**MATHEMATICS SCHEMES OF FORM 2**

**TERM 2**

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| **WK** | **LSN** | **TOPIC** | **SUB-TOPIC** | **OBJECTIVES** | **T/L ACTIVITIES** | **T/L AIDS** | **REFERENCE** | **REMARKS** |
| 1 | **Opening and Revision** | | | | | | | |
| 2 | 1 | Trigonometry | Application of trigonometry to real life situations Area of a triangle Area of a triangle given the base and height (A = ? bh) | By the end of the lesson, the learner should be able to:  Solve problems in real life using trigonometry Calculate the are of a triangle given the base and height | Solving problems using trigonometry in real life Calculating the area of a triangle given the base and height | Mathematical table Chart illustrating worked problem Chalkboard | KLB BK2 Pg 153-154 |  |
| 2 | Trigonometry | Area of a triangle using the formula (A = ? absin?) Area of a triangle using the formula A = ?s(s-a)(s-b)(s-c) | By the end of the lesson, the learner should be able to:  - Derive the formula ? absinc - Using the formula derived in calculating the area of a triangle given two sides and an included angle Solve problems on the area of a triangle Given three sizes using the formula A = ?s(s-a)(s-b)(s-c) | Deriving the formula ? absinc Using the formula to calculate the area of a triangle given two sides and an included angle Solving problems on the area of triangle given three sides of a triangle | Charts illustrating a triangle with two sides and an included angle Charts showing derived formula Charts illustrating a triangle with three sides Charts illustrating a worked example i.e. mathematical table | KLB BK2 Pg 156 |  |
| 3 | Trigonometry | Area of Quadrilateral and Polygons Area of a square, rectangle, rhombus, parallelogram and trapezium | By the end of the lesson, the learner should be able to:  Calculate the are of a triangle, square, rectangle, rhombus, parallelogram and trapezium | Calculating the area of a triangle, square, rectangle, rhombus, parallelogram and trapezium | Charts illustrating formula used in calculating the areas of the quadrilateral | KLB BK2 Pg 161-163 |  |
| 4 | Trigonometry | Area of a kite Area of other polygons (regular polygon) e.g. Pentagon | By the end of the lesson, the learner should be able to:  Find the area of a kite Find the area of a regular polygon | Calculating the area of a Kite Calculating the area of a regular polygon | Model of a kite Mathematical table Charts illustrating Polygons | KLB BK2 Pg 163 |  |
| 5 | Trigonometry | Area of irregular Polygon Area of part of a circle Area of a sector (minor sector and a major sector) | By the end of the lesson, the learner should be able to:  Find the area of irregular polygons - Find the area of a sector given the angle and the radius of a minor sector Calculate the area of a major sector of a circle | Finding the area of irregular polygons Finding the area of a minor and a major sector of a circle | Charts illustrating various irregular polygons Polygonal shapes Charts illustrating sectors | KLB BK2 Pg 166 |  |
| 6 | Trigonometry | Defining a segment of a circle Finding the area of a segment of a circle | By the end of the lesson, the learner should be able to:  - Define what a segment of a circle is - Find the area of a segment of a circle | Finding the area of a segment by first finding the area of a sector less the area of a smaller sector given R and r and angle ? | Chart illustrating a Segment | KLB BK2 Pg 169-170 |  |
| 3 | 1 | Trigonometry | Area of a common region between two circles given the angles and the radii Area of a common region between two circles given only the radii of the two circles and a common chord | By the end of the lesson, the learner should be able to:  Find the area of common region between two circles given the angles ? Education Plus Agencies Calculate the area of common region between two circle given the radii of the two intersecting circles and the length of a common chord of the two circles | Calculating the area of a segment Finding the area of a common region between two intersecting | Charts illustrating common region between the circles Use of a mathematical table during calculation Charts illustrating common region between two intersecting circles | KLB BK 2 Pg 175 |  |
