

INTRODUCTION

Mathematics is an indispensable tool in the world. The knowledge and application of mathematics in everyday activities provide the critical core skills of computation, translating problems into mathematical language, application of mathematical concepts and being able to find solutions.

The General objectives for Grades 10 – 12 Mathematics:

1. Acquire the necessary skills that allow learners to become problem solvers and informed decision makers.
2. Make connections between Mathematics and the Global World.
3. Bring Mathematics to life with many real-life applications.
4. Become successful in the study of Algebra II, Geometry, Trigonometry and Pre-calculus.

A learner-centered approach is emphasized in this curriculum. This is based on the firm belief that learning becomes more permanent, meaningful and exciting when learners themselves take ownership of the learning process. Instructors are therefore urged to contrive those classroom strategies that engage learners actively in the teaching and learning process.

SEMESTER ONE

GRADE: 10

PERIOD I

TOPICS: SETS AND OPERATIONS ON SETS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
<p>Learners are able to apply their concepts and skills on sets, operations on sets and solve set related problems.</p>	<p>Upon completion of this topic, learners will:</p> <ol style="list-style-type: none"> 1. Define and identify set using set notation 2. Define and discuss the types of sets (infinite set, finite set, Universal set, equal sets, equivalent sets) 3. Define , discuss and illustrate subsets 4. Discuss the Venn Diagrams 5. Use the Venn diagram to illustrate intersection of sets 6. Use the Venn diagrams to illustrate Union of sets 7. Use the Venn diagram to show disjoint sets 	<ol style="list-style-type: none"> 1. Definition of set using set notation 2. Definitions of types of sets (infinite set, finite set, Universal set, equal sets, equivalent sets) 3. Subsets 4. Venn Diagrams 5. Venn diagram to illustrate intersection of sets 6. Venn diagrams to illustrate Union of sets 7. Venn diagram to show disjoint sets and complement of a set. 8. Properties of sets 	<p><u>Inclusive and Differentiated activities</u> Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <ol style="list-style-type: none"> 1. Assist learners to define set using set notation 2. Guide learners infinite set, finite set, Universal set, equal sets, equivalent sets and 3. Assist learners to form subsets and determine basic equation for subsets. <p>Guide learners to draw the Venn Diagram and illustrate</p> <ol style="list-style-type: none"> 1. intersection of sets 2. Union of sets 3. disjoint sets and complement of a set 4. Guide learners to use Venn diagram to solve 	<p>Primary Text Mathematics for Senior High School (Book 1, (Pearson)</p> <p>Links: www.khanacademy.com www.mathway.com www.m.quickmath.com www.chegg.com www.symbolab.com www.cymath.com</p>	<p>EXPECTED COMPETENCIES</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p><u>ASSESSMENTS STRATEGIES:</u> Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • Attendances • Oral questions and Answers • Class Assignment and Participation • Observation • Assignments • Research • Quiz • Test

	<p>and complement of a set.</p> <p>8. State and discuss the properties of sets</p> <p>9. Use the Venn diagrams to solve two-set and three-set problems</p>	<p>9. Venn diagrams to solve two-set and three-set problems</p>	<p>two- set and three set problem</p>		<ul style="list-style-type: none"> • -Exams
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SEMESTER ONE

GRADE: 10
PERIOD: 1
UNIT II
TOPIC: RATIONAL NUMBERS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENT
Learners are able to apply the concept of rational numbers to add and subtract rational numbers, multiply rational numbers, employ the properties of multiplication on rational numbers and solve problems involving real numbers and their number line diagrams.	<p>Upon completion of this topic, learners will:</p> <ol style="list-style-type: none"> 1. Identify and discuss rational Number 2. Solve addition and subtraction of rational 3. Solve multiplication of rational 4. State and use the properties of multiplication of rational numbers 5. Solve Decimal representation 6. Define Real numbers and illustrate it on the real number line 	<p>Rational Number</p> <ul style="list-style-type: none"> • Addition and Subtraction of rational numbers • Multiplication of rational numbers • Properties of multiplication of rational numbers • Division of rational numbers • Decimal representation • Real numbers • The real number line • Properties of real numbers • Approximation 	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Guide learners to :</p> <p>Identify and discuss:</p> <p>a. rational Number</p> <p>Solve: Addition and Subtraction of rational numbers Solve</p> <p>a. Multiplication of rational</p> <p>State and use:</p> <p>a. the properties of multiplication of rational numbers</p>	<p><u>Primary Text</u> Mathematics for Senior High School (Book 1, 3) (Pearson)</p> <p>Links: www.khanacademy.com www.mathway.com www.m.quickmath.com www.chegg.com www.symbolab.com www.cymath.com</p>	<p>EXPECTED COMPETENCIES</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p><u>ASSESSMENT STRATEGIES:</u> Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • Attendances • Oral questions and Answers • Class Assignment and Participation • Observation • Assignments • Research • Quiz • Test • Exams

	<p>7. Identify the Properties of real numbers</p> <p>8. Discuss Approximation</p> <p>9. Demonstrate Standard Form Tate Bina</p>	<ul style="list-style-type: none"> • Standard Form • Binary Operation 	<p>Demonstrate: the Division of rational numbers</p> <p>Solve:</p> <p style="padding-left: 40px;">a. Decimal representation</p> <p>Define; A Real numbers and illustrate it on the real number line</p> <p>Identify: The Properties of real numbers</p> <p>Discuss: Approximation</p> <p>Demonstrate numbers in Standard Form</p> <p>State: Binary Operation</p>		
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SEMESTER ONE

GRADE: 10

PERIOD 11

TOPICS 1: ALGEBRAIC EXPRESSION

LEARNING OUTCOMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
<p>Learners are able to apply the concepts to form algebraic statements, form algebraic expressions, evaluate algebraic expressions, determine relations between two algebraic expressions:</p> <ul style="list-style-type: none"> • Expansion • Algebraic fraction • Factorization • Product of two binomials • Perfect squares • Difference of two squares 	<p>Upon completion of this topic, learners will:</p> <ol style="list-style-type: none"> 1. Express Statements in algebraic expression 2. Discuss Numerical Statement 3. Form Algebraic Expressions 4. Evaluate Algebraic Expressions 5. Show Relations between two algebraic expressions 6. Demonstrate Expansion of algebraic expressions 7. Add and Subtract Algebraic fraction 8. Discuss and solve problems on factorization 9. Product of two binomials 10. Express Perfect square 	<p>Algebraic Expression</p> <ul style="list-style-type: none"> • Algebraic Statements • Numerical Statement • Forming Algebraic Expression • Evaluating Algebraic Expression Relations between two algebraic expression • Expansion • Algebraic fraction • Factorization • Product of two binomials • Perfect square • Difference of two squares 	<p>Inclusive and Differentiated activities Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Discuss and Analyze:</p> <ol style="list-style-type: none"> a. Statements in algebraic expression b. Numerical Statement <p>Form and Evaluate</p> <ol style="list-style-type: none"> a. Algebraic Expression b. Relations between two algebraic expressions <p>Demonstrate skills</p> <ol style="list-style-type: none"> a. Expansion algebraic expressions b. Add and Subtract Algebraic fraction <p>Define, Discuss and Solve</p> <ol style="list-style-type: none"> a. Factorization b. Product of two binomials c. Perfect square d. Difference of two squares 	<p>Primary Text Mathematics for Senior High School (Book 1 (Pearson)</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENTS STRATEGIES: Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • Attendances • Oral questions and Answers • Class Assignment and Participation • Observation

<ul style="list-style-type: none"> • Factoring quadratic expressions 	<p>11. Show Difference of two squares</p> <p>12. Factorize quadratic expressions</p>	<ul style="list-style-type: none"> • Factorizing quadratic expressions 	<p>Factorize:</p> <p>a. quadratic expressions</p>		<ul style="list-style-type: none"> • Assignments • Research • Quiz • Test • Exams
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LEARNING OUTCOMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES /ASSESSMENTS
<p>Learners are able to apply the concepts to form algebraic statements, form algebraic expressions, evaluate algebraic expressions, determine relations between two algebraic expressions:</p> <ul style="list-style-type: none"> • Expansion • Algebraic fraction • Factorization • Product of two binomials • Perfect squares • Difference of two squares • Factoring quadratic expressions 	<p>Upon completion of this topic, learners will:</p> <p>13. Express Statements in algebraic expression</p> <p>14. Discuss Numerical Statement</p> <p>15. Form Algebraic Expressions</p> <p>16. Evaluate Algebraic Expressions</p> <p>17. Show Relations between two algebraic expressions</p> <p>18. Demonstrate Expansion of algebraic expressions</p> <p>19. Add and Subtract Algebraic fraction</p> <p>20. Discuss and solve problems on factorization</p> <p>21. Product of two binomials</p> <p>22. Express Perfect square</p> <p>23. Show Difference of two squares</p>	<p><u>Algebraic Expression</u></p> <ul style="list-style-type: none"> • Algebraic Statements • Numerical Statement • Forming Algebraic Expression • Evaluating Algebraic Expression Relations between two algebraic expression • Expansion • Algebraic fraction • Factorization • Product of two binomials • Perfect square • Difference of two squares • Factorizing quadratic expressions 	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p><u>Discuss and Analyze:</u></p> <p>c. Statements in algebraic expression</p> <p>d. Numerical Statement</p> <p><u>Form and Evaluate</u></p> <p>a. Algebraic Expression</p> <p>b. Relations between two algebraic expressions</p> <p><u>Demonstrate skills</u></p> <p>a. Expansion algebraic expressions</p> <p>b. Add and Subtract Algebraic fraction</p> <p><u>Define, Discuss and Solve</u></p> <p>a. Factorization</p> <p>b. Product of two binomials</p> <p>c. Perfect square</p> <p>d. Difference of two squares</p> <p><u>Factorize:</u></p> <p>a. quadratic expressions</p>	<p><u>Primary Text</u></p> <p>Mathematics for Senior High School (Book 1 (Pearson))</p> <p><u>Links:</u></p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p><u>EXPECTED COMPETENCES:</u></p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p><u>ASSESSMENTS STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • Attendances • Oral questions and Answers • Class Assignment and Participation • Observation • Assignments • Research • Quiz

	24. Factorize quadratic expressions				<ul style="list-style-type: none">• -Test• -Exams
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SEMESTER ONE

