

MATHEMATICS
Structuring Competencies in a Definitive Budget of Work

GRADE	10			
GRADE LEVEL STANDARD	The learner demonstrates understanding of key concepts and principles of patterns and algebra (sequences, series, polynomials, polynomial equations, and polynomial functions); geometry (circles and coordinate geometry); and statistics and probability (combinatorics and probability, and measures of position) as applied -using appropriate technology- in critical thinking, problem solving, reasoning, communicating, making connections, representations and decisions in real life.			
	Grade 10 - FIRST QUARTER			
PERFORMANCE STANDARDS	The learner is able to formulate and solve problems involving sequences, polynomials and polynomial equations in different disciplines through appropriate and accurate representations.			
CONTENT STANDARDS	The learner demonstrates understanding of key concepts of sequences, polynomials and polynomial equations.			
Content Areas/Strand	Patterns and Algebra			
	LEARNING COMPETENCIES	CODE	NO. OF DAYS TAUGHT	REMARKS
	1.Generates patterns	M10AL-Ia-1.0	0	
	1.1 analyze patterns and relationships	M10AL-Ia-1.1	1	
	1.2 generates pattern	M10AL-Ia-1.2	1	
	1.3 solves problems on patterns	M10AL-Ia-1.3	2	
	2. Illustrates an arithmetic sequence	M10AL-Ib-2.0		
	2.1 illustrates an arithmetic sequence	M10AL-Ib-2.1	1	
	2.2 applies the concept of arithmetic sequence	M10AL-Ib-2.2	1	

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	3. Determine arithmetic means and nth term of an arithmetic sequence	M10AL-lb-c-3.0	4	
	4. Finds the sum of the terms of a given arithmetic sequence	M10AL-lc-4.0	0	
	4.1 finds the sum of the terms of a given arithmetic sequence	M10AL-lc-4.1	1	
	4.2 solves problems involving arithmetic	M10AL-lc-4.2	1	
	5.Illustrates geometric sequence	M10AL-lc-5	1	
	6.Differentiates geometric sequence from arithmetic sequence	M10AL-lc-6	1	
	7.Differentiates a finite geometric sequence from an infinite geometric sequence	M10AL-lc-7	2	
	8.Determines geometric mean and nth term of a geometric sequence	M10AL-le-8	2	
	9.Finds the sum of the terms of given finite or infinite geometric sequence	M10AL-le-9.0		
	9.1 finds the sum of the terms of given finite or infinite geometric sequence	M10AL-le-9.1	1	
	9.2 solves problems involving geometric sequence	M10AL-le-9.2	1	
	10.Illustrates other types of sequences (e.g. harmonic, fibonacci)	M10AL-lf-10	2	
	11.Solves problem solving involving sequences	M10AL-lf-g-11	3	
	12.Performs division of polynomials involving long division and synthetic division	M10AL-lg-12	2	

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	13.Proves the remainder theorem and the factor theorem	M10AL-lg-h-13	2	
	14.Factors polynomials	M10AL-lh 14	3	
	15.Illustrates polynomial equations	M10AL-li-15	2	
	16.Proves rational root theorem	M10AL-li-16.0		
	16.1 write the proof of Rational Root Theorem	M10AL-li-16.1	1	
	16.2 solves problems applying Rational Root Theorem	M10AL-li-16.2	1	
	17.Solves polynomial equations	M10AL-lj-17	3	
	18.Solves problems involving polynomials and polynomial equations	M10AL-lj-k-18	4	
QUARTERLY TEST			2	
TOTAL NUMBER OF DAYS			45	
	Grade 10 -SECOND QUARTER			
PERFORMANCE STANDARDS	The learner is able to conduct systematically a mathematical investigation involving polynomial functions in different fields.			
CONTENT STANDARDS	The learner is able to demonstrates understanding of key concepts of polynomial function			
Content Areas/Strand	Patterns and Algebra			
	LEARNING COMPETENCIES	CODE	NO. OF DAYS TAUGHT	REMARKS
	19.Illustrates polynomial functions	M10AL-IIa-19	2	
	20.Graphs polynomial functions	M10AL-IIa-20	2	

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	21.Solves problems involving polynomial functions	M10AL-IIb-21	4	
PERFORMANCE STANDARDS	The learner is able to 1) formulate and find solutions to challenging situations involving circles and other related terms in different disciplines through appropriate and accurate representations; 2) formulate and solve problems involving geometric figures on the rectangular coordinate plane with perseverance and accuracy.			
CONTENT STANDARDS	The learner demonstrates understanding of key concepts of circles and coordinate geometry.			
Content Areas/Strand	Geometry			
	22. derives inductively the relations among chords, arcs, central angles, and inscribed angles.	M10GE-IIc-22	2	
	23. proves theorems related to chords, arcs, central angles and inscribed angles.	M10GE-IIc-23.0		
	23.1 proves theorems related to chords, arcs and central angles .	M10GE-IIc-23.1	1	
	23.2 proves theorems related to inscribed angles.	M10GE-IIc-23.2	1	
	24. illustrates secants, tangents, segments, and sectors of a circle.	M10GE-IId-24	1	
	25. proves theorems on secants, tangents, and segments.	M10GE-IId-25.0		
	25. 1 proves theorems on secants and tangents.	M10GE-IId-25.1	2	