| 2 | Trigonometry | Surface area of solids Surface area of prisms Cylinder (ii) Triangular prism (iii) Hexagonal prism Area of a square based Pyramid | By the end of the lesson, the learner should be able to:  Define prism and hence be in a position of calculating the surface area of some prisms like cylinder, triangular prism and hexagonal prism Find the total surface area of a square based pyramid | Defining a prism Calculating the surface area of the prisms Finding the surface area of a square based pyramid | Models of cylinder, triangular and hexagonal prisms Models of a square based pyramid | KLB BK 2 Pg 177 |  |
| 3 | Trigonometry | Surface area of a Rectangular based Pyramid Surface area of a cone using the formula A = ?r2 + ?rl | By the end of the lesson, the learner should be able to:  Find the surface area of a rectangular based pyramid Find the total surface area of the cone by first finding the area of the circular base and then the area of the curved surface | Finding the surface area of a rectangular based pyramid Finding the area of the circular part Finding the area of the curved part Getting the total surface Area | Models of a Rectangular based pyramid Models of a cone | KLB BK 2 Pg 179-180 |  |
| 4 | Trigonometry | Surface area of a frustrum of a cone and a pyramid | By the end of the lesson, the learner should be able to:  Find the surface area of a frustrum of a cone and pyramid | Finding the surface area of a frustrum of a cone and a pyramid | Models of frustrum of a cone and a pyramid | KLB BK 2 Pg 182 |  |
| 5 | Trigonometry | Finding the surface area of a sphere Surface area of a Hemispheres | By the end of the lesson, the learner should be able to:  Find the surface area of a sphere given the radius of a sphere Find the surface area of a hemisphere | Finding the surface area of a sphere Finding the surface area of a hemisphere | Models of a sphere Charts illustrating formula for finding the surface area of a sphere Models of a hemisphere | KLB BK 2 Pg 183 |  |
| 6 | Trigonometry | Volume of Solids Volume of prism (triangular based prism) Volume of prism (hexagonal based prism) given the sides and angle | By the end of the lesson, the learner should be able to:  Find the volume of a triangular based prism Find the volume of a hexagonal based prism | Finding the volume of a triangular based prism Calculating the volume of an hexagonal prism | Models of a triangular based prism Models of hexagonal based prism | KLB BK 2 Pg 186 |  |
| 4 | 1 | Trigonometry | Volume of a pyramid (square based and rectangular based) | By the end of the lesson, the learner should be able to:  Find the volume of a square based pyramid and rectangular based pyramid | Finding the surface area of the base Applying the formula V=?x base area x height to get the volume of the pyramids (square and rectangular based) | Models of square and Rectangular based Pyramids | KLB BK 2 Pg 189-190 |  |
| 2 | Trigonometry | Volume of a cone Volume of a frustrum of a cone | By the end of the lesson, the learner should be able to:  Find the volume of a cone Find the volume of a frustrum of a cone | Finding the volume of a cone Finding the volume of a full cone before its cutoff Finding the volume of a cut cone then subtracting | Model of a cone Models of a frustrum of a cone | KLB BK 2 Pg 191 |  |
| 3 | Trigonometry | Volume of a frustrum of a pyramid Volume of a sphere (v = 4/3?r3) | By the end of the lesson, the learner should be able to:  Find the volume of a frustrum of a Pyramid Find the volume of sphere given the radius of the sphere | Finding volume of a full pyramid Finding volume of cutoff pyramid Find volume of the remaining fig (frustrum) by subtracting i.e. Vf = (V ? v) Finding the volume of a Sphere | Models of frustrum of a pyramid Model of a sphere Mathematical table | Macmillan BK 2 Pg 169 |  |