GRADE: 10

PERIOD 11

TOPIC 11: NUMBER BASE

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	EVALUATION /COMPETENCIES
<p>Learners are able to apply concepts and skills to solve problems on number base.</p>	<p>Upon completion of this topic , learners will:</p> <ol style="list-style-type: none"> 1. Discuss the base ten system 2. Convert base ten to other bases 3. Add and Subtract in bases five and eight 4. Multiply in bases 5. Operate in other bases 6. Convert from other bases to base ten 7. Solve simple equations on bases. 	<p>Number Base</p> <ul style="list-style-type: none"> • The base ten system • Convert to other bases • Add and Subtract in bases five and eight • Multiplication • Operate in other bases • Convert from other bases to base ten • Simple base equations 	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Assist learners to :</p> <p>analyze and solve :problems on :</p> <ol style="list-style-type: none"> a. the base ten system <p>Convert :</p> <ol style="list-style-type: none"> a. from base ten to other bases <p>add, subtract and multiply:</p> <ol style="list-style-type: none"> a. In bases five, eight and ten <p>Operate:</p> <ol style="list-style-type: none"> a. in other bases <p>Convert:</p> <ol style="list-style-type: none"> a. from other bases to base ten <p>Solve:</p> <ol style="list-style-type: none"> a. Simple base equations 	<p><u>A. Primary Text</u></p> <p><i>Mathematics for Senior High School (Book 1(Pearson)</i></p> <p><u>B. Secondary Texts</u></p> <p>AKI-OLA series</p> <p>Core mathematics for senior secondary schools</p> <p>Links:</p> <p><u>www.khanacademy.com</u></p> <p><u>www.mathway.com</u></p> <p><u>www.m.quickmath.com</u></p> <p><u>www.chegg.com</u></p> <p><u>www.symbolab.com</u></p> <p><u>www.cymath.com</u></p>	<ul style="list-style-type: none"> • EXPECTED Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENTS</p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments

					<ul style="list-style-type: none">• -Research• -Quiz• -Test• -Exams
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SEMESTER ONE

GRADE: 10
PERIOD 111
TOPIC: PLANE GEOMETRY

LEARNING OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
Learners are able to draw and measure angles, calculate angles, identify angle properties of parallel lines, draw and name triangles, apply angle properties of triangles, solve right-triangle, apply Pythagorean triples, and solve problems on quadrilaterals	Upon completion of this topic, learners will: <ol style="list-style-type: none"> 1. Draw and measure angles 2. Calculate angle 3. Discuss angle properties of parallel lines 4. Draw and name Triangles 5. Discuss angle properties of triangles 6. Discuss Right – angled triangles 7. Define and apply the Pythagoras theorem 8. Pythagoras triples 9. Determine the Square and square root 10. Discuss the property of the polygons 11. Describe and calculate the angels: <ol style="list-style-type: none"> a. Parallelograms and trapezium b. Kites c. Rhombuses d. Rectangles and squares 	<u>Plane and geometry</u> <ul style="list-style-type: none"> • Measuring and drawing angle • Calculating angle • Angle properties of parallel lines • Triangles • Angle properties of triangles • Right – angled triangles • Pythagoras theorem • Pythagorean triples • Square and square root • polygons • Parallelograms and trapezium -Kites -Rhombuses	<u>Inclusive and Differentiated activities</u> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Draw and measure:</p> <ol style="list-style-type: none"> a. angle <p>Calculate:</p> <ol style="list-style-type: none"> a. angle <p>Discuss :</p> <ol style="list-style-type: none"> a. angle properties of parallel lines <p>Draw and name:</p> <ol style="list-style-type: none"> a. Triangles <p>Discuss :</p> <ol style="list-style-type: none"> a. angle properties of triangles b. Right – angled triangles 	<u>Primary Text</u> <p><i>Mathematics for Senior High School (Book 1</i> (Pearson)</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<u>EXPECTED COMPETENCIES</u> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

		<p>Rectangles and squares</p>	<p>Define and apply: a. the Pythagoras theorem</p> <p>Determine : a. Square and square root</p> <p>Discuss : a. property of the polygons</p> <p>Describe and calculate the angels: a. Parallelograms and trapezium b. Kites c. Rhombuses d. Rectangles and squares</p>		
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SEMESTER TWO

GRADE: 10
Period: 1V
TOPIC: **LINEAR EQUATIONS AND INEQUALITIES**

LEARNING OUTCOMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
<p>Learners are able to apply concepts and skills to discuss and solve related problems on linear equations, inequalities.</p>	<p>upon the completion of this topic, learners will:</p> <ol style="list-style-type: none"> 1. Use Equality and equivalence concepts 2. Find the solution set of a linear equations 3. Solve word problems and equations 4. Solving linear inequalities in one variable 5. Graph of linear inequalities in one graph 6. Use word problems on inequalities 	<p>Linear equations and inequalities</p> <ul style="list-style-type: none"> • Equality and equivalence • Finding the solution set of a linear equation • Word problem and equations • Solving linear inequalities in one variable • Graph of linear inequalities in one graph • Word problem and inequalities 	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Assist learners to : Identify equality and equivalence</p> <ul style="list-style-type: none"> • Find the solution sets of linear equations • Solve word problems and equations • Solve linear inequalities in one variable • Graph linear inequalities in one graph • Solve word problems on linear inequalities 	<p><u>Primary Text</u></p> <p><i>Mathematics for Senior</i></p> <p><i>High School (Book 1)(Pearson)</i></p> <p>Links:</p> <p><u>www.khanacademy.com</u></p> <p><u>www.mathway.com</u></p> <p><u>www.m.quickmath.com</u></p> <p><u>www.chegg.com</u></p> <p><u>www.symbolab.com</u></p> <p><u>www.cymath.com</u></p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

Semester TWO

GRADE: 10
PERIOD 1V
TOPIC: RELATIONS AND FUNCTIONS

LEARNING OUTCOMES	OBJECTIVES	COENTENTS	ACTIVITIES	MATERIALS/ RESOURCES	EVALUATION /COMPETENCIES
<p>Learners are able to apply concepts to solve problems on relations, functions, graph relations and functions and determine the gradient of straight lines and calculate distance between two points.</p>	<p>upon the completion of this topic, learners will:</p> <ol style="list-style-type: none"> 1. Discuss Relations 2. Distinguish between the various types of relations 3. Identify Functions 4. Change the subject of the relation 5. Graph linear functions 6. Find the Gradient of a straight line 7. Calculate the distance between two points 8. Graphs quadratic functions 	<p><u>Relations and Functions</u></p> <ul style="list-style-type: none"> • Relations • Types of relations • Functions • Change of subject • Graph of linear functions • Gradient of a straight line • Distance between two points • Graphs of quadratic functions 	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Assist learners to</p> <p>Discuss:</p> <ol style="list-style-type: none"> a. Relations <p>Distinguish</p> <ol style="list-style-type: none"> a. between the various types of relations <p>Identify</p> <ol style="list-style-type: none"> a. Functions of relations <p>Change the subject of the relation</p> <p>Graph</p> <ol style="list-style-type: none"> a. linear functions <p>Find:</p> <ol style="list-style-type: none"> a. the Gradient of a straight line <p>Calculate:</p>	<p><u>Primary Text</u></p> <p><i>Mathematics for Senior High School (Book 1(Pearson)</i></p> <p>Links:</p> <p><u>www.khanacademy.com</u></p> <p><u>www.mathway.com</u></p> <p><u>www.m.quickmath.com</u></p> <p><u>www.chegg.com</u></p> <p><u>www.symbolab.com</u></p> <p><u>www.cymath.com</u></p>	<p><u>COMPETENCIES</u></p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments

			a. the distance between two points Graphs: a. quadratic functions		<ul style="list-style-type: none">• -Research• -Quiz• -Test• -Exams
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SEMESTER TWO

GRADE: 10
PERIOD V
TOPIC: SIMULTANEOUS LINEAR EQUATIONS

LEARNING OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
<p>Learners are able to solve simultaneous linear equations using the methods of (i) graphs, (ii) elimination and (iii) substitution and they are able to solve word problems under this topic.</p>	<p>Upon the completion of this topic, learners will:</p> <ol style="list-style-type: none"> 1. Solve simultaneous linear equations 2. Define and discuss Truth sets for simultaneous linear relations 3. Use of graph 4. Identify elimination 5. Discuss substitution 6. Solve more Word Problem in simultaneous linear equations 	<p>Simultaneous linear equations</p> <ul style="list-style-type: none"> • Simultaneous linear equations • Truth sets for simultaneous linear relations • Use of graph • Elimination • Discuss substitution <p>Word Problem in simultaneous linear equations</p>	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Solve:</p> <ol style="list-style-type: none"> a. simultaneous linear equations <p>Define and discuss:</p> <p>Truth sets for simultaneous linear</p> <p>Solve simultaneous equations by:</p> <ol style="list-style-type: none"> a. elimination b. Substitution c. graph <p>Solve :</p> <ol style="list-style-type: none"> a. more Word Problems in simultaneous linear equations 	<p><u>Primary Text</u></p> <p><i>Mathematics for Senior</i></p> <p><i>High School (Book 1 (Pearson))</i></p> <p>Links:</p> <p><u>www.khanacademy.com</u></p> <p><u>www.mathway.com</u></p> <p><u>www.m.quickmath.com</u></p> <p><u>www.chegg.com</u></p> <p><u>www.symbolab.com</u></p> <p><u>www.cymath.com</u></p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

Semester Two

**GRADE:
PERIOD
TOPIC**

**10
V**

VECTOR IN A PLANE

LEARNING OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ASSESSMENTS
<p>Learners are able to apply concepts to identify the types of vector quantities,, determine the magnitude and direction of vector, perform basic operations (addition, subtraction and multiplication) on vectors</p>	<p>upon the completion of this topic, learners will: 1. Discuss the Types of vector quantities 2. Distinguish between scalar and vector quantities 3. Magnitude and direction of vector 4. Add and subtract vectors 5. Multiply the vector by a scalar</p>	<p>Vector in a plane</p> <ul style="list-style-type: none"> • Types of vector quantities • scalar and vector quantities • Magnitude and direction of vector • Addition and subtraction of vector <p>scalar multiplication</p>	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Guide learners to: Discuss: a. the Types of vector quantities Distinguish: a. between scalar and vector quantities Calculate: a. Magnitude and direction of vector Add and subtract : a. vector Multiply: a. vector by a scalar</p>	<p><u>Primary Text</u></p> <p>Mathematics for Senior High School (Book 1 (Pearson))</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p><u>EXPECTED COMPETENCES:</u></p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENTS</p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

