



Republic of the Philippines

Department of Education

DepEd Complex, Meralco Avenue, Pasig City

STRENGTHENED SENIOR HIGH SCHOOL CURRICULUM

GENERAL MATHEMATICS

Grade 11

*This curriculum guide contains inputs from the Technical Panel for General Education
of the Commission on Higher Education (CHED)*

Course Description:

This course deepens learners' understanding of concepts and techniques drawn from numbers and algebra, geometry and measurement, and statistics. It aims to strengthen their mathematical reasoning, problem-solving, critical thinking skills, and statistical analysis essential to their preparation for professional and creative work, research, innovation in a specialized field, and various career opportunities. It emphasizes applying quantitative methods in real-life and structured academic and professional settings, providing them opportunities to excel and adapt to diverse environments independently and collaboratively. It refines their ability to analyze real-world data, make informed decisions, and effectively communicate results using appropriate language and technology, making them ready for various educational and employment pathways.

Prerequisite: None

Time Allotment: 160 hours for one year, 4 hours per week

QUARTER 1

CONTENT DOMAIN	CONTENT STANDARDS <i>The learners demonstrate knowledge and understanding of ...</i>	LEARNING COMPETENCIES <i>The learners ...</i>
NUMBERS AND ALGEBRA (NA)	1. business and finance through problems involving earning money, buying, and selling	1. calculate weekly or monthly wages from an annual salary, wages from an hourly rate, including situations involving overtime and other allowances, and earnings based on commission or piecework; 2. apply a percentage increase or decrease in various contexts; <ol style="list-style-type: none"> determining the impact of inflation on costs and wages over time calculating percentage mark-ups and discounts calculating VAT calculating profit or loss in both absolute and percentage terms. 3. solve problems involving salaries, wages, benefits, and deductions (tax computations, overtime pay, and gross and net incomes) using appropriate technology;

	<p>2. patterns, arithmetic and geometric sequences, and series</p>	<p>4. describe patterns by inspection, including patterns in art and nature; 5. determine the next term of a given pattern, including the Fibonacci sequence; 6. identify the rule of a given pattern; 7. illustrate the attributes of arithmetic and geometric sequences; 8. solve problems involving arithmetic and geometric sequences; 9. differentiate sequences from series; 10. illustrate arithmetic and geometric series; 11. represent series using sigma notation and vice versa; 12. find the sum of arithmetic and geometric series; 13. solve problems involving arithmetic and geometric series;</p>
	<p>3. financial application of sequence and series</p>	<p>14. apply sequences and series to solve financial problems, such as periodic payments for loans and mortgages; and 15. determine the accumulated values of investment over time using sequences and series.</p>

Performance Standards

By the end of the quarter, the learners are able to conduct a case study on payrolls to compute salaries, wages, deductions, and income for different employee profiles. Learners describe and present how they use sequences and series to make informed decisions on real-life situations involving earning money, buying and selling, acquiring loans, making investments, and planning purchases.

QUARTER 2

CONTENT DOMAIN	CONTENT STANDARDS	LEARNING COMPETENCIES
	<i>The learners demonstrate knowledge and understanding of ...</i>	<i>The learners ...</i>
MEASUREMENT AND GEOMETRY (MG)	1. measurement and conversion	<ol style="list-style-type: none"> 1. determine and apply the appropriate metric units for various contexts, such as units for small and large quantities and scientific measurements; 2. convert measurements with different units in the same system and between different systems; 3. determine the surface area of three-dimensional objects, such as prisms, pyramids, cylinders, cones, spheres, and combinations of these; 4. calculate the volume of prisms, pyramids, cylinders, cones, spheres, and combinations of these; 5. use a scale to interpret and compare distances on maps, blueprints, and sketches; 6. solve problems involving the conversion of currencies; 7. apply time conversions in various real-world scenarios such as travel planning, project management, and daily routine schedules for personal and business transactions; 8. apply temperature conversions to real-world scenarios such as recipe adjustments, weather reports, scientific experiments, storage conditions, and energy efficiency;
NUMBERS AND ALGEBRA (NA)	2. functions and its graphs	<ol style="list-style-type: none"> 9. classify functions based on their graphs and/or equations to determine if they are linear, absolute value, quadratic, square root, or cube root; 10. sketch the graph of the following functions: linear, absolute value, quadratic, square root, or cube root with or without technology; 11. apply the functions to model and solve real-life problems;
	3. piecewise functions	<ol style="list-style-type: none"> 12. illustrate a piecewise function in practical contexts (i.e., fare rates, purchasing, and income tax); 13. solve practical problems involving piecewise functions;

DATA AND PROBABILITY (DP)	4. statistical variables	14. identify different types of data; 15. classify a given set of data according to its level of measurement; 16. identify the appropriate measure of central tendency and measures of variability of a given data set for different purposes; 17. use appropriate technologies (e.g., calculator, Excel, Jamovi, Geogebra, etc.) to calculate measures of central tendency and variability; and 18. interpret the computed measures of central tendency and variability.
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Performance Standards

By the end of the quarter, the learners are able to present solutions to real-life problems that require measurements and conversions (such as designing a garden, cooking recipes, or building a model) and function models. Learners interpret and explain how they make informed decisions based on the measures of central tendency and variability from data collected for a specific purpose (e.g., report presentations on the analysis of family spending trends using monthly household expenses data).