| 4 | Trigonometry | Volume of a Hemisphere {(v = ? (4/3?r3)} | By the end of the lesson, the learner should be able to:  Find the volume of a hemisphere | Working out the volume of a hemisphere | Models of hemisphere | Macmillan BK 2 Pg 173 |  |
| 5 | Trigonometry  Trigonometric Ratios | Application of area of triangles to real life Tangent of an angle | By the end of the lesson, the learner should be able to:  Use the knowledge of the area of triangles in solving problems in real life situation name the sides of a right-angled triangle as opposite, adjacent and hypotenuse. Find the tangent of an angle by calculation | Solving problems in real life using the knowledge of the area of triangle Measuring lengths/angles Dividing numbers Drawing right angles Reading mathematical tables | Mathematical table Chart illustrating formula used Protractor  Ruler Right corners Mathematical tables | KLB BK 2 Pg 159 |  |
| 6 | Trigonometric Ratios | Tangent of an angle Using tangents in calculations | By the end of the lesson, the learner should be able to:   find the tangent of an angle from tables calculate the size of an angle given two sides and an angle from tables | Measuring lengths/angles Dividing numbers Drawing right angles Reading mathematical tables | Protractor  Ruler Right corners Mathematical tables | KLB Maths Bk2 Pg. 119-122 |  |
| 5 | 1 | Trigonometric Ratios | Application of tangents | By the end of the lesson, the learner should be able to:   work out further problems using tangents | Measuring lengths/angles Dividing numbers Drawing right angles Reading mathematical tables | Protractor  Ruler Right corners Mathematical tables | KLB Maths Bk2 Pg. 119-122 |  |
| 2 | Trigonometric Ratios | The sine of an angle The cosine of an angle | By the end of the lesson, the learner should be able to:   find the sine of an angle by calculations and through tables findthecosineofananglebycalculationsandthroughtables | Measuring lengths/angles Dividing numbers Drawing right angles Reading mathematical tables | Protractor  Ruler Right corners Mathematical tables | KLB Maths Bk2 Pg. 119-122 |  |
| 3 | Trigonometric Ratios | Application of sine and cosine Complementary angles | By the end of the lesson, the learner should be able to:   apply sines to work out lengths and angles. Apply cosine to work out length and angles define complementary angles. Work out sines of an angle given the cosine of its complimentary and vice versa | Measuring lengths/angles Dividing numbers Drawing right angles Reading mathematical tables | Protractor  Ruler Right corners Mathematical tables | KLB Maths Bk2 Pg. 119-122 |  |
| 4 | Trigonometric Ratios | Special angles | By the end of the lesson, the learner should be able to:   find the sine, cos, and tan of 300,600,450,00,900, without using tables | Measuring lengths/angles Dividing numbers Drawing right angles Reading mathematical tables | Protractor  Ruler Right corners Mathematical tables | KLB Maths Bk2 Pg. 119-122 |  |
| 5 | Trigonometric Ratios | Application of Special angles Logarithms of sines, cosines and tangents | By the end of the lesson, the learner should be able to:  apply the knowledge of special angles to solve problems  solve problems using logarithms of sines cosines and tangents | Measuring lengths/angles Dividing numbers Drawing right angles Reading mathematical tables Measuring lengths/angles | Protractor  Ruler Right corners Mathematical tables | KLB Maths Bk2 Pg. 119-122 |  |
| 6 | Trigonometric Ratios | Relationship between sin, cos and tan Application to real life situation | By the end of the lesson, the learner should be able to:   relate sin, cos and tan that is tan?=sin? cos? Solve problems using the relationship applytheknowledgeoftrigonometrytoreallifesituations | Measuring lengths/angles Dividing numbers Drawing right angles Reading mathematical tables | Protractor  Ruler Right corners Mathematical tables | KLB Maths Bk2 Pg. 119-122 |  |
| 6 | 1 | Trigonometric Ratios | Problem solving | By the end of the lesson, the learner should be able to:   solve problems on trigonometry | Problem solving | Protractor  Ruler Right corners Mathematical tables | KLB Maths Bk2 Pg. 119-122 |  |