GRADE: 10
PERIOD V1
UNIT I
TOPICS: RIGID MOTION

LEARNING OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ASSESSMENTS
<p>Learners are able to apply concepts to rigid motion by drawing its image using the methods of (i)translation , (ii) reflection and determine its symmetry</p>	<p>upon the completion of this topic, learners will: 1. Discuss and draw rigid motion 2. Draw and Translate images to other position 3. Identify and explain reflection of object in the mirror line 4. Construct symmetry object</p>	<p>Rigid Motion</p> <ul style="list-style-type: none"> • Rigid motion • Translation • Reflection • Symmetry 	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Discuss and draw:</p> <p>a. rigid motion</p> <p>Draw and Translate:</p> <p>a. images to other position</p> <p>Identify and explain:</p> <p>a. reflection of object in the mirror line</p> <p>Construct :</p> <p>a. symmetry object</p>	<p>Primary Text</p> <p><i>Mathematics for Senior High School (Book 1(Pearson)</i></p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p><u>EXPECTED COMPETENCES</u></p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSNEBT</p> <p>STRATEGIES:</p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

GRADE: 10
PERIOD: V1
UNIT II
TOPICS: A. STATISTICS,
B, RATIO AND RATES
C. PERCENTAGES

LEARNING OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
<p>Learners are able to apply concepts of statistics, ratio, rates and percentages to solve problems on these topics.</p> <p>Student will use the HIV, STIs data and use the statistical approach to explain the effect of HIV and STIs on the population and solve problems relating to scale drawing, ratio ,rates and percent,</p>	<p>Upon the completion of these topics, learners will:</p> <ol style="list-style-type: none"> 1. define and discuss Statistics 2. construct Frequency table 3. discuss Graphical display 4. discuss and define Averages 5. Define and discuss Ratio and rates 6. Define and analyze scales and scale drawing 7. Demonstrate the use of rates in problem solving 8. Define and discuss travel graphs and conversion graphs 9. Identify and discuss percentages 	<ol style="list-style-type: none"> 1. Statistics 2. Ratio and Rates 3. Percentages <ul style="list-style-type: none"> • Statistics • Define statistical concepts • Frequency tables and histograms. Measures of central tendency (mode, median and mean), stem and leaf plot • Graphical displays • Box and whisker plot <ul style="list-style-type: none"> • Averages • Ratio • Scale drawing Rates • Using rates Travel graphs and conversion graphs • Percentages 	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Assist learners to: define and discuss</p> <ol style="list-style-type: none"> a. Statistics b. Frequency table c. Graphical display d. Averages e. Ratio and rates <p>discuss and analyze :</p> <ol style="list-style-type: none"> a. scales and scale drawing <p>demonstrate:</p> <ol style="list-style-type: none"> a. the use of rates in problem solving <p>define and discuss :</p>	<p><u>A. Primary Text</u></p> <p><i>Mathematics for Senior</i></p> <p><i>High School (Book 1 (Pearson)</i></p> <p><u>B. Secondary Texts</u></p> <p>Population data</p> <p>Links:</p> <p><u>www.khanacademy.com</u></p> <p><u>www.mathway.com</u></p> <p><u>www.m.quickmath.com</u></p> <p><u>www.chegg.com</u></p> <p><u>www.symbolab.com</u></p>	<p>EXPECTED COMPETENCES</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT STRATEGIES:</p> <p>Can be used to check competences. Select relevant options:</p>

	<p>10. Solve problems Using percentages</p>	<p>Using percentages</p> <ul style="list-style-type: none"> • Define statistical concepts • Frequency tables and histograms. Measures of central tendency (mode, median and mean), stem and leaf plot • Box and whisker plot 	<p>a. travel graphs and conversion graphs</p> <p>identify and discuss</p> <p>a. percentages</p> <p>solve problems:</p> <p>a. Using percentages</p> <p>define and explain the concepts of statistical terminologies and their effect on the population</p> <p>b. use given data or hypothetical figure representing HIV data to make a frequency table</p> <p>c. use the frequency table to construct a histogram</p> <p>d. use the data to find the central tendency (mean, mode, median)</p> <p>e. From the data, construct the stem and leaf plot</p> <p>f. use the data to construct the box and whisker plot</p>	<p>www.cymath.com</p>	<ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams
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SEMESTER ONE

GRADE: 11
PERIOD: 1
UNIT I
TOPIC: MODULAR ARITHMETIC

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	EVALUATION /COMPETENCIES
<p>Learners are able to apply polygonal arithmetic and modular arithmetic to perform basic operations (addition, subtraction, multiplication and division) on modular arithmetic.</p>	<p>: Upon the completion of this topic learners will:</p> <ol style="list-style-type: none"> 1. define and discuss Polygonal arithmetic 2. define and discuss Modular arithmetic 3. define and discuss cyclic variables 4. Divide Using Modular arithmetic 	<ul style="list-style-type: none"> • Polygonal arithmetic • Modular arithmetic • Cyclic variables • Using Modular arithmetic 	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Assist learners to:</p> <p>define and discuss</p> <ol style="list-style-type: none"> a. Polygonal arithmetic b. Modular arithmetic c. cyclic variables <p>divide:</p> <ol style="list-style-type: none"> a. Using Modular arithmetic 	<p><u>Primary Text</u></p> <p><i>Mathematics for Senior</i></p> <p><i>High School (Book,2 (Pearson)</i></p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p><u>EXPECTED COMPETENCIES</u></p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p>STRATEGIES:</p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

SEMESTER ONE

PERIOD: 1
GRADE: 11

UNIT II

TOPIC: INDICES AND LOGARITHMS

LEARNING OUTCOMES	CONTENTS	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	EVALUATION /COMPETENCIES
<p>Learners are able to apply to concepts to solve problems on indices, exponential growth, and apply logarithmic laws to solve problems</p>	<p>: Upon the completion of this topic learners will:</p> <ol style="list-style-type: none"> 1. Define and discuss Indices(notation, laws) 2. Define and discuss properties of indices 3. Define and discuss exponential growth 4. Discuss and solve negative Powers 5. Define and discuss properties of indices 6. Define and discuss rational powers 7. Define and discuss logarithms Apply the Logarithms functions to solve problems 8. Define and apply base ten logarithms 9. Solve logarithmic of numbers greater than 10 10. Solve logarithmic of numbers between 0 and 1 11. Define and discuss laws of logarithms 	<ul style="list-style-type: none"> • Indices • Exponential growth • Negative Powers • Properties of indices • Rational powers • Logarithms • Logarithms functions • Base ten logarithms • Logarithmic of numbers greater than 10 • Logarithmic of numbers between 0 and 1 • Laws of logarithms 	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Assist learners to :</p> <p>define and discuss</p> <ol style="list-style-type: none"> a. Indices(notation, laws) b. exponential growth <p>discuss and solve</p> <ol style="list-style-type: none"> a. negative Powers b. properties of indices c. rational power d. logarithms <p>apply :</p> <ol style="list-style-type: none"> a. Logarithms functions to solve problems <p>Define and apply:</p> <ol style="list-style-type: none"> a. base ten logarithms <p>solve</p> <ol style="list-style-type: none"> a. logarithmic of numbers greater than 10 b. Solve logarithmic of numbers between 0 and 1 <p>define and discuss</p>	<p><u>A. Primary Text</u></p> <p><i>Mathematics for Senior High School (Book ,2 (Pearson)</i></p> <p><u>B. Secondary Texts</u></p> <p>Core Mathematics for West Africa by Asiedu published by Aki-Ola Series.</p> <p>Links:</p> <p><u>www.khanacademy.com</u></p> <p><u>www.mathway.com</u></p> <p><u>www.m.quickmath.com</u></p> <p><u>www.chegg.com</u></p> <p><u>www.symbolab.com</u></p> <p><u>www.cymath.com</u></p>	<p><u>COMPETENCIES</u></p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p>STRATEGIES:</p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz

			a. laws of logarithms		<ul style="list-style-type: none">• -Test• -Exams
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SEMESTER ONE

PERIOD: 11

GRADE: 11

TOPIC: SURDS AND PERCENTAGES

LEARNING OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	EVALUATION /COMPETENCIES
<p>Learners are able to apply skills to solve problems on surds (simplifying, multiplying and dividing) and compute simple and compound interests, depreciation and hire purchase.</p>	<p>: Upon the completion of this topic learners will:</p> <ol style="list-style-type: none"> 1. Define and discuss surds 2. Simplify surds 3. Product and quotients of surds 4. Compound interest in relation to - Simple interest 5. Define and discuss Interest formulae 6. Define and discuss depreciation and hire purchase 	<ul style="list-style-type: none"> • Surds • Simplifying surds • Product and quotients of surds • Compound interest in relation to simple interest • Interest formulae • Depreciation 	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Assist learners to : define and discuss</p> <ol style="list-style-type: none"> a. Surds <p>simplify</p> <ol style="list-style-type: none"> a. surds <p>Product and quotients of:</p> <ol style="list-style-type: none"> a. surds <p>Compound interest in relation to</p> <ul style="list-style-type: none"> - Simple interest <p>Define and discuss</p> <ol style="list-style-type: none"> a. Interest formulae b. Depreciation c. Hire purchase 	<p><u>A. Primary Text</u></p> <p><i>Mathematics for Senior High School (Book,2 (Pearson)</i></p> <p><u>B. Secondary Texts</u></p> <p>Core Mathematics for West Africa by Asiedu and published by Aki-Ola Series</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p><u>EXPECTED COMPETENCES</u></p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p><u>ASSESSMENT</u></p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

