KENYA INSTITUTE OF CURRICULUM DEVELOPMENT
A Skilled and Ethical Society

JUNIOR SCHOOL CURRICULUM DESIGN

MATHEMATICS

GRADE 8

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NATIONAL GOALS OF EDUCATION

Education in Kenya should:

1. **Foster nationalism and patriotism and promote national unity**

   Kenya's people belong to different communities, races and religions, but these differences need not divide them. They must be able to live and interact as Kenyans. It is a paramount duty of education to help young people acquire this sense of nationhood by removing conflicts and promoting positive attitudes of mutual respect which enable them to live together in harmony and foster patriotism in order to make a positive contribution to the life of the nation.

2. **Promote the social, economic, technological and industrial needs for national development**

   Education should prepare the youth of the country to play an effective and productive role in the life of the nation.

   i) **Social Needs**

   Education in Kenya must prepare children for changes in attitudes and relationships which are necessary for the smooth progress of a rapidly developing modern economy. There is bound to be a silent social revolution following in the wake of rapid modernization. Education should assist our youth to adapt to this change.

   ii) **Economic Needs**

   Education in Kenya should produce citizens with the skills, knowledge, expertise and personal qualities that are required to support a growing economy. Kenya is building up a modern and independent economy which is in need of an adequate and relevant domestic workforce.

   iii) **Technological and Industrial Needs**

   Education in Kenya should provide learners with the necessary skills and attitudes for industrial development. Kenya recognizes the rapid industrial and technological changes taking place, especially in the developed world. We can only be part of this development if our education system is deliberately focused on the knowledge, skills and attitudes that will prepare our young people for these changing global trends.

3. **Promote individual development and self-fulfilment**
Education should provide opportunities for the fullest development of individual talents and personality. It should help children to develop their potential interests and abilities. A vital aspect of individual development is the building of character.

4. **Promote sound moral and religious values**
Education should provide for the development of knowledge, skills and attitudes that will enhance the acquisition of sound moral values and help children to grow up into self-disciplined, self-reliant and integrated citizens.

5. **Promote social equity and responsibility**
Education **respect** should promote social equality and foster a sense of social responsibility within an education system which provides equal educational opportunities for all. It should give all children varied and challenging opportunities for collective activities and corporate social service irrespective of gender, ability or geographical environment.

6. **Promote for and development of Kenya's rich and varied cultures**
Education should instill in the youth of Kenya an understanding of past and present cultures and their valid place in contemporary society. Children should be able to blend the best of traditional values with the changing requirements that must follow rapid development in order to build a stable and modern society.

7. **Promote international consciousness and foster positive attitudes towards other nations**
Kenya is part of the international community. It is part of the complicated and interdependent network of peoples and nations. Education should therefore lead the youth of the country to accept membership of this international community with all the obligations and responsibilities, rights and benefits that this membership entails.

8. **Promote positive attitudes towards good health and environmental protection**
Education should inculcate in young people the value of good health in order for them to avoid indulging in activities that will lead to physical or mental ill health. It should foster positive attitudes towards environmental development and conservation. It should lead the youth of Kenya to appreciate the need for a healthy environment.

LESSON ALLOCATION AT JUNIOR SCHOOL

S/No	Learning Area	Number of Lessons
1.	English	5
2.	Kiswahili / Kenya Sign Language	4
3.	Mathematics	5
4.	Religious Education	4
5.	Social Studies	4
6.	Integrated Science	5
7.	Pre-Technical Studies	4
8.	Agriculture and Nutrition	4
9.	Creative Arts and Sports	5
	Pastoral /Religious Instructional Program	1
Total		**40 + 1**

LEARNING OUTCOMES FOR JUNIOR SCHOOL

By end of Junior School, the learner should be able to:
1. Apply literacy, numeracy and logical thinking skills for appropriate self-expression.
2. Communicate effectively, verbally and non-verbally, in diverse contexts.
3. Demonstrate social skills, spiritual and moral values for peaceful co-existence.
4. Explore, manipulate, manage and conserve the environment effectively for learning and sustainable development.
5. Practise relevant hygiene, sanitation and nutrition skills to promote health.
6. Demonstrate ethical behaviour and exhibit good citizenship as a civic responsibility.
7. Appreciate the country's rich and diverse cultural heritage for harmonious co-existence.
8. Manage pertinent and contemporary issues in society effectively.
9. Apply digital literacy skills for communication and learning.

ESSENCE STATEMENT

We live in a world of Mathematics whereby we count, add, subtract, multiply or divide quantities and substances throughout our daily interactions. Mathematics involves understanding numbers and the numerical operations used to develop strategies for mental mathematical problem solving skills, estimation and computational fluency. We live in a world of space, shape and structures. It is impossible to think of a world without Mathematics. It is applied in the economic activities, scientific, social, religious and political worlds. It is therefore imperative that children are taught Mathematics from early years.

In Junior Secondary, Mathematics builds on the competencies acquired by the learner from primary school. It enhances the learner's competencies in mathematical skills as a foundation for Science, Technology, Engineering and Mathematics (STEM) and other pathways at Senior School. Mathematics also prepares the learner to have sufficient skills and competencies for application in solving problems in real life situations. This is in line with vision 2030 and sessional paper number 1 of 2019 which emphasizes on STEM areas.

SUBJECT GENERAL LEARNING OUTCOMES

By the end of the Junior Secondary, the learner should be able to:

1. Demonstrate mastery of number concepts by working out problems in day to day life
2. Represent and apply algebraic expressions in different ways
3. Apply measurement skills to find solutions to problems in a variety of contexts
4. Use money and carry out financial transactions in real life situations
5. Generate geometrical shapes and describe spatial relationships in different contexts
6. Collect and organize data to inform and solve problems in real life situations
7. Develop logical thinking, reasoning, communication and application skills through a mathematical approach to problem solving
8. Apply mathematical ideas and concepts to other learning areas or subjects and in real life contexts.
9. Develop confidence and interest in mathematics for further training and enjoyment.

STRAND 1.0: NUMBERS

Sub-Strand: Integers

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	**1.1 Integers** (6 lessons)	By the end of the sub- strand the learner should be able to; a) identify integers in different situations b) represent integers on a number line in different situations c) carry out operations of addition and subtraction integers on the number line in real life situations d) use IT or print resources for learning more on integers and for skills development e) reflect on use of integers in real life situations.	The learner is guided to: ● identify integers by carrying out activities involving positive and negative numbers and zero. For example, climbing up stairs (positive), going down stairs (negative). Others may include standing at a point (the zero point) and count the number of steps moved either forward or backward. ● draw and represent integers on number lines on learning materials. ● perform operations, including combined operations of integers on a number line. ● play creative games that involve number lines, for example jumping steps. ● use IT or other resources to learn more on operations of integers on number lines.	1. Where do we use integers in real life situations? 2. How do we carry out operations of integers?