| 2 | Area of A Triangle | Area =  Solve problems involving = | By the end of the lesson, the learner should be able to:   derive the formula Area =  solveproblemsinvolvingareaoftrianglesusingtheformulaArea= | Discussions Drawing triangles Measuring lengths/angles Calculating area | Protractor  Ruler Right corners Mathematical tables | KLB Maths Bk2 Pg. 155-157 |  |
| 3 | Area of A Triangle | A =?s(s-a) (s-b) (s-c) Problem solving | By the end of the lesson, the learner should be able to:  find the area of a triangle given the three sides  solve problems on area of a triangle given the three sides | Discussions Drawing triangles Measuring lengths/angles Calculating area | Protractor  Ruler Right corners Mathematical tables | KLB Maths Bk2 Pg. 155-157 |  |
| 4 | Area of Quadrilaterals | Area of parallelogram Area of Rhombus | By the end of the lesson, the learner should be able to:   find the area of quadrilaterals like trapeziums, parallelogram etc. by dividing the shape of triangles findtheareaofaregularpolygon. | Drawing trapeziums/polygons Measuring lengths/angles Reading mathematical tables Discussions | Parallelograms Trapeziums Polygons Squares/rectangles Mathematical tables | KLB Maths Bk2 Pg. 160 |  |
| 5 | Area of Quadrilaterals | Area of trapezium and kite | By the end of the lesson, the learner should be able to:   solve problems on the area of a regular polygon | Drawing trapeziums/polygons Measuring lengths/angles Reading mathematical tables Discussions | Parallelograms Trapeziums Polygons Squares/rectangles Mathematical tables | KLB Maths Bk2 Pg. 162-163 |  |
| 6 | Area of Quadrilaterals | Area of regular polygons Problem solving | By the end of the lesson, the learner should be able to:  find the area of a regular polygon by using the formula A=  solve problems on area of quadrilaterals and other polygons | Drawing trapeziums/polygons Measuring lengths/angles Reading mathematical tables Discussions Learners solve problems | Parallelograms Trapeziums Polygons Squares/rectangles Mathematical tables Chalkboard illustrations Mathematical tables | KLB Maths Bk2 Pg. 119-122 |  |
| 7 | 1 | Area of Part of a Circle | Area of a sector Area of a segment | By the end of the lesson, the learner should be able to:   find area of a sector find area of a segment | Drawing circles Measuring radii/diameters Measuring angles Calculating the area of a circle Discussions | Circles Chart illustrating the area of a sector Chart illustrating the area of a minor segment | KLB Maths Bk2 Pg. 167-169 |  |
| 2 | Area of Part of a Circle | Common region between two circles | By the end of the lesson, the learner should be able to:  find the area of the common region between two circles. | Drawing circles Measuring radii/diameters Measuring angles Calculating the area of a circle Discussions | Circles Chart illustrating the area of a minor segment | KLB Maths Bk2 Pg. 167-169 |  |
| 3 | Area of Part of a Circle | Common region between two circles  Problem solving | By the end of the lesson, the learner should be able to:   find the area of the common region between two circles and solve problems related to that solveproblemsinvolvingtheareaofpartofacircle | Drawing circles Measuring radii/diameters Measuring angles Calculating the area of a circle Discussions | Circles Chart illustrating the area of a minor segment Chart illustrating the area of a minor segment Chalkboard illustrations | KLB Maths Bk2 Pg. 167-169 |  |
| 4 | Surface Area of Solids | Surface area of prisms  Surface area of pyramid | By the end of the lesson, the learner should be able to:  find the surface area of a prism.  find the surface area of a pyramid | Drawing prisms Measuring lengths Opening prisms to form  nets Discussions Calculating area Drawing pyramids Measuring lengths/ angles Opening pyramids to  form nets | Prism Chalkboard illustrations Pyramids with square base, rectangular base, triangular base | KLB Maths Bk2 Pg. 177 |  |