SEMESTER ONE

PERIOD: 111
GRADE: 11
TOPIC1: VARIATION

LEARNING OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	EVALUATION /COMPETENCIES
<p>Learners are able to apply skills to solve problems on direct, inverse, joint and partial variation.</p>	<p>Upon completion of this topic learners will:</p> <ol style="list-style-type: none"> 1. Define and solve direct Variation 2. Define and solve Inverse Variation 3. Define and solve Joint variation 4. Define and solve partial variation 	<ul style="list-style-type: none"> • Direct Variation • Inverse Variation • Joint variation • Partial variation 	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Assist learners to: analyze and solve</p> <ol style="list-style-type: none"> a. direct Variation b. Inverse Variation c. Joint variation d. partial variation 	<p><u>A. Primary Text</u></p> <p><i>Mathematics for Senior</i></p> <p><i>High School (Book 2) (Pearson)</i></p> <p><u>B. Secondary Texts</u></p> <p>Core Math</p> <p>Links:</p> <p><u>www.khanacademy.com</u></p> <p><u>www.mathway.com</u></p> <p><u>www.m.quickmath.com</u></p> <p><u>www.chegg.com</u></p> <p><u>www.symbolab.com</u></p> <p><u>www.cymath.com</u></p>	<p><u>EXPECTED COMPETENCIES:</u></p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENTS</p> <p>,STRATEGIES:</p> <ul style="list-style-type: none"> • Can be used to check competences. Select relevant options: • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

PERIOD: 111
GRADE: 11
TOPIC 11: QUADRATIC FUNCTIONS AND EQUATIONS

LEARNING OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
<p>Learners are able to apply concepts to graph quadratic functions and equations, solve quadratic equations by the following methods: (I) factorization, (ii) by completing the squares and using (iii) quadratic formula and solve word problems on quadratic equations</p>	<p>: Upon the completion of this topic learners will:</p> <ol style="list-style-type: none"> 1. Define and discuss quadratic functions 2. Define and Solve quadratic equations 3. Solving quadratic equations by factorization 4. Solving Quadratic problems 5. Solving quadratic equations by completing the square (optional) 6. Draw quadratic graphs 7. Solving quadratic equations graphically 	<ul style="list-style-type: none"> • Quadratic functions • Quadratic equations • Solving quadratic equations by factorization • Quadratic problems • Solving quadratic equations by completing the square (optional) • Quadratic graphs • Solving quadratic equations graphically 	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Assist learners to: define and discuss a. quadratic functions define and Solve: a. quadratic equations Solving: a. quadratic equations by factorization b. Quadratic problems c. quadratic equations by completing the square (optional) draw: a. quadratic graphs solving: a. quadratic equations graphically</p>	<p><u>A. Primary Text</u></p> <p><i>Mathematics for Senior High School (Book 2 (Pearson)</i></p> <p><u>B. Secondary Texts</u></p> <p>Core Mathematics for West African Schools by Peter Asiedu and published by Aki-Ola Series</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p><u>COMPETENCIES</u></p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p><u>ASSESSMENT</u></p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

SEMESTER TWO

GRADE 11
PERIOD 1V
TOPIC: MEASURATION

LEARNING OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	EVALUATION /COMPETENCIES
<p>Learners are able to demonstrate skills in discussing topics on mensuration and solve basic problems relating to mensuration.</p>	<p>MENSURATION: Upon the completion of this topic learners will:</p> <ol style="list-style-type: none"> 1. Discuss and construct the circle as a locus 2. State and use circle theorems 3. Identify and construct tangents to a circle 4. Identify and construct alternate segment 5. Calculate perimeter of plane shapes 6. Find the area of rectangles and square 7. Find the area of parallelograms 8. Find the area of triangles 9. Discuss and construct Circles 10. Calculate the arcs and sectors 	<ul style="list-style-type: none"> • The circle as a locus • Circle theorems • Tangents to a circle • Alternate segment • Perimeter of plane shapes • Area of rectangles and square • Area of parallelograms • Area of triangles • Circles • Arcs and sectors 	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Assist learners to: discuss and construct</p> <p style="padding-left: 20px;">a. the circle as a locus</p> <p>State and use</p> <p style="padding-left: 20px;">a. circle theorems</p> <p>identify and construct:</p> <p style="padding-left: 20px;">a. tangents to a circle</p> <p style="padding-left: 20px;">a. alternate segment</p> <p>Calculate</p> <p style="padding-left: 20px;">a. perimeter of plane shapes</p> <p>Find the area</p> <p style="padding-left: 20px;">a. rectangles and square</p> <p style="padding-left: 20px;">b. parallelograms</p> <p style="padding-left: 20px;">c. triangles</p> <p>discuss and construct:</p> <p style="padding-left: 20px;">a. Circles</p> <p>name the part</p> <p style="padding-left: 20px;">a. Circle</p> <p>calculate:</p> <p style="padding-left: 20px;">a. arcs and sectors</p>	<p><u>A. Primary Text</u></p> <p><i>Mathematics for Senior High School (Book 2 (Pearson))</i></p> <p><u>B. Secondary Texts</u></p> <p>Core Mathematics for West African School by Peter Asiedu and published by Aki-Ola Series.</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p><u>EXPECTED COMPETENCES:</u></p> <ul style="list-style-type: none"> • Analytical skills • Problem-solving skills • Creativity and innovation skills • Digital Skills <p><u>ASSESSMENT</u></p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

SEMESTER TWO

PERIOD: V
GRADE: 11
TOPIC: TRIGONOMETRY

LEARNING OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ASSESSMENTS
<p>Learners are able to demonstrate analytical skills to solve trigonometric problems.</p>	<p>Upon the completion of this topic learners will:</p> <ol style="list-style-type: none"> 1. Define and compute angle of slope and gradient 2. Define and compute the tangent of an angle 3. Find heights and distances 4. Compute problems involving rotation 5. Define and compute cosine of an angle 6. Define and compute sine of an angle 7. Discuss the uses of trigonometry 	<ul style="list-style-type: none"> • Angle of slope and gradient • The tangent of an angle • Finding heights and distances • Problems involving rotation • Cosine of an angle • Sine of an angle • Uses of trigonometry • Trigonometric ratios of 30°, 60° and 45° • Angles of elevation and depression 	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Assist learners to: define and compute:</p> <ul style="list-style-type: none"> • angle of slope and gradient • tangent of an angle <p>find: heights and distances, apply the use of trigonometric ratios.</p> <p>compute: problems involving rotation</p> <p>Define and compute</p> <ul style="list-style-type: none"> • cosine of an angle • sine of an angle <p>discuss: uses of trigonometry</p> <p>calculate:</p> <ul style="list-style-type: none"> • the value trigonometric 	<p><u>A. Primary Text</u></p> <p><i>Mathematics for Senior High School (Book ,2 (Pearson)</i></p> <p><u>B. Secondary Texts</u></p> <p>Core Mathematics for West African Schools by Peter Asiedu and published by Aki-Ola Series</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p><u>EXPECTED COMPETENCES</u></p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p><u>ASSESSMENT</u></p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

	<p>8. Calculate the value trigonometric ratios of 30°, 60° and 45°</p> <p>9. Find the inverse of trigonometry ratio</p> <p>Angles of elevation and depression</p>		<ul style="list-style-type: none"> ratios of 30°, 60° and 45° <p>find: the inverse of trigonometry ratio</p> <p>calculate : angles of elevation and depression</p>		
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SEMESTER TWO

PERIOD: V1
GRADE: 11
TOPIC: PROBABILITY

LEARNING OUTCOMES	Objectives	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ASSESSMENTS
<p>Learners are able to: Solve problems on probability determining relative frequency, calculate compound events, compute union of events and intersection of events and independent events</p>	<p>: Upon the completion of this topic learners will:</p> <ol style="list-style-type: none"> 1. Define and discuss probability 2. Determine the relative frequency 3. Calculate compound events 4. Compute Union of events 5. Compute intersection of events 6. Compute independent events 	<ul style="list-style-type: none"> • Probability • Relative frequency • Compound events • Union of events • Intersection of events • Review of the basic concepts of set, Venn, tree diagram, and contingency tables • Sample space and events of an experiment • The probability of an event (STIs, HIV, teenage pregnancy, rape, relationship) <p>The odds of an events</p>	<p><u>Inclusive and Differentiated activities</u></p> <p>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</p> <p>Assist learners to: define and discuss a. probability determine: a. the relative frequency calculate: a. compound events compute: a. Union of events b. intersection of events c. independent events</p> <p>Brainstorm on the definition and concepts associated with probabilities, e.g. sample space, event, odds for, odds against, simple events mutually exclusive events etc. From a sample space using the following as events: STI, HIV, teenage pregnancy, rape relationship etc.</p>	<p><u>A. Primary Text</u> <i>Mathematics for Senior</i> <i>High School (Book ,2 (Pearson)</i></p> <p><u>B. Secondary Texts</u></p> <p>Population Data</p> <p>Links: www.khanacademy.com www.mathway.com www.m.quickmath.com www.chegg.com www.symbolab.com www.cymath.com</p>	<p><u>EXPECTED COMPETENCES</u></p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p>STRATEGIES:</p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

			<ol style="list-style-type: none">a. Find the probability of each event in activity two. e.g., represent each of the events with figure obtained from the data, and then find the probability of each.b. Construct a sex networkc. Use the sex network to show how STI and HIV can be spread from person to another in a matrix.d. use a deck of cards as sample space of population and determining the probability of contracting STI from the given sample spaces		
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SEMESTER ONE

GRADE 12
PERIOD 1
UNIT I
TOPIC: SEQUENCE AND SERIES

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
Learners are able to apply concepts to solve problems on arithmetic sequence and geometric progression.,	<p>Upon completion of this topic, learners will:</p> <ol style="list-style-type: none"> 1. Define and identify sequence 2. Define and , discuss arithmetic sequence or arithmetic progression 3. State the formula for arithmetic sequence or arithmetic progression and use it to solve problems 4. Define and discuss geometric sequence or geometric progression 5. State the formula for geometric 	<ol style="list-style-type: none"> 1. Definition of arithmetic Sequence(progression 2. State the formula for arithmetic sequence and use it to solve problems 3. Definition of geometric sequence (progression) 4. State its formula and us it to solve problems 5. State the formula for finding the sum of arithmetic series and use it to solve problems 6. State the formula for finding the sum of geometric series and use it to solve problems 	<p>Inclusive and Differentiated activities</p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Exercises/Assignment Assist learners to: define and discuss</p> <ol style="list-style-type: none"> 1. Arithmetic sequence and geometric sequence? Why are they called arithmetic progression and geometric progression? State and discuss 2. State and discuss the formula for A.P.(Arithmetic Progression) and geometric progression and use them to solve basic problems. 3. State the formula for finding the sum of arithmetic series and geometric series and use them to solve problems 	<p>Prescribed textbook: Mathematics for Senior High Schools Students’ Book 3& 4 by Pearson</p> <p>Supplementary books</p> <p>Links: www.khanacademy.com www.mathway.com www.m.quickmath.com www.chegg.com www.symbolab.com www.cymath.com</p>	<p><u>EXPECTED COMPETENCES:</u></p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research