Core Competencies to be developed
- **Creativity and imagination**- creating games; as learners play creative games that involve number lines, for example jumping steps.
- **Learning to learn**; as learners represent integers on the number line.
- **Digital literacy**- interacting with technologies; as learners use IT devices to learn and play games on integers.

Values
- **Respect;** as learners work in groups to play games that involve integers.
- **Unity**; as learners work together in creating games on integers.

PCIs
Environmental education; as learners use available resources and spaces to jump steps.

Link to other subjects
Integrated Science; as learners work out different arithmetic's that involve integers.

Sub-Strand: Fractions

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	**1.2 Fractions** (6 lessons)	By the end of the sub- strand, the learner should be able to; a) carry out combined operations on fractions in different situations b) Work out operations on fractions in real life Situations c) use IT devices for learning more on fractions and for enjoyment, d) promote use of fractions in real life situations.	The learner is guided to: • discuss and use the correct order of operations in fractions. • discuss and carry out operations on fractions from activities such as shopping and other real life cases. • play games of operations on fractions using IT devices or other resources.	How do we use fractions in real life situations?

Core Competencies to be developed;
• **Citizenship**; as learners discuss and use the correct order of operations in fractions in some aspects such as populations.   • **Critical thinking and problem solving**; as learners work out operations on fractions from shopping activities,
Values: • **Responsibility**; as learners play games of operations on fractions using IT devices or other resources.   • **Respect**; as learners work together to work out operations on fractions from shopping activities.
PCIs   • **Self-esteem**; as learners play games of operations on fractions using IT devices or other resources.
Link to other subjects   • **Languages**; as learners discuss and use the correct order of operations in fractions.

• **Agriculture and Nutrition**; as learners estimate harvests, seeds or fertilizer required for sowing or application in fractions.	

Sub-Strand: Decimals

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	**1.3 Decimals** (8 lessons)	By the end of the sub- strand, the learner should be able to; a) convert fractions to decimals in different situations b) identify recurring decimals in different situations c) convert recurring decimals into fractions in different situations d) round off a decimal number to a required number of decimal places in different situations e) express numbers to a required significant figure in real life situations. f) express numbers in standard form in different situations g) carry out combined operations on decimals in different situations	The learner is guided to: practice converting fractions to decimals. • In groups discuss and classify non- recurring and recurring decimals. Indicate the recurring digits. • practice converting recurring decimals to fractions. • discuss and round off decimal numbers to a required number of decimal places • write decimal and whole numbers to a given significant figures	1. How do we work out operations on decimals? 2. How do we use decimals in real life situations?

		h) apply decimals to real life situations i) use IT or other resources for learning more on decimals and for enjoyment, j) promote use of decimals in real life situations.	● write numbers in standard form in learning materials such as cards or charts. ● work out combined operations on decimals in the correct order. ● discuss and apply decimals to real life cases. ● play games of operations on decimals using IT or other materials.	

Core Competencies to be developed;
- **Citizenship**; as learners work in groups, discuss and classify non- recurring and recurring decimals.
- **Critical thinking and problem solving**; as learners practice converting recurring decimals to fractions.

Values
- **Responsibility**; as learners discuss and classify non- recurring and recurring decimals.
- **Respec**t; as learners work in groups to discuss and classify non- recurring and recurring decimals.

PCIs
- **Self-esteem**; as learners work out combined operations on decimals in the correct order.
- **ESD**; as learners play games of operations on decimals using IT or other materials.

Link to other subjects
- **Languages**; as learners discuss and apply decimals to real life cases.
- **Integrated Science**; as learners express different quantities of measurement in Science in decimals.

Sub-Strand: Squares and Square Roots

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	**1.4 Squares and Square roots** (6 lessons)	By the end of the sub- strand the learner should be able to; a) work out the squares of numbers from tables in different situations b) work out the square roots of numbers from tables in different situations c) work out squares and square roots of numbers using a calculator in different situations d) use IT or other materials to learn more on squares and square roots of numbers and for fun. e) enjoy using squares and square roots in real life situations	The learner is guided to: • read and write the squares of numbers from tables • read and write the square roots of numbers from tables • practice working out squares and square roots using a calculator. • use IT devices or other materials to play square and square root games. • create games that involve squares and square roots of numbers.	1. What are squares and square roots of numbers? 2. Where do we apply squares and square roots in real life situations?
Core Competencies to be developed;				

• **Communication and collaboration**- speaking and listening; as learners work in groups to read and write the square roots of numbers from tables • **Imagination and creativity**- open mindedness and creativity; as learners read and write the square roots of numbers from tables
Values • **Respect**; as learners appreciate each other's contribution in creating games that involve squares and square roots of numbers. • **Unity**; as learners work in teams to play games involving squares and square roots of numbers.
PCIs • **Life skills**; as learners use IT devices or other materials to play games on squares and square root games. • **Environmental education**; as learners use IT devices or other materials to play square and square root games.
Link to other subjects **Pre-technical studies;** as learners apply knowledge of squares and square roots in designing items to make.

Sub-Strand: Rates, Ratio, Proportions and Percentages

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	**1.5 Rates, Ratio, Proportions and Percentages** (14 lessons)	By the end of the sub- strand the learner should be able to; a) identify rates in different situations b) work out rates in real life situations c) express fractions as ratios in real life situations d) compare two or more ratios in different situations e) divide quantities in given ratios in real life situations f) work out ratios in different situations g) work out increase and decrease of quantities using ratios in real life situations h) work out percentage change of given quantities in real life situations. i) identify direct and indirect proportions in real life situations j) work out direct and indirect proportions in real life situations	The learner is guided to: • time while doing different activities such as calling using for example different mobile service providers. • role play this activity and note time taken to call, Record on a table and compare. • use cut outs from whole objects or substances to relate fractions to ratios. • discuss and compare ratios from the cut outs. • discuss and share quantities of concrete objects in different ratios. • discuss and determine percentage increase and decrease of different quantities. • use IT devices or other materials to explore percentage change. • role play shopping activities to show and determine direct relationships and can use any other activities.	1. How do we use rates in real life situations? 2. How do we use ratios in daily activities?

		k) promote use of ratios and proportions in real life.	• use hourglass to show and determine indirect relationships and can use any other activities. • watch videos on ratios and proportions as used in daily activities	

Core Competencies to be developed
- **Critical thinking and problem solving**- evaluation and decision making; as learners do different activities such as calling using different service providers to determine calling rates.
- **Imagination and creativity**; as learners use hourglass to show indirect relationships.

Values
- **Respect** as learners share out different quantities in given ratios
- **Fairness** as learners share out quantities in different proportions or percentages.

PCIs
- **Social cohesion**; as learners role play time taken to call for a specified time and also charges from different telecom service providers.
- **Decision making**; as learners use ratios to divide quantities such as money on different items to buy as part of consumer awareness.