| 5 | Surface Area of Solids | Surface area of a cone | By the end of the lesson, the learner should be able to:   find the surface area of a cone | Drawing cones/frustums Making cones/frustums Measuring lengths/ angles Discussions | Cone | KLB Maths Bk2 Pg. 180 KLBMathematics Bk2 Discovering Secondary Mathematics Bk2 |  |
| 6 | Surface Area of Solids | Surface area of frustrum with circular base Surface area of frustrum with square base | By the end of the lesson, the learner should be able to:   find the surface area of frustrum with circular base findthesurfaceareaoffrustrumwithsquarebase | Drawing cones/frustums Making cones/frustums Measuring lengths/ angles Discussions Discussions Learners find the surface area | Chart illustrating the surface area of a frustrum Chart illustrating frustrum with a square base | KLB Maths Bk2 Pg. 181-283 KLBMathematics Bk2 Discovering Secondary Mathematics Bk2 |  |
| 8 | **Mid Term Exams and Break** | | | | | | | |
| 9 | 1 | Surface Area of Solids | Surface area of frustrum with rectangular base Surface area of spheres | By the end of the lesson, the learner should be able to:   find the surface area of frustrum with rectangular base  findthesurfaceareaofasphere | Drawing cones/frustums Making cones/frustums Measuring lengths/ angles Discussions Sketching spheres Making spheres Measuring diameters/ radii of spheres | Chart illustrating frustrum with a rectangular base Chalkboard illustrations | KLB Maths Bk2 Pg. 181-183 |  |
| 2 | Surface Area of Solids | Problem solving | By the end of the lesson, the learner should be able to:   solve problems on surface area of solids | Learners solve problems | Past paper questions | KLB Maths Bk2 Pg. 183 |  |
| 3 | Volume of Solids | Volume of prism Volume of pyramid | By the end of the lesson, the learner should be able to:   find the volume of a prism findthevolumeofapyramid | Identifying prisms Identifying the cross-sectional area Drawing/sketching prisms Drawing pyramids Making pyramids Opening pyramids to  form nets Discussions | Prism Pyramid | KLB Maths Bk2 Pg. 186-188 |  |
| 4 | Volume of Solids | Volume of a cone Volume of a sphere | By the end of the lesson, the learner should be able to:   find the volume of a cone findthevolumeofasphere | Making cones/frustums Opening cones/frustums  to form nets Identifying spheres Sketching spheres Measuring radii/ diameters Discussions | Cone Sphere | KLB Maths Bk2 Pg. 191 |  |
| 5 | Volume of Solids | Volume of frustrum | By the end of the lesson, the learner should be able to:   find the volume of a frustrum with a circular base | Making cones/frustums Opening cones/frustums  to form nets | Frustrum with circular base | KLB Maths Bk2 Pg. 192-193 |  |
| 6 | Volume of Solids | Volume of frustrum with a square base Volume of frustrum with a rectangular base | By the end of the lesson, the learner should be able to:   find the volume of a frustrum with a square base findthevolumeofafrustrumwitharectangularbase | Making cones/frustums Opening cones/frustums  to form nets | Frustrum with square base Frustrum with rectangular base | KLB Maths Bk2 Pg. 192-193 |  |
| 10 | 1 | Volume of Solids | Application to real life situation  Problem solving | By the end of the lesson, the learner should be able to:  apply the knowledge of volume of solids to real life situations.  solve problems on volume of solids | Making cones/frustums Opening cones/frustums  to form nets | Models of pyramids, prism, cones and spheres Past paper questions | KLB Maths Bk2 Pg. 193-194 |  |
| 2 | Quadratic Expressions and Equations | Expansion of Algebraic Expressions | By the end of the lesson, the learner should be able to:  expand algebraic expressions | Discussions Multiplying numbers Dividing numbers Adding numbers Subtracting numbers Exercises | Real-life experiences Worked out  expressions | KLB Maths Bk2 Pg. 203 |  |
| 3 | Quadratic Expressions and Equations | Quadratic identities Application of identities | By the end of the lesson, the learner should be able to:   derive the three Algebraic identities identify and use the three Algebraic identities | Discussions Multiplying numbers Dividing numbers Adding numbers Subtracting numbers Exercises | Real-life experiences Worked out  expressions | KLB Maths Bk2 Pg. 204-205 |  |