	<p>sequence or geometric progression and use it to solve problems</p> <p>6. State the equation or formula for finding the sum of an arithmetic series and use the formula to solve problems</p> <p>7. State the formula for finding the sum of a geometric series and it to solve problems</p>				<ul style="list-style-type: none"> • -Quiz • -Test • -Exams
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Grade 12
Period 1
UNIT II
TOPIC: BEARINGS

OUTCOMES	CONTENTS	CONTENTS	ACTIVITIES	MATERIALS/RESOURCES	COMPETENCIES ASSESSMENT
<p>Learners are able to apply concepts to interpret bearing as direction, represent a bearing of one point from another as (r, q) and calculate the magnitude and angle of a bearing</p>	<p>Upon completion of this topic, learners will</p> <ol style="list-style-type: none"> 1. Interpret bearing as direction of one point from another 2. Write bearing of one point from another as (r, q) 3. Find the bearing of a point A from another point, given the bearing of B . 	<ol style="list-style-type: none"> 1. Definition of bearings 2. Distance Bearing Problems 	<p>Inclusive and Differentiated Activities</p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assist learners to:</p> <ol style="list-style-type: none"> 1. Define and discuss bearing. 2. use a graph sheet and Cartesian coordinate system and label the positive x axis as E (East), negative x axis as W(West) , positive y axis as N(North) and the negative y axis as S (South). Use any given angle, locate the direction by measuring the angle from the N in a clockwise direction 3. use graphical method or trigonometry to solve problems involving distance and bearing 	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>Supplementary books</p> <p>Mathematical set, graph sheets</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p><u>Expected Competencies</u></p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT STRATEGIES:</p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exam

SEMESTER ONE

GRADE 12
PERIOD 1
UNIT III
TOPIC: CONSTRUCTIONS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	EVALUATION
Learners are able to apply the concepts to construct angles, triangles and parallelograms and employ loci to construct geometric figure	<ol style="list-style-type: none"> 1. Construction without measurement 2. Construction of angles 3. Construction of triangles and quadrilaterals 4. Locus 5. Some special loci 	<ol style="list-style-type: none"> 1. Construction without measurement 2. Construction of angles 3. Construction of triangles and quadrilaterals 4. Locus 5. Some special loci 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles.</p> <ol style="list-style-type: none"> 1. Use your set square with one edge against the given line. Place a ruler against another edge of set square. Slide the set square to its required position and the line 2. Use your compass and ruler to construct an angle bisector 3. Use your pair of compass and ruler to construct parallel lines without using a set square. 4. Use your pair of compass and ruler to construct angles, triangles, quadrilaterals 5. Define, discuss and identify locus and some special loci: mediator ,angle bisector, and parallel line 	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>Supplementary books</p> <p>Mathematical set, graph sheets</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>Competencies</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

SEMESTER ONE

GRADE: 12
PERIOD: II
TOPIC 1: STATISTICS I

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
<p>Learners are able to demonstrate concepts by representing data in graphical forms: (bar chart and pie chart, define grouped data and construct a frequency table, calculate the central tendencies of grouped data and construct the cumulative frequency curve and compute the quartiles and percentiles.</p>	<p>Upon completion of this topic, learners will:</p> <ul style="list-style-type: none"> • Express data in graphical forms using bar chart and pie chart • Define grouped data and construct the frequency table • Calculate the mean and mode of grouped data • Calculate the Median • Construct the cumulative frequency curve and • Calculate the quartiles and percentiles 	<ol style="list-style-type: none"> 1. Bar Chart and pie chart 2. Grouped data 3. Mean and mode 4. Median 5. Cumulative frequency 6. Quartiles and percentiles 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles.</p> <p style="text-align: center;">Assignments/Exercises</p> <ol style="list-style-type: none"> 1. Go to any nearby health center and collect data on malaria, typhoid and measles for a particular month and construct bar and pie charts; 2. Define, discuss and identify of grouped data 3. Construct a cumulative frequency table using the population data and determine the mean and mode 4. Determine the median 5. Construct a cumulative frequency curve and determine the quartiles and percentiles from the graph. 	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>Supplementary books</p> <p>Mathematical set, graph sheets</p> <p>Links: www.khanacademy.com www.mathway.com www.m.quickmath.com www.chegg.com www.symbolab.com www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

SEMESTER ONE

GRADE: 12
PERIOD: II
TOPIC 11: STANDARD DEVIATION

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/RESOURCES	COMPETENCES/ASSESSMENTS
Learners are able to understand the spread of data and apply skills to compare and analyze two or more sets of data. Skills are applied in almost all disciplines in life.	<p>Upon completion of this topic, learners will</p> <ol style="list-style-type: none"> 1. Define, discuss and identify dispersion 2. Define and discuss and calculate deviation 3. Define and calculate standard deviation 	<ol style="list-style-type: none"> 1. Dispersion 2. Deviation 3. Standard deviation 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments/Exercises</p> <p>Define and discuss</p> <ol style="list-style-type: none"> 1. Define and discuss dispersion. How can dispersion be measured more accurately. 2. Use a given data to demonstrate dispersion and find the range, the interquartile range and semi interquartile range <p>Define and discuss</p> <ol style="list-style-type: none"> 3. Assist learners define and discuss deviation, variance 4. Assist learners define and discuss standard deviation and variance .State the formula for standard deviation and apply same to a given data and find the standard deviation. What does the standard deviation say or the mean> 	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>Supplementary books</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exam

SEMESTER ONE

GRADE: 12
PERIOD: II
TOPIC 111: INTERPRETATION OF LINEAR AND QUADRATIC GRAPHS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/RESOURCES	COMPETENCES/ ASSESSMENTS
<p>Learners are able to demonstrate analytical and problems solving skills to graphs and interpret them and make informed decisions. Skills are applicable in the business world to determine cost, revenues, etc.</p>	<p>Upon completion of this topic, learners will</p> <ol style="list-style-type: none"> 1. solve simultaneous equations, one linear and one quadratic. Using graphs. 2. use a quadratic graph to solve related equations 3. find the range of values of x for which y is increasing or decreasing 4. find the range of values of x for which y is positive or negative 	<ol style="list-style-type: none"> 1. Graphing of simultaneous equations: one linear and one quadratic 2. Using quadratic graph to solve problems 3. Finding the range of values of x for which y is increasing or decreasing 4. Finding the range of values of x for which y is positive or negative 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments/Exercises</p> <ol style="list-style-type: none"> 1. Assist learners to use a graph sheet, and graph a given linear and quadratic equations in the same Cartesian coordinate system. Mark the points where the two graphs meet (intersect). The coordinates at the points of intersection are solutions for the two equation. <p>Substitute the coordinates in both equations. Do they satisfy both equations?</p>	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3 & 4 by Pearson</p> <p>Supplementary books</p> <p>Graph sheets, rulers</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

			<p>2. Using the plotted graph, find the range of values of x for which y is increasing and find the values of x for which y is decreasing</p> <p>3. Find the range of values of x for which y is positive or negative</p>		
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GRADE: 12
PERIOD: II
TOPIC 1V: MENSURATION 2

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/RESOURCES	COMPETENCES/ASSESSMENTS
Learners are able to apply the basic concepts to calculate the surface areas and volumes of these geometric figures: prisms, cones, pyramids, sphere. They are able to also calculate the distance given along the latitude and the longitude.	<p>Upon completion of this topic, learners will</p> <ol style="list-style-type: none"> 1. Calculate the surface area of prisms; 2. Calculate the volume of prisms; 3. Calculate the total surface of a cone 4. Calculate the volume of a cone; 5. Calculate total surface area of pyramids; 6. Calculate the volumes of a pyramids 7. Calculate the surface area of a sphere 8. Calculate the volume of a sphere 9. Calculate the distance along a given latitude and longitude 	<ol style="list-style-type: none"> 1. Calculate the surface area and volume of prisms 2. Calculate the total surface area and volume of a cone 3. Calculate total surface area and volumes of pyramids 4. Calculate the surface area and volume of a sphere 5. Calculate the distance along a given altitude and longitude 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments/ Exercises</p> <p>Define and discuss</p> <ol style="list-style-type: none"> 1. Assist learners to define and discuss following terms: prisms, surface area, volume, cone, sphere, latitude and longitude <p>Given a prism, find the areas of all its faces and add them to obtain the total surface area.</p> <p>Multiply the area of the cross section by the</p>	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>Supplementary books</p> <p>Graph sheets, rulers</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

			<p>length to get the volume of the prism.</p> <p>Use the appropriate formulae to calculate the surface areas and volumes of the following: cone, pyramids, and sphere.</p> <p>Calculate the distance along a given latitude and longitude.</p>		
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OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/RESOURCES	COMPETENCES/ASSESSMENTS
<p>Learners are able to apply concepts to identify a true or false statement, form negation of simple statements, draw conclusion using implication, deduce equivalent implication from a given implication and use a Venn diagram to determine the validity or otherwise of implication or conclusion</p>	<p>: Upon completion of this topic, learners will</p> <ol style="list-style-type: none"> 1. Identify and form true or false statements 2. Form the negation of simple statements 3. Draw conclusions using the implication sign 4. Deduce an equivalent implication from a given implication 5. Use Venn diagrams to determine the validity or otherwise of implication or conclusions 	<ol style="list-style-type: none"> 1. Statements 2. Implication 3. Converse 4. Equivalence 5. Negation <p>Valid argument</p>	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments /Exercises</p> <p>View several statements given by the teacher. Identify which statements are true and which are false and why?</p> <p>Assist learners discuss statements which are both open and closed statements and state examples.</p> <p>Define and discuss</p> <p>Assist learners define and discuss implication and illustrate them</p>	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3 & 4 by Pearson</p> <p>Supplementary books</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>SSESSMENTS</p> <p>STRATEGIES:</p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