Link to other subjects
- **Agriculture and Nutrition;** as learners work out ratios of ingredients in various aspects of home care e.g. baking.
- **Pre-technical studies**; as learners work out ratios or proportions of different building materials

Suggested Rubric

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to represent integers and carry out operations of integers on a number line	Represents integers and carries out operations of integers on a number line correctly and systematically	Represents integers and carries out operations of integers on a number line correctly	Represents integers or carries out operations of integers on a number line correctly	Represents integers on a number line correctly
Ability to carry out combined operations on fractions	Carries out combined operations on fractions correctly and Systematically	Carries out combined operations on fractions correctly	Carries out combined operations on fractions partially	Carries out combined operations on fractions with continuous support
Ability to convert fractions to decimals	Converts fractions to decimals correctly and proficiently	Converts fractions to decimals correctly	Converts fractions to decimals partially correctly	Converts fractions to decimals correctly with continuous support
Ability to identify and convert recurring decimals into fractions	Identifies and convert recurring decimals into fractions correctly and systematically	Identifies and converts recurring decimals into fractions correctly	Identifies or converts recurring decimals into fractions correctly	Identifies recurring decimals correctly

Ability to round off a decimal number to a required number of decimal places	Rounds off a decimal number to a required number of decimal places Precisely	Rounds off a decimal number to a required number of decimal places correctly	Rounds off decimal numbers to a required number of decimal places partially	Rounds off a decimal number to a required number of decimal places with continuous support
Ability to express numbers in standard form	Expresses numbers in standard form precisely	Expresses numbers in standard form correctly	Expresses numbers in standard form partially correctly	Expresses numbers in standard form with continuous support
Ability to carry out combined operations on decimals	Carries out combined operations on decimals systematically and correctly	Carries out combined operations on decimals correctly	Carries out combined operations on decimals partially correctly	Carry out combined operations on decimals with continuous support
Ability to work out squares and square roots of numbers using Mathematical tables and a calculator	Works out squares and square roots of numbers using Mathematical tables and a calculator correctly and systematically	Works out squares and square roots of numbers using Mathematical tables and a calculator correctly	Works out squares or square roots of numbers using Mathematical tables or a calculator correctly	Works out squares of numbers using Mathematical tables or a calculator correctly
Ability to identify and work out rates	Identifies rates and works out correctly and systematically	Identifies rates and works out correctly	Identifies rates or works out correctly	Identifies rates correctly

Ability to express fractions as ratios	Expresses fractions as ratios Precisely	Expresses fractions as ratios accurately	Expresses fractions as ratios partially	Express fractions as ratios with difficulties
Ability to compare two or more ratios	Compares two or more ratios systematically and correctly	Compares two or more ratios correctly	Compares two or more ratios partially	Compares two or more ratios with continuous support
Ability to divide quantities in given ratios	Divides quantities in given ratios systematically and accurately	Divides quantities in given ratios accurately	Divides quantities in given ratios partially	Divides quantities in given ratios with continuous support
Ability to work out percentage increase and decrease of quantities	Works out percentage increase and decrease of quantities correctly and systematically	Works out percentage increase and decrease of quantities correctly	Works out percentage increase or decrease of quantities correctly	Works out percentage increase or decrease of quantities partially correctly
Ability to identify and work out direct and indirect proportions	Identifies and works out direct and indirect proportions correctly and systematically	Identifies and works out direct and indirect proportions correctly	Identifies or works out direct or indirect proportions correctly	Identifies or works out direct proportions correctly

STRAND 2.0: ALGEBRA

Sub-Strand: Algebraic Expressions

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Algebra	**2.1 Algebraic Expressions** (6 Lessons)	By the end of the sub- strand the learner should be able to; a) factorize algebraic expressions in different situations b) simplify algebraic fractions in different situations c) evaluate algebraic expressions by substituting numerical values in different situations d) enjoy using algebraic expressions in real life situations.	The learner is guided to: • discuss and identify like and unlike terms and factorize algebraic expressions. • discuss like and unlike terms and simplify the algebraic fractions • discuss how to substitute the given numerical values to work out a given algebraic expression. • use IT to work out exercises and activities in algebra or drag and drop activities of grouping similar terms to simplify algebraic expressions • use other resources to work out algebra exercises.	1. How do we factorize algebraic expressions? 2. How do we simplify algebraic expressions?
Core Competencies to be developed; • **Critical thinking and problem solving;** as learners discuss like and unlike terms to factorize and simplify algebra. • **Self-efficacy** as learners use varied resources to work out algebra.					

Values
• **Responsibility**; as learners discuss and substitute values in algebraic expressions.
PCIs
• **Environmental education**; as learners as learners use varied resources for like and unlike terms in algebra.
Link to other subjects   **Integrated Science**; as learners use symbols to represent quantities for substances.

Sub-Strand: Linear Equations

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Algebra	**2.2 Linear Equations** (7 Lessons)	By the end of the sub strand the learner should be able to; a) form linear equations in two unknowns in real life situations b) solve linear equations in two unknowns by Substitution method in real life situations c) solve linear equations in two unknowns by elimination method in real life situations d) apply linear equations in two unknowns in real life situations	The learner is guided to: • role play activities such as shopping on two different items in the shop to form linear equations in two unknowns. • discuss with others and use other activities with two unknowns • discuss and use substitution method to find the solutions of simultaneous equations in two unknowns. • discuss and use elimination method to find the solutions of simultaneous equations in two unknowns.	1. How do we solve linear equations in two unknowns? 2. Where do we use linear equations in two unknowns in real life situations?

		e) recognize use of linear equations in real life.	• practice forming and solving simultaneous equations in two unknowns of real life cases using any method. • watch videos or use other materials involving linear equations in two unknowns.	

Core Competencies to be developed;
- **Communication and collaboration**; as learners discuss and use substitution methods to find the solutions of simultaneous equations in two unknowns.
- **Digital literacy**; as learners watch videos or use other materials involving linear equations in two unknowns.

Values
- **Responsibility** through dedication and commitment; as learners practice forming and solving simultaneous equations in two unknowns of real life cases

PCIs
Citizenship; as learners role play shopping activities on two different items in the shop to form linear equations in two unknowns.

Link to other subjects
Language; as learners discuss and use substitution methods to find the solutions of simultaneous equations.