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	25.2 proves theorems on segments.	M10GE-IIId-e-25.2	2	1
	26. solves problems on circle.	M10GE-IIe-f-26	5	2
	27. derives the distance formula.	M10GE-IIf-27.0		
	27.1 derives the distance formula	M10GE-IIf-27.1	1	
	27.2 solves problems involving distance	M10GE-IIf-27.2	1	
	28. applies the distance formula to prove some geometric properties.	M10GE-IIg-28	3	
	29. illustrates the center-radius form of the equation of a circle.	M10GE-IIg-h-29	2	
	30. determines the center and radius of a circle given its equation of a circle.	M10GE-IIh-i-30	4	
	31. graphs a circle and other geometric figures on the coordiante plane. ***	M10GE-IIi-j-31	5	
	32. solves problems involving geometric figures on the coordinate plane.	M10GE-IIj-k-32	5	
QUARTERLY TEST			2	
TOTAL NUMBER OF DAYS			45	
	Grade 10 - THIRD QUARTER			
PERFORMANCE STANDARDS	The learner is able to use precise counting technique and probability in formulating conclusions and making decesions.			
CONTENT STANDARDS	The learner demonstrates understanding of key concepts of combinations and probability.			

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Content Areas/Strand	STATISTICS AND PROBABILITY			
	LEARNING COMPETENCIES	CODE	NO. OF DAYS TAUGHT	REMARKS
	33. illustrates the permutation of objects.	M10SP-IIIa-33.0		
	33.1 illustrates and understands the different methods of counting	M10SP-IIIa-33.1	1	
	33.2 solves problems involving the different methods of counting	M10SP-IIIa-33.2	2	
	33.3 illustrates the Fundamental Counting Principle through a tree diagram or by listing method	M10SP-IIIa-33.3	1	
	33.4 solves problems on Mutually	M10SP-IIIb-33.4	2	
	34. derives the formula for finding the number of permutation n objects taken r at a time.	M10SP-IIIb-34	1	
	35. solves problems involving permutations.	M10SP-IIIb-c-35	2	
	36. illustrates the combination of objects.	M10SP-IIIc-36	1	
	37. derives the formula for finding the number of combination of n objects taken r at a time	M10SP-IIIc-37.0		
	37. derives the formula for finding the number of combination of n objects taken r at a time	M10SP-IIIc-37.1	1	

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	37.2 solves problems involving combinations.	M10SP-IIIc-d-37.2	2	
	38. differentiates permutation from combination of n objects taken r at a time.	M10SP-IIId-38	1	
	39. solves problems involving permutations and combinations.	M10SP-IIId-e-39	4	2
	40. illustrates events, and union and intersection of events.	M10SP-IIIf-f-40	3	1
	41. illustrates the probability of a union of two events.	M10SP-IIIf-41.0		
	41.1 illustrates outcomes of simple experiments by listing or by tree diagram	M10SP-IIIf-41.1	2	
	41.2 illustrates favorable outcomes and probability of the favorable outcomes	M10SP-IIIf-g-41.2	3	
	41.3 demonstrates the probability of an event in an experiment(Experimental probability)	M10SP-IIIf-h-41.3	4	
	42. finds the probability of (A U B).	M10SP-IIIf-42.0		
	42.1 illustrates sample space and events of different of different experiments	M10SP-IIIf-42.1	1	
	42.2 finds probability of an event in a given experiment e.g. P(A), P(B) , tc	M10SP-IIIf-i-42.2	2	
	42.3 finds the probability of (A U B).	M10SP-IIIf-42.3	2	
	43. illustrates mutually exclusive events.	M10SP-IIIf-j-43	4	
	44.solves problems involving probability.	M10SP-IIIf-44	4	

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QUARTERLY TEST			2	
TOTAL NUMBER OF DAYS			45	
	Grade 10 - FOURTH QUARTER			
PERFORMANCE STANDARDS	The learner is able to conduct systematically a mini-research applying the different statistical methods.			
CONTENT STANDARDS	The learner demonstrates understanding of key concepts of measures of position.			
Content Areas/Strand	STATISTICS AND PROBABILITY			
	LEARNING COMPETENCIES	CODE	NO. OF DAYS TAUGHT	
	45. illustrates the following measures of position: quartiles, deciles and percentiles.***	M10SP-IVa-45.0		
	45.1 illustrates the following measures of position: quartiles and ***	M10SP-IVa-45.1	2	
	45.2 illustrates the following measures of position: deciles and percentiles.***	M10SP-IVa-b-45.2	4	
	46. calculates a specified measure of position (e.g. 90th percentile) of a set	M10SP-IVb-c-46	4	
	47. interprets measures of position.	M10SP-IVc-47	4	
	48. solves problems involving measures of position.	M10SP-IVd-e-48	6	
	49. formulates statistical mini-research.	M10SP-IVf-g-49	15	

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	50. uses appropriate measures of position and other statistical mini-research in analyzing and interpreting research data.	M10SP-IVh-j-50	8	
QUARTERLY TEST			2	
TOTAL NUMBER OF DAYS			45	
*** Suggestion for ICT enhanced lesson when available and where appropriate				