			<p>Assist learners draw conclusions from the sign of implication.</p> <p>Assist learners deduce an equivalent implication from a given implication</p> <p>Assist learners use Venn diagrams to determine the validity or otherwise of implication or conclusions</p>		
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SEMESTER ONE

GRADE: 12
PERIOD: II1

TOPIC 11: PERCENTAGES

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
<p>Learners are able to identify business partnerships , calculate share interest or profit in a given ratio, calculate interest on saving and loans, payments using hire purchase.</p> <p>They are able to calculate taxes on goods and services, VAT on goods and services and utility bills of water, telephone and electricity.</p>	<p>: Upon completion of this topic, learners will</p> <ol style="list-style-type: none"> 1. Identify business partnerships and the way they function 2. Calculate share interest or profit in a given ratio 3. Calculate interest on savings and loans 4. Calculate payment using hire purchase 5. Calculate taxes paid on goods and services 6. Calculate and explain the value added tax (VAT) 7. Calculate electricity, water and telephone bills 	<ol style="list-style-type: none"> 1. Taxation 2. Banking transaction . Hire purchase Household bills Partnership business 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments/Exercises</p> <ol style="list-style-type: none"> 1. Visit a banking institution and let authority discuss the types of transactions that banks handle. <p>Discuss</p> <ol style="list-style-type: none"> 2. Discuss your findings. 3. Define and discuss Assist learners define and discuss taxation, Calculate taxes paid on goods and services 4. Assist learners explain and calculate the value added tax (VAT hire purchase and relate it to “set pay” household bills(water and electricity bills) and partnership business. 	<p>Prescribed textbook: Mathematics for Senior High Schools Students’ Book 3 & 4 by Pearson</p> <p>Supplementary books</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENTS</p> <p>STRATEGIES:</p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

SEMESTER ONE

GRADE: 12
PERIOD: III

TOPIC 111: RIGID MOTION 2 AND ENLARGEMENT

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
<p>Learners are able to apply concepts to rigid motion and enlargement to determine image of an object under rotation, enlarge or reduce the size of the image based on K (magnifying factor), do negative enlargement, movement perspective, similar triangles, areas and volumes</p>	<p>Upon the completion of this topic, learners will of an object</p> <ol style="list-style-type: none"> Find the image of an object under rotation Carry out an enlargement of a plane shape given a scale factor Identify a scale drawing as an enlargement/reduction of a plane figure(shape) Establish the relationship between the areas and volumes of plane figures and solids and their images 	<ol style="list-style-type: none"> Rotation and its measurement Enlargement <ol style="list-style-type: none"> Magnification and reduction Negative enlargement Movements and enlargement Perspective and similarity Similar triangle Similar areas and volumes 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments/Exercises</p> <ol style="list-style-type: none"> Take a graph sheet and plot the given three coordinates: $A(a, b), B(a_1, b_1), C(a_2, b_2)$ by your teacher. <p>You should have a triangle. Rotate this triangle thru 90°, 180° anticlockwise, etc. and discuss the positions and sides of the images generated.</p> <ol style="list-style-type: none"> Given a scale factor enlarge the triangle. <p>Define and discuss</p> <ol style="list-style-type: none"> Define and discuss the following: <p>magnification & reduction,</p> <p>Negative enlargement,</p>	<p>Prescribed textbook: Mathematics for Senior High Schools Students’ Book 3 & 4 by Pearson</p> <p>Supplementary books</p> <p>Graph sheets, mathematical sets</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> Effective Communication Analytical Skills, Digital Skills, Research and Problem Solving skills Organizational ability Creativity & Innovation skills <p>ASSESSMENT</p> <p>STRATEGIES:</p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> -Attendances -Oral questions and Answers -Class Assignment and Participation -Observation -Assignments -Research -Quiz -Test -Exams

			movement & enlargements, Perspective and similarity. Similar triangles, similar areas and volumes and demonstrate them graphically.		
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SEMESTER ONE

GRADE: 1
PERIOD: III
TOPIC 1V: TRIGONOMETRY 2

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ASSESSMENTS
Learners are able to demonstrate and apply concepts in graphing trigonometric functions, determine the maximum and minimum values of the graphs and interpret said graphs.	<ol style="list-style-type: none"> Graphs of simple trigonometric functions <ul style="list-style-type: none"> Maximum and minimum values Drawing and interpretation of trigonometric functions 	<ol style="list-style-type: none"> Graphs of simple trigonometric functions <ul style="list-style-type: none"> Maximum and minimum values Drawing and interpretation of trigonometric functions 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments/Exercises</p> <ol style="list-style-type: none"> Draw the graphs of $\sin\theta$ and $\cos\theta$, for $0^\circ \leq \theta \leq 360^\circ$. Are the two graphs the same? If not why? Identify the maximum and minimum values of the graphs. Interpret the graphs 	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>Supplementary books Graph sheets , rulers</p> <p>Links:</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> Effective Communication Analytical Skills, Digital Skills, Research and Problem Solving skills Organizational ability Creativity & Innovation skills <p>STRATEGIES:</p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> -Attendances -Oral questions and Answers -Class Assignment and Participation -Observation -Assignments -Research -Quiz -Test -Exams

SEMESTER TWO

GRADE 12
PERIOD IV
TOPIC NUMBERS AND NUMERATION

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
Learners are able to apply concepts and solve problems in number bases, modular arithmetic, prove identities, express numbers in standard form and solve problems using powers and roots.	<p>Upon completion of this topic, learners will:</p> <ol style="list-style-type: none"> Review real numbers with emphasis on (whole numbers, factors of whole numbers, multiples of whole numbers, prime numbers and prime factorization of whole numbers, integers, ratio of two whole numbers and rational numbers) Convert from base ten to other bases and vice versa. Solve problems in modular arithmetic Demonstrate identities in Commutative property, Associative property, Distributive property, Binomial expressions and properties of negatives Work and solve problems I using powers and roots 	<ol style="list-style-type: none"> Review real numbers Number bases Modular arithmetic Identities Powers and roots 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments/Exercises</p> <ol style="list-style-type: none"> Assist learners to review real numbers considering learning objective Assist learners to convert from base ten to other bases and vice versa <p>Discuss</p> <ol style="list-style-type: none"> Assist learners to discuss modular arithmetic and solve problems in modular arithmetic Assist learners prove the identities in commutative property, Associative property, Distributive property, binomial expressions Assist learners represent very small or large numbers in standard form, solve problems using powers and roots 	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>Supplementary books</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> Effective Communication Analytical Skills, Digital Skills, Research and Problem Solving skills Organizational ability Creativity & Innovation skills <p><u>Assessment</u></p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> -Attendances -Oral questions and Answers -Class Assignment and Participation -Observation -Assignments -Research -Quiz -Test -Exams

SEMESTER TWO

GRADE 12
PERIOD IV
TOPIC SETS AND LOGIC

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
Learners are able to use sets in logic.	<p>Upon completion of this topic, learners will :</p> <ol style="list-style-type: none"> 1. Define sets and use set notation , 2. Define and apply subsets 3. Discuss Universal set, equal sets, equivalent sets and listing the elements of a set 4. Discuss Venn diagram and it to illustrate the following operations on sets: intersection of sets, disjoint sets, union of sets, and complement of a set 5. Discuss properties of set operations 6. Solve two sets and three sets problems using Venn diagram 7. Review open statements, and implication and apply them using sets 	<ol style="list-style-type: none"> 1. Definition of sets 2. Subsets 3. Types of sets 4. Venn diagrams 5. Operations on sets 6. Properties of set operations 7. Problem solving 8. Review open statements and implications 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments/Exercises</p> <ol style="list-style-type: none"> 1. Assist learners define sets and use set notation. 2. Define and apply Assist learners define subsets and solve problems on subsets. Define and illustrate 3. Assist learners define and illustrate types of sets(finite sets, infinite sets, Universal set, equal sets, equivalent sets, empty set) Discuss and apply 4. Assist learners discuss Venn diagram and use it to illustrate the following operations on sets: <ol style="list-style-type: none"> a. Intersection of sets b. Disjoint sets c. Union of sets and d. Complement of a set. 5. Discuss and illustrate Assist learners discuss and illustrate properties (commutative, Associative and distributive properties) of set operations. 6. Assist learners to solve problems. 7. Review open statements and implication and apply them using sets. 	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>Supplementary books</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENTS STRATEGIES:</p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

SEMESTER TWO

GRADE 12

PERIOD IV

TOPIC RELATIONS AND FUNCTIONS, MAPPINGS, RATIO, PROPORTION AND VARIATION

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
Learners are able to apply concepts to solve problems on relations, functions and mapping, ratio and proportion and variation	<p>Upon completion of this topic, learner will</p> <ol style="list-style-type: none"> 1. Define and discuss relations and functions 2. Numerical mappings 3. Solve problems on relations, functions and mappings 4. Calculate ratio and proportion 5. Define variation and solve problems on variation 	<ol style="list-style-type: none"> 1. Relations and functions 2. Numerical mappings 3. Ratio and proportion 4. variation 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments/Exercises</p> <p>Define and discuss</p> <ol style="list-style-type: none"> 1. Assist learners define and discuss relations, functions and mappings and solve simple problems <p>Define and discuss</p> <ol style="list-style-type: none"> 2. Define and discuss ratio and proportion , solve problems on ratio and proportion <p>Define and discuss</p> <ol style="list-style-type: none"> 3. Define variation and discuss the types of variation,(Direct variation, Inverse variation, Joint variation and partial variation)and solve simple problems on each of them- 	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p>STRATEGIES:</p> <p>Can be used to check competences.</p> <p>Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