Suggested Rubric

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to factorize, simplify and evaluate algebraic expressions	Factorises, simplifies and evaluates algebraic expressions systematically and correctly	Factorises, simplifies and evaluates algebraic expressions correctly	Factorises, simplifies or evaluates algebraic expressions correctly	Factorises or simplifies algebraic expressions correctly
Ability to form linear equations in two unknowns	Forms linear equations in two unknowns systematically and accurately	Forms linear equations in two unknowns correctly	Forms linear equations in two unknowns partially	Forms linear equations in two unknowns with difficulties
Ability to solve linear equations in two unknowns by substitution and elimination method	Solves linear equations in two unknowns by substitution and elimination method systematically and accurately	Solves linear equations in two unknowns by substitution and elimination method accurately	Solves linear equations in two unknowns by substitution or elimination method partially	Solves linear equations in two unknowns by substitution method

Ability to apply linear equations in two unknowns	Applies linear equations in two unknowns correctly and proficiently	Applies linear equations in two unknowns correctly	Applies linear equations in two unknowns partially correctly	Applies linear equations in two unknowns with continuous support

STRAND 3.0: MEASUREMENTS

Sub-Strand: Circles

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 Measurements	**3.1 Circles** (5 lessons)	By the end of the sub-strand the learner should be able to; a) work out the circumference of a circle in real life situations b) work out the length of an Arc of a circle in different situations c) calculate the Perimeter of a sector of a circle in different situations d) promote use of circles in real life situations.	The learner is guided to: • discuss with others and find the circumference of different circular objects in the environment. • use cut outs to relate arc length to the circumference of a circle, starting with semicircle, then quarter of a circle etc. • draw circles and work out the circumference of a circle, and arc length of a circle. • use cut outs of sectors of circles from locally available materials and work out the perimeter of the sectors. Discuss and make any object with the sector that can be used in real life situations. • use IT or other resources to explore use of sectors of circles in daily life	1. How do we determine the circumference of a circle? 2. How do we use sectors of a circle in real life situations?

Core Competencies to be developed;
- **Communication and collaboration**; as learners discuss and find the circumference of different circular objects in the environment.
- **Creativity and imagination**; as learners use cut outs to relate arc length to the circumference of a circle.

Values
- **Integrity**: as learners draw circles of given dimensions and work out the circumference of a circle.
- **Responsibility**; as learners make any objects with the sector that can be used in real life situations.

PCIs
Environmental education; as learners use locally available materials to cut out sectors responsibly.

Link to other subjects
Language; as learners discuss with others and find the circumference of different circular objects in the environment.

Sub-Strand: Area

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 Measurements	**3.2 Area** (10 lessons)	By the end of the sub- strand the learner should be able to; a) calculate the Area of circle in different situations b) work out the Area of a sector of a circle in different situations c) work out the Surface Area of Cubes and Cuboids in real life situations d) work out the Surface area of a cylinders in real life situations e) determine the surface Area of a triangular Prism in different situations f) work out the area of irregular shapes using square grids in real life situations	The learner is guided to: • discuss and work out areas of different circles. • use cut outs of sectors of circles from locally available materials and find the area where they relate the angle of the sector to the area of the circle. Determine the area of a sector of a circle. • use models to find the surface area of cubes, cuboids and cylinders and derive the formulas for each. • apply the formulas to work out surface area of given cubes, cuboids and cylinders. • use models to find the surface area of triangular prisms • draw irregular shapes, for example their palm of hands, feet, leaves etc and trace on square grid to estimate the area.	How do we use area in real life situations?

| | | g) use IT and other materials for learning more on area and for enjoyment
h) recognize use of length in real life situations. | • watch videos on models of cubes, cuboid, cylinders and prisms and how to find the surface area. | |

Core Competencies to be developed
- **Critical thinking and problem solving**; as learners use cut outs of sectors of circles from locally available materials and find the area.
- **Learning to learn**; as learners use models to find the surface area of cubes, cuboids and cylinders and derive the formulas for each.

Values
- **Responsibility** through excellence as learners use models to find the surface area of triangular prisms.

PCIs
- **Safety**; as learners handle different instruments to make cut outs of sectors from locally available materials and find the area where they relate the angle of the sector to the area of the circle.
- **Environmental education;** as learners use locally available materials to draw irregular shapes, for example their palm of hands, feet, leaves etc and trace on square grid to estimate the area.

Link to other subjects
Creative Arts and Sports; as learners draw irregular shapes, for example their palm of hands, feet, leaves.

Sub-Strand: Money

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 Measurements	**3.3 Money** (9 lessons)	By the end of the sub-strand, the learner should be able to; a) identify interest and principal in real life situations b) calculate simple interest in real life situations c) calculate compound interest per annum step by step up to three years in real life situations d) work out appreciation and depreciation per annum step by step up to three years in different situations e) work out hire purchase in real life situations f) use IT and other resources to carry out	The learner is guided to: • learners in groups to visit or invite resource persons from different financial institutions in the neighborhood of the school or home and gather information about simple and compound interests offered on deposits (principal). • enquire and discuss terms of interests on deposits (principal) as part of consumer awareness and protection • discuss and work out compound interest • identify and discuss objects or goods that appreciate and depreciate in value to inform decision making on goods that are worth investing in or buying. • determine Appreciation and Depreciation using a step by step method. • visit places that items are offered on hire purchase and discuss different terms of purchase. This can be done either as	1. What is interest in money? 2. How do we pay for goods on hire purchase?

| | | operations related to money.
g) spend money responsibly on needs and leisure | physical or online searches. They can relate different pricing of the goods. They should discuss the installments periods and time to inform purchasing decisions that will protect from products that highly lose value with time.
• use IT to access online shopping platforms and identify terms of sale. | |

Core Competencies to be developed

- **Communication and collaboration**; as learners gather information about simple and compound interests offered on deposits (principal)
- **Critical thinking and problem solving**; as learners determine Appreciation and Depreciation using step by step methods and discuss what goods are worth investing in or buying.
- **Digital literacy**; as learners do a search on online shopping platforms or other sources for different types of goods for consumer awareness.

Values

- **Responsibility** as learners make responsible choices on shopping goods that they appreciate.

PCIs

- **Citizenship** as learners use money (Kenya shillings) to buy goods.

Link to other subjects
Languages; as learners identify and discuss objects and goods that appreciate and depreciate in value.

Suggested Rubric

Level Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to work out the circumference of a circle	Works out the circumference of a circle correctly and systematically.	Works out the circumference of a circle correctly	Works out the circumference of a circle partially correctly	Works out the circumference of a circle correctly with continuous support
Ability to Work out the length of an Arc of a circle and Perimeter of a sector of a circle	Works out the length of an Arc of a circle and Perimeter of a sector of a circle correctly and systematically	Works out the length of an Arc of a circle and Perimeter of a sector of a circle correctly	Works out the length of an Arc of a circle or Perimeter of a sector of a circle correctly	Works out the length of an Arc of a circle correctly
Ability to calculate the Area of circle and sector of a circle	Calculates the Area of circle and sector of a circle correctly and systematically	Calculates the Area of circle and sector of a circle correctly	Calculates the Area of circle or sector of a circle correctly	Calculates the Area of circle correctly

