learning Competencies

First Term	
Content Standard	The learners should have knowledge and understanding of… • measures of central tendency of ungrouped data • algebraic expressions and operations with monomials, binomials, and multinomials • special products for binomials, and factorization of polynomials • rational algebraic expressions and equations • rules for obtaining terms in sequences • plotting points, and finding distance and the midpoint of line segments on the Cartesian coordinate plane
Performance Standard	By the end of the term, the learners are able to… • determine measures of central tendency of ungrouped data and use the measures to draw conclusions. • add and subtract monomials, and multiply combinations of monomials, binomials, and multinomials. • obtain special binomial products. • factorize different types of polynomials. • simplify, and operate with, rational algebraic expressions and solve simple rational algebraic equations. • obtain the rule for finding the next term in a sequence. • plot points, find the distance between two points, and find the midpoint of line segments, on the Cartesian coordinate plane.

Week	Learning Competency
1	**Data and Probability** • Determine measures of central tendency of ungrouped data. • Draw conclusions from statistical data using the measures of central tendency.
	Number and Algebra • Model real-life situations using algebraic expressions.
2	**Number and Algebra** • Add and subtract simple monomials. • Multiply and divide simple monomials, leading to the derivation of the laws of exponents.
3 to 5	**Number and Algebra** • Multiply simple monomials and binomials with simple binomials and multinomials, using the distributive property with various techniques and models. • Use special product patterns to multiply binomials. • Completely factor different types of polynomials (polynomials with common monomial factor; difference of two squares; quadratic trinomials, including perfect square trinomials).
6 to 8	**Number and Algebra** • Solve problems involving special products and factors of polynomials. • Simplify rational algebraic expressions. • Perform operations on rational algebraic expressions. • Solve problems involving simple rational algebraic equations (using cross-multiplication).
9	**Number and Algebra** • Formulate the rule for finding the next term in a sequence by looking for patterns. • Illustrate and describe the Cartesian coordinate plane.
10	**Number and Algebra**

	• Plot points on the Cartesian coordinate plane and determine the coordinates of a point on the plane. • Solve problems involving distance between two points and midpoint of a line segment on the Cartesian coordinate plane.

Second Term	
Content Standard	The learners should have knowledge and understanding of… • volume of pyramids (other than square and rectangular pyramids), cones, and spheres • the Pythagorean Theorem • triangle inequality theorems • earning money, profit and loss, 'best buys', buying on terms • linear equations in one variable • linear inequalities in one variable and their graphs
Performance Standard	By the end of the term, the learners are able to… • finds the volume of pyramids other than square and rectangular pyramids, and the volumes of cones and spheres. • use the Pythagorean theorem to find sides in right triangles and its converse to classify triangles. • use the triangle inequality theorems to establish results for angles and sides in triangles. • solve financial problems involving earning money, profit and loss, "best buys," and buying on terms. • solve linear equations and linear inequalities in one variable. • graph linear inequalities in one variable.
Week	**Learning Competency**
1	**Measurement and Geometry** • Explore inductively the volume of pyramids other than square and rectangular pyramids. • Find the volume of pyramids other than square and rectangular pyramids. • Solve problems involving the volume of pyramids.

2	**Measurement and Geometry** • Explore inductively the volumes of cones and spheres, leading to their formulas. • Find the volumes of cones and spheres. • Solve problems involving the volume of cones and spheres.
3	**Measurement and Geometry** • Apply the Pythagorean Theorem in finding the missing side of a right triangle, and its converse in classifying triangles. • Apply the triangle inequality theorems to establish results for angles and sides in triangles.
4	**Number and Algebra** • Solve financial problems involving: a. earning money b. profit and loss c. buying amounts of products that represent the best value (‘best buys’) d. buying on terms (‘instalment plan’)
5	**Number and Algebra** • Solve linear equations in one variable. • Solve problems (e.g., number problems, geometry problems, and money problems) involving linear equations in one variable.
6	**Number and Algebra** • Solve linear inequalities in one variable. • Graph on a number line the solution of linear inequalities in one variable.
7	**Number and Algebra** • Solve problems involving linear inequalities in one variable. • Describe a linear equation in two variables and express its solution using ordered pairs.

8 to 9	**Number and Algebra** • Define and determine the slope and intercepts of a line. • Find the equation of a line given: a. two points b. the slope and a point c. the slope and y-intercept d. the x– and y– intercepts.
10	**Number and Algebra** • Sketch the graph (straight line) of a linear equation given: a. any two points on the line b. the x– and y– intercepts c. the slope and a point on the line

Third Term	
Content Standard	The learners should have knowledge and understanding of… • linear equations in two variables and their graphs • systems of linear equations in two variables • linear inequalities in two variables • measures of variability for ungrouped data • interpretation and analysis of graphs from primary and secondary data • experimental and theoretical probability • the Fundamental Counting Principle
Performance Standard	By the end of the term, the learners are able to… • graph linear equations in two variables. • solve a system of linear equations graphically and algebraically. • use linear inequalities in two variables in the solution of problems. • calculate measures of variability for ungrouped data. • interpret and analyze graphs from primary and secondary data. • determine the number of possible outcomes of an experiment using the Fundamental Counting Principle. • calculate the probability of a single event and the probability of simple combined events.

Week	Learning Competency
1	**Number and Algebra** • Define and illustrate a system of linear equations in two variables. • Solve a system of linear equations (with integer solutions) by graphing.
2 to 4	**Number and Algebra**

	• Classify the types of systems of linear equations based on the number of solutions. • Solve algebraically a system of linear equations in two variables. • Solve problems involving systems of linear equations in two variables.
5	**Number and Algebra** • Recognize and solve problems involving linear inequalities in two variables.
6	**Data and Probability** • Calculate the measures of variability (range, mean deviation, and standard deviation) for ungrouped data. • Draw conclusions from statistical data using the measures of variability. • Investigate, interpret, and analyze graphs from primary data (e.g., examination scores).
7	**Data and Probability** • Investigate, interpret, and analyze graphs from secondary data. • Differentiate theoretical from experimental probability by conducting an experiment or an investigation.
8	**Data and Probability** • Describe the sample space of an experiment. • Use the Fundamental Counting Principle to determine the number of possible outcomes of an experiment.
9	**Data and Probability** • Calculate the theoretical probability of a single event by listing all possible outcomes. • Describe probability as a measure of the chance of an event occurring.
10	**Data and Probability** • Calculate the probability of simple combined events by listing, or by possibility diagrams or tree diagrams.

	• Solve problems involving experimental probability and/or theoretical probability using the Fundamental Counting Principle.