SEMESTER TWO

GRADE 12
PERIOD IV
TOPIC: ALGEBRAIC PROCESSES

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
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<p>Learners are able to apply concepts to simplify algebraic expressions, factorize, carry substitution, solve equations & inequalities, quadratic equations, solve simultaneous linear equations and linear inequalities and perform linear programming.</p>	<p>: Upon completion of this topic, learners will</p> <ol style="list-style-type: none"> 1. Simplify algebraic expressions 2. Factorize algebraic expressions 3. Solve algebraic fractions 4. Substitution 5. Solve equations and inequalities 6. Quadratic equations 7. Solve Simultaneous linear equations 8. Solve Simultaneous linear inequalities 9. Formulae 10. Solve word problems 	<ol style="list-style-type: none"> 1. Simplification 2. Factorization 3. Algebraic fractions 4. Substitution 5. Equations and inequalities 6. Quadratic equations 7. Simultaneous linear equations 8. Simultaneous linear inequalities 9. Linear programming 10. Formulae <p>Word problems</p>	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments/Exercises</p> <p>Assist learners to simplify algebraic expressions by adding and subtracting like terms, multiply or expand and divide algebraic expressions.</p> <ol style="list-style-type: none"> 1. Assist learners to factorize algebraic expressions using the following techniques: <ol style="list-style-type: none"> a. Common factors b. Factoring by grouping c. Factoring quadratic trinomials d. Difference of two squares e. Sum of two cubes f. Difference of two cubes <p>Assist learners perform the following operations:</p> <ol style="list-style-type: none"> a. Addition b. Subtraction c. Multiplication d. Division <p>And the simplification of algebraic fractions;</p> <p>Assist learners to find values of x for which $\frac{f(x)}{g(x)}$ is not undefined</p> 2. Assist learners to do 	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>Supplementary books</p> <p>Graph sheets, ruler and</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p>STRATEGIES:</p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams
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			<p>substitution and change of subject using formulae</p> <ol style="list-style-type: none"> 3. Assist learners to graph and solve linear equations and inequalities. 4. Assist learners to solve quadratic equations using: <ol style="list-style-type: none"> a. factorization, b. by completing the square c. and using the formula, 5. Assist learners solve simultaneous equations by <ol style="list-style-type: none"> a. graphs , b. elimination c. substitution d. and use matrices to solve,, 6. Assist learners graph one linear inequality and determine the solution region, graph two linear inequalities in the same Cartesian coordinate system and determine the solution region. to 9. Provide problems on linear programming for learners to solve and graph and do the analysis, 11. Assist learners form word problems on linear equations, inequalities, and quadratic equations and solve them. 		
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SEMESTER TWO

GRADE 12
PERIOD V

TOPIC VECTOR AND TRIGONOMETRY

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/RESOURCES	COMPETENCES/ASSESSMENTS
Learners are able to demonstrate and apply concepts to describe a vector, calculate its magnitude and direction, do vector addition, vector subtraction, find, scalar product. They are able to resolve a vector, work with unit and position vectors, can solve problems on static equilibrium, apply trigonometry to solve vectors, etc.	<p>: Upon completion of this topic, learners will</p> <ol style="list-style-type: none"> Describe vector using number ordered pair notation Describe the magnitude and direction of vectors Solve problems that involve vector addition and subtraction Multiply vectors by a number (scalar product) Define and use unit vector and position vector Determine a vector from its direction and magnitude of vector Work with objects in static equilibrium 	<ol style="list-style-type: none"> Vectors representation Magnitude and direction of vectors Vector addition and subtraction Multiplication of vectors Resolution of a vector Define unit and position vectors Solve static equilibrium problems Determination of latitudes and longitudes Applications of trigonometry Calculate the lengths of objects of angles inscribed in a circle. 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>ssignments/Exercises</p> <ol style="list-style-type: none"> Assist learners represent a vector graphically, using ordered pairs and using vector notation. Assist learners determine the magnitude and direction of the given vector. Assist learners add and subtract two given vectors vectorially Assist learners to multiply a vector by a scalar(number) and a vector by a vector Assist learners to resolve a resultant vector into its component vectors 	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>Supplementary books</p> <p>Graph sheets, ruler and</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> Effective Communication Analytical Skills, Digital Skills, Research and Problem Solving skills Organizational ability Creativity & Innovation skills <p>ASSESSMENT</p> <p>STRATEGIES:</p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> -Attendances -Oral questions and Answers -Class Assignment and Participation -Observation -Assignments -Research -Quiz -Test -Exams

	<p>8. Determine whether two vectors are parallel or orthogonal</p> <p>9. Determine Latitude and longitudes</p> <p>10. Calculate the lengths of objects of angles inscribed in a circle</p>		<p>6. Assist learners define unit and position vectors and illustrate them</p> <p>7. Assist learners solve static equilibrium problems</p> <p>8. Assist learners to calculate for latitudes and longitudes</p> <p>9. Assist learners apply trigonometry to problems involving vectors</p> <p>10. Assist learners to calculate the lengths of triangle inscribed in a circle.</p>		
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SEMESTER TWO

GRADE **12**
PERIOD **V**
UNIT **II**
TOPIC: **TRANSFORMATIONS**

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
<p>Learners are able to apply concepts to movement, transformation and determine the coordinates. They are able to rotate objects under reflection, handle similarities and translation.</p>	<p>Upon completion of this topic, learners will</p> <ol style="list-style-type: none"> 1. Define and discuss transformation using concept of movement or congruency 2. Find the coordinates of transformations 3. Define , discuss and apply the concept of reflection 4. Define, discuss and apply the concept of similarities 5. Define , discuss and apply the concept of translation 	<ol style="list-style-type: none"> 1. Movement 2. Transformations and coordinates 3. Reflection 4. Similarities 5. Translation 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments/Exercises</p> <p>Define and discuss</p> <ol style="list-style-type: none"> 1. Assist learners define and discuss the concept of movement or congruency as it relates to transformation. 2. Assist learners review the lesson on rotation and look at a problem done on rotation and consider the coordinates. How were the other coordinates obtained? <p>Define and discuss</p> <ol style="list-style-type: none"> 3. Assist learners define, discuss and apply the concept of reflection 4. Assist learners define , discuss and apply the concepts of similarities and translation 	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>Supplementary books</p> <p>Graph sheets, ruler and</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENTS</p> <p>STRATEGIES:</p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

SEMESTER TWO

Grade **12**
Period **V**
TOPIC **PLANE GEOMETRY**

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
<p>Learners are able to demonstrate concepts to state properties of polygons, triangles, quadrilaterals and circle theorems and solve relevant problems on each of them.</p>	<p>: Upon completion of this topic, learners will</p> <ol style="list-style-type: none"> 1. Define, and discuss polygon 2. Define and discuss regular polygons and their properties 3. Name and define polygons according to their sides 4. Determine interior and exterior angles of polygons and regular polygons 5. Find the sum of the interior angles of a polygon and a regular polygon 6. Find the sum of the exterior angles of a polygon 7. Solve problems on polygons 8. Define, discuss isosceles, scalene and equilateral triangles 9. Solve problems on isosceles, scalene and equilateral triangles 10. Define four quadrilaterals and discuss their properties 11. Solve problems on quadrilaterals 	<ol style="list-style-type: none"> 1. Polygons 2. Triangles 3. Quadrilaterals 4. Circle Theorems 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments/Exercises</p> <p>Define and discuss</p> <p>Assist learners define and discuss polygon.</p> <ol style="list-style-type: none"> 1. Draw a polygon. Draw a line from a particular vertex to divide the polygon into triangles. 2. Multiply the number of triangles by 180°. The product is the sum of the interior angles of the polygon. 3. Define and discuss Assist learners define and discuss 	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>Supplementary books</p> <p>Graph sheets, ruler and</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENTS</p> <p>STRATEGIES:</p> <p>Can be used to check competences.</p> <p>Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

	<p>12. Define circle and discuss a circle inscribed angles or triangle or quadrilaterals. And state the circle theorems for each diagram</p> <p>13. Use the theorem to solve problems with circle with inscribed angle or triangle, quadrilaterals etc.</p> <p>14. Discuss the concept of tangent to the circle. State the relevant properties</p> <p>15. Solve problems relating to a line tangent to a circle</p>		<p>regular polygons and their properties.</p> <p>4. Assist learners name polygons according to their sizes.</p> <p>5. Assist learners determine the interior and exterior angles of polygons and regular polygons</p> <p>6. Assist learners find the sum of the interior angles of a polygon and a regular polygon</p> <p>7. Assist learners find the sum of the exterior angles of a polygon and a regular polygon</p> <p>8. Solve problems on polygons</p> <p>Define , discuss and illustrate</p> <p>9. Define , discuss and illustrate isosceles , scalene and equilateral triangles</p> <p>10. Assist learners solve problems on isosceles, scalene and equilaterals triangles</p>		
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			<ol style="list-style-type: none">11. Assist learners define four quadrilaterals and discuss their properties12. Solve problems on quadrilaterals13. Define circle and discuss an angle or a triangle or a quadrilateral inscribed in a circle. And state the circle theorems for each diagram14. Use the theorem to solve problems on circle with inscribed angle or triangle or quadrilaterals etc.15. Assist learners discuss the concept of tangent to the circle. State the relevant properties.16. Assist learners solve problems relating to a line tangent to a circle		
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SEMESTER TWO

GRADE **12**
PERIOD **V**
UNIT **IV**
TOPIC **SOLID GEOMETRY**

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
<p>Learners are able to demonstrate and apply concepts, analytical and problem solving skills which applicable in all spheres of life (including business and industry)</p>	<p>: Upon completion of this topic, learners will</p> <ol style="list-style-type: none"> 1. Identify and discuss common solids, face of a solid. 2. Define and discuss the following prism, cuboid, cylinder, pyramid, tetrahedron, hexagonal pyramid, cone 3. Measure the lengths and angles in solids 4. Calculate volumes and surface area 	<ol style="list-style-type: none"> 1. Common solids 2. Prisms 3. Cuboids 4. Cylinder 5. Pyramids 6. Cone 7. Volumes and surface area 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p><u>Assignments/Exercises</u></p> <ol style="list-style-type: none"> 1. Share pictures of these solids with learners to see and recognize them. 2. Assist learners define the following terms: <ol style="list-style-type: none"> a. prism, b. cuboid, c. cylinder, pyramids, d. tetrahedron hexagonal e. pyramid, f. cone and state their properties. Use their respective formulae to calculate their volumes and surface area. 3. Assist learners measure the lengths and angles in solids 	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>Supplementary books</p> <p>Graph sheets, ruler and</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p><u>EXPECTED COMPETENCES</u></p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p><u>ASSESSMENT</u></p> <p><u>STRATEGIES:</u></p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