Ability to work out the Surface Area of Cubes, Cuboids, cylinders and triangular Prism	Works out the Surface Area of Cubes, Cuboids, cylinders and triangular Prism correctly and proficiently	Works out the Surface Area of Cubes, Cuboids and cylinders correctly	Works out the Surface Area of Cubes, Cuboids, cylinders or triangular Prism correctly	Works out the Surface Area of Cubes or Cuboids correctly
Ability to work out the area of irregular shapes using square grids	Works out the area of irregular shapes using square grids accurately and creatively	Works out the area of irregular shapes using square grids accurately	Works out the area of irregular shapes using square grids partially accurately	Works out the area of irregular shapes using square grids with continuous support
Ability to calculate Simple and Compound Interest per annum step by step up to three years	Calculates Simple and Compound Interest per annum step by step up to three years systematically and accurately	Calculates Simple and Compound Interest per annum step by step up to three years accurately	Calculates Simple or Compound Interest per annum step by step up to three years accurately	Calculates Simple Interest accurately
Ability to work out Appreciation and Depreciation per annum step by step up to three years	Works out Appreciation and Depreciation per annum step by step up to three years systematically and accurately	Works out Appreciation and Depreciation per annum step by step up to three years accurately	Works out Appreciation or Depreciation per annum step by step up to three years accurately	Works out Appreciation per annum step by step up to three years accurately

Ability to work out Hire Purchase	Works out Hire Purchase accurately and Proficiently	Works out Hire Purchase accurately	Works out Hire Purchase partially accurately	Works out Hire Purchase with continuous support

STRAND 4.0: GEOMETRY

Sub-Strand: Geometrical Constructions

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
4.0 Geometry	**4.1 Geometrical Constructions** (12 lessons)	By the end of the sub-strand, the learner should be able to; a) construct parallel and perpendicular lines in different situations b) divide a line proportionally in different situations c) identify angle properties of polygons in different situations d) construct regular polygons up to a hexagon in different situations e) construct irregular polygons up to a hexagon in different situations f) construct circles passing through the vertices of a	The learner is guided to: • practice constructing parallel and perpendicular lines. • practice divide a line proportionally, for example, using a set square and a ruler only or pair of compasses. • discuss angle properties of polygons and relate the number of right angles to the number of sides. They can determine the angles in a given polygon. • construct regular polygons using pair of compasses, rulers, protractors. • construct irregular polygons using pair of compasses, rulers, protractors. • practice constructing circles passing through vertices of given triangles.	1. How do we construct polygons? 2. Where do we use polygons in real life situations?

		triangle in different situations g) construct circles touching the sides of the triangle in different situations h) admire geometric patterns in objects and substances in real life.	• practice constructing circles touching sides of given triangles. • watch videos on how to construct polygons, use different construction software. • use IT or other devices to create patterns using circles touching sides of triangles or polygons.	

Core Competencies to be developed;
- **Communication and collaboration**; as learners discuss angle properties of polygons and relate the number of right angles to the number of sides.
- **Digital literacy**; as learners use IT or other devices to create patterns using circles touching sides of triangles or polygons.

Values
- **Responsibility** and respect; as learners discuss angle properties of polygons and relate the number of right angles to the number of sides.

PCIs
Learners use IT or other resources to create patterns using circles touching sides of triangles or polygons.

Link to other subjects
Pre-technical studies; as learners construct regular polygons using a pair of compasses, rulers, protractors.

Sub-Strand: Coordinates and Graphs

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
4.0 Geometry	**4.2 Coordinates and graphs** (14 lessons)	By the end of the sub- strand, the learner should be able to; a) draw a labelled Cartesian plane on different learning materials b) identify points on the Cartesian plane in different situations c) plot points on the Cartesian plane in different situations d) generate table of values for a linear equation in different situations e) determine an appropriate scale for a linear equation on the Cartesian plane in different situations f) draw a linear graph from table of values on Cartesian plane in different situations	The learner is guided to: • draw and appropriately label the axes on the Cartesian plane • practice locating and plotting points on a Cartesian plane appropriately. • discuss and read coordinates of points on the Cartesian plane. They write the coordinates in terms of (horizontal value, vertical value) • discuss, choose and use appropriate scale for a given data. • discuss and make an appropriate table of values for a given linear equation and draw the linear graphs • generate the values in a table of the simultaneous linear equations and draw the graphs, read the point of intersection as solution for the equations.	1. How do we plot coordinates on a Cartesian plane? 2. Where do we use linear graphs in real life?

| | | g) solve simultaneous linear equations graphically in different situations
h) apply simultaneous equations in real life situations
i) use IT or other resources to learn more on coordinates and graphs
j) reflect on the use of graphs in real life. | • discuss and form simultaneous equations from statements and solve using graphs.
• use IT graphing tools to create linear graphs or use other materials to practice drawing linear graphs. | |

Core Competencies to be developed
- **Communication and collaboration**; as learners discuss and read coordinates of points on the Cartesian plane.
- **Critical thinking and problem solving;** as learners generate the values in a table of the simultaneous linear equations
- **Digital literacy**; as learners learn, use IT graphing tools to create linear graphs.

Values
- **Respect** as learners discuss and make an appropriate table of values for a given linear equation and draw the linear graphs

PCIs
Citizenship as learners practice locating and plotting points on a Cartesian plane appropriately.

Link to other subjects
Integrated Science as learners draw the graphs of different content areas.

Sub-Strand: Scale Drawing

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
4.0 Geometry	**4.3 Scale Drawing** **(14 lessons)**	By the end of the sub- strand, the learner should be able to; a) represent length to a given scale in different situations. b) convert actual length to scale length in real life situations c) convert scale length to actual length in real life situations. d) interpret linear scales in statement form in different situations. e) write linear scales in statement form in different situations. f) interpret linear scales in ratio form in different situations. g) write linear scales in ratio form in different situations. h) convert linear scale from statement form to ratio form and ratio form to statement form in different situations	The learner is guided to: • measure and represent length of different objects from immediate environment in his/her work book • discuss and practice converting scale from one form to another • read, discuss and interpret given linear scales in statement form. • discuss and write given linear scales in statement form. • read, discuss and interpret given linear scales in ratio form. • discuss and carry out conversions of scales from one form to another. • make scale drawings on different learning materials using appropriate scale.	1. How do we determine scales in real life? 2. Where do we use scale drawing in real life situations?

		i) make scale drawings in different situations j) apply scale drawing in real life situations. k) recognize the use of scale drawing in maps.	• use ICT devices to display the maps and use the zoom functions to demonstrate scale. • Use maps to demonstrate scale	

Core Competencies to be developed
- **Communication and collaboration**; as learners discuss and practice converting scale from one form to another
- **Critical thinking and problem solving**; as learners discuss and write given linear scales in statement form.
- **Digital literacy**; as learners use ICT devices to display the maps and use the zoom functions to demonstrate scale.

Values
- **Responsibility** as learners read, discuss and interpret given linear scales in ratio form.
- **Citizenship** as learners measure and represent the length of different objects from the immediate environment in his/her work book.