| 4 | Quadratic Expressions and Equations | Factorise the Identities Factorise other quadratic expressions | By the end of the lesson, the learner should be able to:  factorise the identities factorise quadratic expressions | Discussions Multiplying numbers Dividing numbers Adding numbers Subtracting numbers Exercises | Real-life experiences Worked out  expressions Chart illustrating factorization of a quadratic expression | KLB Maths Bk2 Pg. 205-208 |  |
| 5 | Quadratic Expressions and Equations | Factorisation of expressions of the form k2-9y2  Simplification of an expression by factorisation | By the end of the lesson, the learner should be able to:  factorise a difference of two squares simplify a quadratic expression by factorisation | Discussions Multiplying numbers Dividing numbers Adding numbers Subtracting numbers Exercises | Real-life experiences Worked out  expressions | KLB Maths Bk2 Pg. 205-208 |  |
| 6 | Quadratic Expressions and Equations | Solving quadratic equations | By the end of the lesson, the learner should be able to:  solve quadratic equations | Discussions Multiplying numbers Dividing numbers Adding numbers Subtracting numbers Exercises | Real-life experiences Worked out  expressions | KLB Maths Bk2 Pg. 208 |  |
| 11 | 1 | Quadratic Expressions and Equations | The formation of quadratic equations Formation and solving of quadratic equations from word problems | By the end of the lesson, the learner should be able to:  form quadratic equations from information form and solve quadratic equations from word problems | Discussions Multiplying numbers Dividing numbers Adding numbers Subtracting numbers Exercises | Real-life experiences Worked out  expressions | KLB Maths Bk2 Pg. 208 |  |
| 2 | Quadratic Expressions and Equations | Solving on quadratic equations Forming quadratic equations from the roots | By the end of the lesson, the learner should be able to:  solve problems on quadratic equations form quadratic equations given the roots of the equation | Discussions Multiplying numbers Dividing numbers Adding numbers Subtracting numbers Exercises | Real-life experiences Worked out  expressions | KLB Maths Bk2 Pg. 208-210 |  |
| 3 | Linear Inequalities | Inequalities symbols | By the end of the lesson, the learner should be able to:  identify and use inequality symbols | Drawing graphs of  inequalities Determining the scale of a graph Shading unwanted regions Discussions | Number lines  Graph papers Square boards Negative and positive numbers | KLB Maths Bk2 Pg. 213-224 |  |
| 4 | Linear Inequalities | Number line Inequalities in one unknown | By the end of the lesson, the learner should be able to:  illustrate inequalities on a number line  solve linear inequalities in one unknown and state the integral values | Drawing graphs of  inequalities Determining the scale of a graph Shading unwanted regions Discussions | Number lines  Graph papers Square boards Negative and positive  numbers | KLB Maths Bk2 Pg. 213-224 |  |
| 5 | Linear Inequalities | Graphical representation Graphical solutions of simultaneous linear inequalities | By the end of the lesson, the learner should be able to:  represent linear inequalities in one unknown graphically solve the linear inequalities in two unknowns graphically | Drawing graphs of  inequalities Determining the scale of a graph Shading unwanted regions Discussions | Number lines Graph papers Square boards Negative and positive  numbers Number lines  Graph papers | KLB Maths Bk2 Pg. 213-224 |  |
| 6 | Linear Inequalities | Graphical solutions of simultaneous linear inequalities | By the end of the lesson, the learner should be able to:  solve simultaneous linear inequalities graphically | Drawing graphs of  inequalities Determining the scale of a graph Shading unwanted regions Discussions | Number lines  Graph papers Square boards Negative and positive  numbers | KLB Maths Bk2 Pg. 213-224 |  |
| 13-14 | **End Term Exams and closing** | | | | | | | |