SEMESTER TWO

GRADE **12**
PERIOD **VI**
UNIT **I**
TOPIC : **PROBABILITY AND STATISTICS**

OUTCOMES	OBJECTIVES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
<p>Learners are able to explain following concepts :</p> <p>a. Fundamental counting principle b. Permutation c. Combination and probability. They are able to solve problems on each of them.</p>	<ol style="list-style-type: none"> 1. Fundamental counting principle 2. Compute factorials 3. Permutations 4. Combinations 5. Difference between permutations and combinations 6. Review basic concepts sets, Venn, tree diagrams, and contingency tables 7. sample space and events of an experiment 8. probability of an event, complementary events, mutually exclusive events, independent event, and conditional events 9. odds of an event 	<p>Fundamental counting principle</p> <p>Compute factorials</p> <ol style="list-style-type: none"> 1. Permutations 2. Combinations 3. Difference between permutations and combinations 4. Review basic concepts sets, Venn, tree diagrams, and contingency tables 5. sample space and events of an experiment 6. probability of an event, complementary events, mutually exclusive events, 	<p>Fundamental counting principle</p> <p>Compute factorials</p> <ol style="list-style-type: none"> 1. Permutations 2. Combinations 3. Difference between permutations and combinations 4. Review basic concepts sets, Venn, tree diagrams, and contingency tables 5. sample space and events of an experiment 6. probability of an 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments/Exercises</p> <p>Discuss</p> <ol style="list-style-type: none"> 1. Assist learners discuss the concept of fundamental counting principle, using coin and die. <p>Determine the combined outcomes. What will it be?</p> <p>Discuss</p> <ol style="list-style-type: none"> 2. Assist learners discuss the concept of factorials and compute factorials of 	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>Supplementary books</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills <p>ASSESSMENT</p> <p>STRATEGIES:</p> <p>Can be used to check competences. Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research

	10. Calculate the expected value	independent event, and conditional events 7. odds of an event 8. Calculate the expected value	event, complementary events, mutually exclusive events, independent event, and conditional events 7. odds of an event 8. Calculate the expected value	simple numbers and fractions Define and Define and discuss 3. Assist learner s Assist learners define and discuss the concept of permutation . Define and discuss 4. Assist learners define and discuss combination 5. Assist learners differentiate between them 6. .Assist learners solve simple problems on permutation and combination. 7. Assist learners review basic concepts of sets, Venn tree diagrams, Define and discuss 8. Assist learners define and discuss the following term: a. Sample space b. Event c. Odds for d. Odds against e. Simple event f. Mutually exclusive event,		<ul style="list-style-type: none"> • -Quiz • -Test • -Exams
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				<p>associated with probabilities</p> <p>9. Assist learners form a sample space using the following as events: STI, HIV, teenage pregnancy, rape, relationship, etc. Find the probability of each event in activity two e.g. represent each of the events with figure obtained from the data, then find the probability of each.</p> <p>10. Assist learners construct a sex network. Use the sex network to show how STI and HIV can be spread from person to another in a matrix.</p> <p>11. Assist learners Use a deck of cards as sample space of population and determine the probability of contracting STI from the given sample space.</p>		
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SEMESTER TWO

GRADE 12
PERIOD VI
TOPIC EXPONENTIAL AND LOGARITHMIC FUNCTIONS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
<p>Learners are able to Apply concepts to evaluate, graph, change base, and solve problems on exponential functions and logarithmic functions and exponential and logarithmic equations.</p>	<p>Upon completion of this topic, learners will</p> <ol style="list-style-type: none"> 1. Evaluate exponential functions 2. Graph exponential functions 3. Solve application problems involving exponential functions (doubling time growth model, radioactive decay, compound interest) 4. Distinguish between algebraic and exponential function 5. Define base e 6. Graph exponential functions with base e 7. Review growth and decay with base e 8. Solve application problems interest 	<ol style="list-style-type: none"> 1. Evaluation of Exponential functions 2. Graph of exponential functions 3. Applications involving exponential functions(doubling time growth model ,radioactive decay, compound interest) 4. Distinguish between algebraic and exponential functions 5. Definition of base e 6. Graph exponential functions with base e 7. Review of growth and decay with base e 8. Problem-solving involving interest compounding continuously 9. Change of exponential expressions to logarithmic expressions conversely 10. Evaluation of logarithmic functions 	<p><u>Inclusive and Differentiated Learning</u></p> <p>Individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments/Exercises</p> <ol style="list-style-type: none"> 1. Assist learners evaluate exponential functions. 2. Assist learners graph exponential functions 3. Assist learners solve problems involving exponential functions(doubling time growth model, radioactive decay, compound interest) 4. Distinguish between algebraic and exponential functions 	<p>Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson</p> <p>Supplementary books</p> <p>Graph sheets</p> <p>www.khanacademy.com</p> <p>www.mathway.com</p> <p>www.m.quickmath.com</p> <p>www.chegg.com</p> <p>www.symbolab.com</p> <p>www.cymath.com</p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • Analytical skill • Problem-solving skill <p>ASSESSMENTS</p> <p>STRATEGIES:</p> <p>Can be used to check competences.</p> <p>Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

	<p>compounding continuously</p> <p>9. Change expressions to logarithmic expressions, and conversely</p> <p>10. Evaluate logarithmic functions</p> <p>11. Evaluate common and natural logarithms using calculator</p> <p>12. Graph logarithmic functions</p> <p>13. Interpret logarithmic functions as inverse of exponential functions</p> <p>14. Determine domain restrictions on logarithmic functions</p> <p>15. Express a single logarithm as a sum or difference of logarithms</p> <p>16. Express a logarithmic expression as a single logarithm</p> <p>17. Evaluate logarithms of a general base (</p>	<p>11. Evaluation Of common and natural logarithms using calculator</p> <p>12. Graph of logarithmic functions</p> <p>13. Interpretation of logarithmic functions as inverse of exponential functions</p> <p>14. Domain restrictions on logarithmic functions</p> <p>15. Expressions of a single of a logarithm as a sum or difference of logarithms</p> <p>16. Expression of a logarithmic expression as a single logarithm</p> <p>17. Evaluation of logarithms of a general base (other than base 10 or. state and use the seven basic logarithmic properties</p> <p>18. State and use the change-of-base formula</p> <p>19. Solution of exponential and logarithmic equation</p> <p>20. Solution</p>	<p>Define and discuss</p> <p>5. Assist learner Define base e</p> <p>6. Assist learner graph exponential functions with base e</p> <p>7. Assist learners review growth and decay with base e</p> <p>8. Assist learners solve to problems involving interest compounding continuously</p> <p>9. Assist learners change expressions to logarithmic expressions, and conversely</p> <p>10. Assist learners evaluate logarithmic functions</p> <p>11. Assist learners evaluate common and natural logarithms using calculator</p> <p>12. Assist learners graph logarithmic functions</p> <p>13. Assist learners interpret logarithmic functions as an inverse of exponential functions</p>		
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	<p>other than base 10 or,</p> <p>18. State the seven basic logarithmic properties</p> <p>19. State the change -one- of base formula</p> <p>20. Solve exponential and logarithmic equations</p>		<p>14. Assist learners determine domain restrictions on logarithms</p> <p>15. Assist learners express a single logarithm as a sum or difference of logarithms</p> <p>16. Assist learners express a logarithmic expression as a single logarithm</p> <p>17. Assist learners evaluate logarithms of a general base (other than 10 or e)</p> <p>18. Assist learners state the seven basic logarithm Properties</p> <p>19. Assist learners state the change of base formula</p> <p>20. Assist learners solve problems using exponential and logarithms equations</p>		
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SEMESTER TWO

**GRADE
PERIOD
TOPIC**

**12
VI
DIFFERENTIATION AND INTEGRATION**

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCY ASSESSMENT
<p>Learners are able to apply concepts to find the limits of simple polynomial and trigonometric functions, find the derivatives of simple algebraic and trigonometric functions. They are able to find the area under a curve and the indefinite integrals of simple polynomial and trigonometric functions.</p>	<p>: Upon completion of this topic, learners will</p> <ol style="list-style-type: none"> 1. Define , discuss and apply the concept of Difference quotient 2. Review slopes, Tangent lines and Derivatives 3. Define and discuss the concept of limits 4. Define and apply the concept of differentiation 5. Define and discuss the concept of integration 6. Find areas under a curve 7. Find indefinite integrals of simple polynomial and trigonometric functions 	<ol style="list-style-type: none"> 1. Review analytic geometry 2. Difference quotient 3. Limits 4. Differentiation 5. Areas under the curve 6. Integration 	<p><u>Inclusive and differentiated Learning</u></p> <p>individual seat work or work in mixed groups according to gender, abilities and learning styles</p> <p>Assignments/Exercises</p> <ol style="list-style-type: none"> 1. Assist learners review slope, tangent lines and define derivative. 2. Assist learners relate slope and tangent lines to derivative in terms of smallness(infinitesimal thing) 3. Assist learners discuss the concept and equation for difference quotient . 4. Assist learners use the formula to solve problems. <p>Discuss</p> <p>Define and discuss</p>	<p>Supplementary book: 8th Edition of Calculus and Analytic Geometry by George B. Thomas and Ross L. Finney</p> <p>Graph sheets</p> <p><u>www.khanacademy.com</u></p> <p><u>www.mathway.com</u></p> <p><u>www.m.quickmath.com</u></p> <p><u>www.chegg.com</u></p> <p><u>www.symbolab.com</u></p> <p><u>www.cymath.com</u></p>	<p>EXPECTED COMPETENCES:</p> <ul style="list-style-type: none"> • problem solving skill • analytical skill <p>ASSESSMENT</p> <p>STRATEGIES:</p> <p>Can be used to check competences.</p> <p>Select relevant options:</p> <ul style="list-style-type: none"> • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

			<p>5. Assist learners define and discuss the concept of limits and solve simple problems on polynomial and trigonometric functions.</p> <p>6. State the rules of limit and use them to solve basic algebraic problems</p> <p>Define and discuss</p> <p>7. Assist learners define and discuss the concept of differentiation. Use first principle to find the derivatives of simple algebraic functions</p> <p>8. State the rules of differentiation and apply them to simple algebraic and trigonometric functions</p> <p>Discuss</p> <p>9. Assist learners discuss the concept of summation as it relates to finding the area of a rectangle or a region.</p> <p>10. Define and discuss the concept of integration.</p> <p>11. Define indefinite integrals. Find the indefinite integrals of basic polynomial and trigonometric functions</p>		
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