PCIs
Environmental education as learners measure and represent the length of different objects from the immediate environment in his/her work book.

Link to other subjects
Pre-technical studies; as learners read and make scale drawings learnt from technical drawing.

Sub-Strand: Common Solids

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
4.0 Geometry	**4.4 Common Solids** (16 lessons)	By the end of the sub- strand, the learner should be able to; a) identify common solids from the environment b) sketch nets of cubes, cuboids, cylinders, pyramids and cones in different situations c) work out surface area of the solids from nets of solids in different situations d) determine the distance between two points on the surface of a solid in different situations	The learner is guided to: • identify and collect common solids such as cubes, cuboids, cylinders, pyramids and cones from the immediate environment. • discuss, open and sketch the nets of hollow solids. • work out the surface area of solids from nets. • discuss and practice measuring the distance between any two points on the surface of the solids. • make models of hollow and compact solids using locally available materials. Hollow solids (containers) may be of	1. What are common solids? 2. How do we use common solids in real life?

| | | e) make models of hollow and compact solids for skills development
f) use IT devices or other materials to draw models and nets of solids in different situations
g) promote the use of common solids in real life situations. | cubes, cuboids, cylinders, pyramids or cones. Compact solids (eg. bricks) may be of cubes, cuboids or cylinders.
• use IT devices to watch videos on common solids, nets and draw the solids and nets.
• Use other resources such as print to trace or draw nets of solids. | |

Core Competencies to be developed;
- **Communication and collaboration**; as learners discuss and work in groups to collect solids from the environment.
- **Creativity and imagination**; as learners make the models of different solids.

Values
- **Responsibility, love and respect**; as learners work in groups to collect solids and make models

PCIs
- **ESD**; as learners collect solids from the environment and use locally available materials to make models.
- **Self -esteem** as learners open nets of solids and make models

Link to other subjects
- **Pre-technical studies**; as learners sketch nets of different solids
- **Creative Art and Sports**: as learners make the models of different solids.

Suggested Rubric

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to construct parallel and perpendicular lines	Constructs parallel and perpendicular lines accurately and proficiently	Constructs parallel and perpendicular lines accurately	Constructs parallel or perpendicular lines accurately	Constructs parallel lines accurately
Ability to divide a line proportionally	Divides a line proportionally correctly and systematically	Divides a line proportionally correctly	Divides a line proportionally partially correctly	Divides a line proportionally with continuous support
Ability to construct regular and irregular polygons up to a hexagon	Constructs regular and irregular polygons up to a hexagon accurately and systematically	Constructs regular and irregular polygons up to a hexagon accurately	Constructs regular or irregular polygons up to a hexagon accurately	Constructs regular up to a hexagon accurately

Ability to construct circles passing through the vertices of a triangle and touching the sides of the triangle	Constructs circles passing through the vertices of a triangle and touching the sides of the triangle correctly and Proficiently	Constructs circles passing through the vertices of a triangle and touching the sides of the triangle correctly	Constructs circles passing through the vertices of a triangle or touching the sides of the triangle correctly	Constructs circles passing through the vertices of a triangle correctly
Ability to plot Points on the Cartesian Plane	Plots Points on the Cartesian Plane precisely	Plots Points on the Cartesian Plane accurately	Plots Points on the Cartesian Plane partially accurately	Plots Points on the Cartesian Plane with continuous support
Ability to generate table of values, determine an appropriate Scale and draw a linear graph for a linear equation	Generates table of values, determines an appropriate Scale and draws a linear graph for a linear equation accurately and creatively	Generates table of values, determines an appropriate Scale and draws a linear graph for a linear equation accurately	Generates table of values, determine an appropriate Scale or draws a linear graph for a linear equation accurately	Generates table of values or determine an appropriate Scale for a linear equation accurately
Ability to Solve Simultaneous Linear Equations Graphically	Solves Simultaneous Linear Equations Graphically Systematically	Solves Simultaneous Linear Equations Graphically accurately	Solves Simultaneous Linear Equations Graphically partially accurately	Solves Simultaneous Linear Equations Graphically with continuous support

Ability to convert actual length to scale length and scale length to actual length	Converts actual length to scale length and scale length to actual length accurately and systematically	Converts actual length to scale length and scale length to actual length accurately	Converts actual length to scale length or scale length to actual length accurately	Converts actual length to scale length accurately
Ability to Interpret and write linear scales in statement and ratio form	Interprets and writes linear scales in statement and ratio form accurately and comprehensively	Interprets and writes linear scales in statement and ratio form accurately	Interprets or writes linear scales in statement or ratio form accurately	Interprets or writes linear scales in statement form accurately
Ability to make Scale drawings	Makes Scale drawings accurately and proficiently	Make Scale drawings accurately	Make Scale drawings partially accurately	Make Scale drawings with continuous support
Sketching nets of cubes, cuboids, cylinders, pyramids and cones	Sketches nets of cubes, cuboids, cylinders, pyramids and cones correctly and creatively	sketches nets of cubes, cuboids, cylinders, pyramids and cones correctly	Sketches nets of cubes, cuboids, cylinders, pyramids or cones correctly	Sketches nets of cubes, cuboids, cylinders correctly
Ability to work out surface area of nets of cubes, cuboids, cylinders, pyramids and cones	Works out surface area of the solids from nets of cubes, cuboids, cylinders, pyramids and cones accurately and systematically	Works out surface area of the solids from nets of cubes, cuboids, cylinders, pyramids and cones accurately	Works out surface area of the solids from nets of cubes, cuboids, cylinders, pyramids or cones accurately	Work out surface area of the solids from nets of cubes, cuboids, cylinders accurately

Ability to determine the distance between two points on the surface of a solid	Determines the distance between two points on the surface of a solid precisely	Determines the distance between two points on the surface of a solid accurately	Determines the distance between two points on the surface of a solid partially accurately	Determines the distance between two points on the surface of a solid with continuous support

STRAND 5.0: DATA HANDLING AND PROBABILITY

Sub-Strand: Data Presentation and Interpretation

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
5.0 Data Handling and Probability	**5.1 Data Presentation and Interpretation** (10 lessons**)**	By the end of the sub-strand, the learner should be able to; a) draw bar graphs of data from real life situations	The learner is guided to: • collect data from their own experiences, for example size of shoes, height or test scores.	1. What are the different ways of representing data?

| | | b) interpret bar graphs of data from real life situations
c) draw line graphs of given data from real life situations
d) interpret line graphs of data from real life situations
e) identify the mode of a set of discrete data from real life situations
f) calculate the mean of a set of discrete data from real life situations
g) determine the median of a set of discrete data from real life situations
h) use IT or other materials to determine the mean, mode and median of discrete data in different situations.
i) recognize use of data representation and interpretation in real life situations. | Use a suitable scale to represent the data in bar graphs.
• discuss and interpret Bar graphs
• discuss and represent data in line graphs
• discuss and interpret line graphs
• recognize the mode from a given set of discrete data
• discuss and to work out the average from different sets of discrete data and relate it to the mean.
• carry out different activities that involve getting the median position. For example, where possible learners use the hand to identify the middle finger in reference to the position.
• arrange given data in ascending order and identify the middle value which is the median.
• use IT to create bar graphs and line graphs to represent the data, calculate the mean, the mode and the median. | 2. How do we determine the mean of data? |

| | | | • Use other resources to draw bar and line graphs | |

Core Competencies to be developed;
- **Communication and collaboration**; as learners discuss and represent data in line graphs
- **Critical thinking and problem solving;** as learners discuss and interpret Bar graphs
- **Self-efficacy** as learners collect data from their own experiences, for example size of shoes, height or test scores.