QUARTER 3

CONTENT DOMAIN	CONTENT STANDARDS	LEARNING COMPETENCIES
	<i>The learners demonstrate knowledge and understanding of ...</i>	<i>The learners ...</i>
MEASUREMENT AND GEOMETRY (MG)	1. basic trigonometry	1. illustrate the trigonometric ratios in a right-angled triangle using a real-life object or figure; 2. illustrate the area of oblique triangles (i.e., Heron's Formula and the rule $\text{Area} = \frac{1}{2} ab \sin C$); 3. solve practical problems involving <ol style="list-style-type: none"> a. right and oblique triangles b. angles of elevation and depression c. the use of bearings in navigation
	2. practical applications of measurements and	4. estimate and measure lengths and distances (e.g., floor dimensions, measuring fabric for clothing); 5. calculate the area and perimeter of residential spaces (e.g., room renovations, garden layouts);

	transformational geometry	<ol style="list-style-type: none"> 6. calculate the volume and capacity of three-dimensional objects (e.g., water tanks, rice storage containers, balik-bayan boxes); 7. apply volume and capacity in cost estimation (e.g., amount of flour needed for bread production, paint needed for walls);
DATA AND PROBABILITY (DP)	3. random variables and sampling	<ol style="list-style-type: none"> 8. differentiate between discrete and continuous random variables and describe their uses; 9. calculate the expected value, variance, and standard deviation of discrete random variables; 10. illustrate a normal random variable and its characteristics; 11. convert a normal random variable to a standard normal variable and vice versa; 12. compute probabilities and percentiles involving the standard normal distribution using a Z-distribution table or appropriate technologies; 13. solve problems involving normal distribution; 14. illustrate random sampling; 15. determine the appropriate sample size for a specific investigation; and 16. distinguish between parameter and statistic, and probability and nonprobability sampling techniques.

Performance Standards

By the end of the quarter, the learners are able to apply trigonometry and geometric concepts to estimate measurements and construct three-dimensional objects, understanding their shapes and volumes for practical uses like product packaging, furniture, and construction. Learners propose a statistical investigation identifying and justifying the sample size and sampling techniques, and draw conclusions from given data using normal distribution and expected values.

QUARTER 4

CONTENT DOMAIN	CONTENT STANDARDS	LEARNING COMPETENCIES
NUMBERS AND ALGEBRA (NA)	<p><i>The learners demonstrate knowledge and understanding of ...</i></p> <ol style="list-style-type: none"> 1. compound interest, simple and general annuities, and business and consumer loans 	<p><i>The learners ...</i></p> <ol style="list-style-type: none"> 1. solve problems involving compound interest, including maturity value, future value, nominal rates, and number of terms; 2. illustrate simple annuity, general annuity, and deferred annuity; 3. solve problems involving annuities; 4. calculate the fair market value of a cash flow stream that includes an annuity; 5. differentiate between business and consumer loans and their characteristics, such as repayment terms, requirements, purpose, and interest rates; 6. solve problems involving business and consumer loans (e.g., amortization, mortgage);
DATA AND PROBABILITY (DP)	<ol style="list-style-type: none"> 2. basic concepts of <ol style="list-style-type: none"> a. statistical hypothesis testing b. parametric test of difference c. test of relationships d. simple linear regression 	<ol style="list-style-type: none"> 7. illustrate <ol style="list-style-type: none"> a. null hypothesis b. alternative hypothesis c. level of significance d. types of error 8. formulate the null and alternative hypotheses of a given problem; 9. determine the (a) level of significance and (b) types of error appropriate to a given hypothesis; 10. test hypotheses for one and two population means using technology employing the following statistical tools: <ol style="list-style-type: none"> a. z-test for known standard deviation b. z-test for unknown standard deviation c. one-sample t-test d. independent samples t-test e. paired samples t-test

		<ol style="list-style-type: none"> 11. construct a scatter plot and estimate the strength of association between variables; 12. draw the line of best fit for a scatter plot; 13. determine the degree of relationship between two variables using Pearson's r correlation; 14. conclude from the results of hypothesis testing on <ol style="list-style-type: none"> a. one and two population means using t-test and z-test b. relationship using Pearson r correlations
NUMBERS AND ALGEBRA (NA)	3. logical propositions, syllogisms, and fallacies	<ol style="list-style-type: none"> 15. identify logical propositions; 16. differentiate simple from compound propositions; 17. illustrate basic logical operations; 18. illustrate the different forms of conditional propositions; 19. illustrate different types of tautologies and contradictions using practical situations; and 20. determine the truth values of propositions in a practical situation.

Performance Standards

By the end of the quarter, the learners are able to create a financial proposal using comparisons of different investment plans (e.g., time deposits, mutual funds, pension plans) to recommend and explain the best financial strategy. Learners make inferences and explain their reasoning for real-life problems in different disciplines (e.g., market trends, election results, sports statistics) given specific tests of difference and association. Learners evaluate arguments using logic in real-world contexts (e.g., critically analyzing misleading arguments or statements in advertisements, politics, or social media).