Values
- **Social cohesion**; as learners collect data from their own experiences, for example size of shoes, height or test scores.

PCIs
Environmental Education as learners collect data from their own experiences, for example size of shoes, height or test scores.

Link to other subjects
Social Studies as learners discuss and work out the average from different sets of discrete data such as populations and relate it to the mean.

Sub-Strand: Probability

Strand	Sub-Strand	Specific Learning Outcome	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
5.0 Data Handling and Probability	**5.2 Probability** (**7 lessons**)	By the end of the sub- strand, the learner should be able to; a) identify events involving chance in real life situations b) perform chance experiments in different situations c) write the experimental probability outcomes in different situations	The learner is guided to: • discuss daily events that are likely/unlikely to happen/will not happen. • discuss and carry out different chance experiments like flipping the coins, tossing the dice or drawing colored	1. When do we consider chances that an event is likely to happen? 2. Why is probability important in real life situations?

		d) express the probability outcomes in fractions in different situations e) express the probability outcomes in decimals or percentages in different situations f) use IT and other materials to play games involving probability g) recognize that there are events that happen by chance in real life situations.	balls from a bag one ball at a time. • record the probability of the chance outcomes in fractions, decimals and percentages. • use IT or other resources to play games involving probability	

Core Competencies to be developed;
- **Communication and collaboration**; as learners discuss daily events that are likely/unlikely to happen/will not happen.
- **Critical thinking and problem solving**; as learners discuss and carry out different chance experiments like flipping the coins.
- **Self-efficacy** as learners discuss and carry out different chance experiments like flipping the coins and avoid harmful practices of gambling

Values
- **Responsibility** as learners use IT devices or other resources such as coins, balls in the study of probability.

PCIs
Learners discuss daily events that are likely/unlikely to happen/will not happen that may relate to the environment.

Link to other subjects
Social Studies as learners discuss daily events that are likely/unlikely to happen/will not happen that may involve the weather.

Suggested Rubric

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to draw and Interpret bar and line graphs of data	Draws and Interprets bar and line graphs of data correctly and systematically	Draws and Interprets bar and line graphs of data correctly	Draws or Interprets bar or line graphs of data correctly	Draws or Interprets bar graphs of data correctly
Ability to determine mode, mean and the median of a given set of discrete data	Determines mode, mean and the median of a given set of discrete data accurately and systematically	Determines mode, mean and the median of a given set of discrete data accurately	Determines mode, mean or the median of a given set of discrete data accurately	Determines mode or mean of a given set of discrete data accurately
Ability to Performing chance experiments	Performs chance experiments accurately and proficiently	Performs chance experiments accurately	Performs chance experiments partially	Performs chance experiments with difficulties
Ability to Writing the experimental probability outcomes	Writes the experimental probability outcomes Precisely	Writes the experimental probability outcomes correctly	Writes the experimental probability outcomes partially	Writes the experimental probability outcomes with difficulties

Ability to express the probability outcomes in fractions, decimals and percentages	Expresses the probability outcomes in fractions, decimals and percentages correctly and consistently	Expresses the probability outcomes in fractions, decimals and percentages correctly	Expresses the probability outcomes in fractions, decimals or percentages correctly	Expresses the probability outcomes in fractions correctly

GRADE 8 CSL PROJECT

Introduction

In Grade 8, focus is on making preparations to undertake a CSL activity of their own choice. They will be required to identify a community problem through research, plan and come up with solutions to solve the problem. The preparations will be carried out in groups. Learners will build on CSL knowledge, skills and attitudes acquired during Life Skills Education as well as other subjects.

CSL Skills to be Covered:
Leadership: Learners develop leadership skills as they undertake various roles during preparation.
Financial Literacy and Entrepreneurship Skills: Learners will gain skills on wise spending, saving and investing for sustained economic growth. They could consider ways of generating income as they undertake the CSL project through innovation ways. Moreover, they could identify business ideas and opportunities as well as resources to meet the needs of the community.
Research: Learners will be expected to identify a problem or pertinent issue in the community and indicate how the problem will be solved. They will also acquire skills on how to report their findings.
Communication: Learners indicate reporting mechanisms to be used during the actual project e.g., how they intend to communicate with members of the community, either online or offline.
Citizenship: As learners engage in the CSL activities for this Grade, they will be vested with the rights, privileges and duties of a citizen, hence giving them a sense of belonging and attachment to the nation. They will also be empowered to engage and assume active roles in shaping a more peaceful, tolerant and inclusive society.
Life Skills Education: Learners will be equipped with life skills including decision making, assertiveness, effective communication, problem solving and stress management. This will enable them to manage interpersonal relationships, develop leadership skills as well as discover and grow their talents.

Community Development: Learners will be empowered with skills necessary to effect relevant change including building stronger and more resilient communities.

Suggested PCIs	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
- Environmental degradation - Life style diseases - Communicable and non-communicable diseases - Poverty - Violence in community - Food security issues - Conflicts in the community	By the end of the CSL project, the learner should be able to: a) identify a problem in the community through research b) plan to solve the identified problem in the community,	The learner is guided to: - brainstorm on pertinent and contemporary issues in their community that need attention in groups - choose a PCI that needs immediate attention and explain why in groups - carry out research using digital devices print media/interactions with members of the community/resource persons in identifying a community problem to address in groups - discuss possible solutions to the identified issue in groups - propose the most appropriate solution to the problem in groups	1. How does one determine community needs? 2. Why is it necessary to make adequate preparations before embarking on a project?

	c) design solutions to the identified problem, d) appreciate the need to belong to a community.	● discuss ways and instruments they can use to collect data on the problem (questionnaires, interviews, observation schedule, etc) ● develop instruments for data collection ● identify resources needed for the CSL project (human, technical, financial) ● discuss when the project will begin and end ● prepare a programme/timetable of the entire project execution ● Assign roles to be carried by all group members ● reflect on how the project preparation enhanced learning.	
Note: The suggested PCIs are only examples. Teachers should allow learners to identify PCIs as per their context and reality.			

Key Component of CSL developed
   a) Identification of a problem in the community through research
   b) planning to solve the identified problem
   c) designing solutions to the identified problem

Core competencies to be developed
Communication and collaboration: Learners will make the preparations in groups and conduct discussions on best ways of carrying out the project.
Self efficacy: Learners develop the skills of self awareness and leadership as they undertake the CSL project
Creativity and Imagination: Learners will come up with creative ways of solving the identified community problem
Critical Thinking and Problem Solving: Learners will demonstrate autonomy in identifying a community need, exploring plausible solutions and making necessary preparations to address the problem.
Digital Literacy: Learners can use technology when as they research on a community problem that they can address.

Learning to Learn: Learners gain new knowledge and skills as they identify a community problem to be addressed and make preparations to carry out the project.
Citizenship: This is enhanced as learners choose a PCI that needs immediate attention in the community.

Pertinent and contemporary Issues
- Social cohesion as learners discuss possible solutions to the identified issue.
- Critical thinking as learners discuss possible solutions to the identified issue.

Values
- Integrity as learners carry out research using digital devices and print media as they identify a community problem to address.
- Respect as learners brainstorm on pertinent and contemporary issues in their community that need attention

Assessment Rubric (Customise to SLOs)

Indicator	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Ability to identify a problem in the community through research	Correctly and precisely identifies a problem in the community through research	Correctly identifies a problem in the community through research	Partially identifies a problem in the community through research	Partially identifies a problem in the community through research with assistance
Ability to plan to solve the identified problem	Accurately and systematically plans to solve the identified problem	Accurately plans to solve the identified problem	Plans to solve the identified problem leaves out some details	With assistance plans to solve the identified problem but leaves out many details

Ability to design solutions to the identified problem	Correctly and elaborately designs solutions to the identified problem	Correctly designs solutions to the identified problem	Partly designs solutions to the identified problem	Partly designs solutions to the identified problem with prompting

APPENDICES

Appendix 1: List of Assessment Methods, Learning Resources and Non-Formal Activities

Strand	Sub strand	Suggested Assessment Methods	Resources Suggested Learning	Suggested Non-Formal Activities
Numbers	Integers	Class activities Class written tests Out of school/home assignments or activities	Number lines games on charts Number cards, steps,	Prepare or improvise number lines games on charts
	Fractions	Class activities Class written tests Out of school/home assignments	Multiplication tables	
	Decimals	Class activities Class written tests	Multiplication tables	

		Out of school/home assignments		
	Squares and square roots	Class activities Class written tests Out of school/home assignments or	Equivalent fraction board, Circular and Rectangular cut outs, Counters	
	Rates, ratios, proportions and percentages	Class activities Class written tests	Place value charts, Number cards	
Algebra	Algebraic Expressions	Class activities Class written tests Out of school/home assignments or	Information from different sources	Carry out activities involving classifying objects in their immediate environment according to given attributes such as similarities or differences. This can be done at home. Take photos and share with class or school. Use the concept of classification of objects to own things at school and home.
	Linear Equations	Class activities	Information from different sources	

		Class written tests		
		Out of school/home assignments or		
Measurement	Circles	Class activities	Cut outs of sectors, papers, ruler	
		Class written tests		
		Out of school/home assignments or		
	Area	Class written tests	Square cut outs, squares, 1m squares	
		Out of school/home assignments or activities		
	Money	Class activities	Price Lists for commodities, model shop, Electronic money	Research, identify and discuss different products/goods that appreciate or depreciate. This can be done through online or other forms of searches. Create a table of products and the two prices: one for cash payment, the other for hire purchase payment. This is to inform purchasing decisions that will protect from products that highly lose value with time.
		Out of school/home assignments or activities		

Geometry	Geometric constructions	Class activities Class written tests Out of school/home assignments or activities	Unit angles, Protractors, Pair of compasses, Rulers, Straight edges	
	Coordinates and graphs	Class activities Class written tests Out of school/home assignments or activities	rulers, plotting/graph paper	
	Scale drawing	Class activities Class written tests Out of school/home assignments or activities	Unit angles, Protractors, Pair of compasses, Rulers, Straight edges	
	Common solids	Class activities Class written tests	Containers, compact solid objects, water, soil, clay, waste news/papers	Undertake the project

Data handling and probability	Data handling	Class activities Class written tests	Data from different sources	
	Probability	Class activities Class written tests	Data from different sources	

Appendix 2: Use of ICT Devices
The following ICT devices may be used in the teaching/learning of mathematics at this level: Learner digital devices (LDD), Teacher digital devices(TDD), Mobile phones, Digital clocks, Television sets, Videos, Cameras, Projectors, Radios, DVD players, CD's, Scanners, Internet among others.

Appendix 3: Guidelines For Integrating CSL At Junior School

COMMUNITY SERVICE LEARNING PROJECT

Introduction
In Grade 8, learners will undertake an integrated Community Service Learning (CSL) project of choice from a single or combined subject. The CSL project will enable the learner to apply knowledge and skills from other subjects to address a problem in the community. The implementation of the integrated CSL project will take a Whole School Approach, where all members of the school community including teachers, school administration, parents/guardians/ local community and support staff. It will be a

collaborative effort where the teacher of Social Studies coordinates and works with other subject teachers to design and implement the integrated CSL projects. The teachers will select a theme drawn from different Learning Areas and the broader categories of Pertinent and Contemporary Issues (PCIs) for the CSL project. It should also provide an opportunity for development of core competencies and nurturing of values. Learners will undertake **one common** integrated class CSL project following a 6-step milestone approach as follows:

Milestone	Description
Milestone 1	**Problem Identification** Learners study their community to understand the challenges faced and their effects on community members. Some of the challenges in the community can be: ● Environmental degradation ● Lifestyle diseases, Communicable and non-communicable diseases ● Poverty ● Violence and conflicts in the community ● Food security issues
Milestone 2	**Designing a solution** Learners create an intervention to address the challenge identified.

Milestone 3	**Planning for the Project** Learners share roles, create a list of activities to be undertaken, mobilise resources needed to create their intervention and set timelines for execution
Milestone 4	**Implementation** The learners execute the project and keep evidence of work done.
Milestone 5	Showcasing /Exhibition and Report Writing Exhibitions involve showcasing learners' project items to the community and reflecting on the feedback Learners write a report detailing their project activities and learnings from feedback
Milestone 6	Reflection Learners review all project work to learn from the challenges faced. They link project work with academic concepts, noting how the concepts enabled them to do their project as well as how the project helped to deepen learning of the academic concepts.

NOTE: The milestones will be staggered across the 3 terms of the academic calendar.

Assessment of CSL integrated Project

Assessment for the integrated CSL project will be conducted formatively. The assessment will consider both the process and end product. This entails assessing each of the milestone stages of the integrated CSL class project. It will focus on 3 components namely: skills from various learning areas applied in carrying out the project, core competencies developed and values nurtured.