

STANDARD SEVEN

1.0 NUMBERS

1.1 WHOLE NUMBERS

1.2 Specific Objectives

By the end of the topic, the learner should be able to:

- identify place value and total value
- read and write numbers in symbols and in words
- work out square numbers and square roots of perfect squares
- determine numbers divisible by eleven.

1.3 Content

- Place value and total value.
- Reading and writing numbers.
- Squares and square roots.
- Divisibility tests for 11.

2.0 FRACTIONS

2.1 Specific Objective

By the end of the topic, the learner should be able to work out squares and square roots of fractions.

2.2 Content

- Squares of fractions.
- Square roots of fractions involving perfect squares.

3.0 DECIMALS

3.1 Specific Objectives

By the end of the topic, the learner should be able to:

- identify place value and total value of digits in decimals
- convert non-recurring decimals to fractions

- convert fractions to decimals involving non-recurring and recurring decimals

- work out squares and square roots of decimals.

3.2 Content

- Place value and total value.
- Conversion of decimals to fractions.
- Conversion of fractions to decimals.
- Squares of decimals.
- Square roots of decimals involving perfect squares.

4.0 PERCENTAGE

4.1 Specific Objectives

By the end of the topic, the learner should be able to:

- convert percentage to fraction and fraction to percentage
- convert decimal to percentage and percentage to decimal.

4.2 Content

- Conversion of percentages to fractions and vice versa.
- Conversion of decimals to percentage and percentage to decimal.

5.0 OPERATIONS

5.1 WHOLE NUMBERS

5.2 Specific Objectives

By the end of the topic, the learner should be able to:

- add, subtract and multiply whole numbers

- b) divide whole numbers by up to 3 - digit numbers
- c) work out problems involving combined operations in whole numbers
- d) recognize and identify number sequence involving whole numbers.

5.3 Content

- 5.3.1 Addition subtraction and multiplication involving whole numbers.
- 5.3.2 Division involving whole numbers.
- 5.3.3 Combined operation in whole numbers.
- 5.3.4 Number sequence.

Note

- i) Order of operations should involve only two operations at a time.
- ii) Operations involving negative integers should be avoided.

6.0 FRACTIONS

6.1 Specific Objectives

By the end of the topic, the learner should be able to:

- a) work out addition, subtraction, multiplication and division involving fractions
- b) work out problems involving combined operations in fractions
- c) recognize and identify number sequence involving fractions.

6.2 Content

- 6.2.1 Addition and subtraction.
- 6.2.2 Multiplication and division.
- 6.2.3 Combined operations in fractions.
- 6.2.4 Number sequence.

7.0 DECIMALS

7.1 Specific Objectives

By the end of the topic, the learner should be able to:

- a) work out problems involving decimals using the four basic operations
- b) work out problems involving combined operations in decimals.

7.2 Content

- 7.2.1 Basic operations involving decimals.
- 7.2.2 Combined operations, in decimals.

8.0 PERCENTAGE

8.1 Specific Objective

By the end of the topic, the learner should be able to work out problems involving percentage increase and decrease.

8.2 Content

- 8.2.1 Percentage increase.
- 8.2.2 Percentage decrease.

9.0 MEASUREMENTS

9.1 LENGTH

9.2 Specific Objectives

By the end of the topic, the learner should be able to:

- a) recognize and identify decimetre (dm), decametres (Dm), and hectometre (hm) as units of measuring length
- b) convert units of length from one to another
- c) work out perimeter involving circle, triangle and quadrilaterals
- d) work out problems involving units of length in real life.

- 9.3 Content**
- 9.3.1 Decimetres (dm), decametres (Dm) and hectometres (hm).
Conversion of units of length.
- 9.3.2 Perimeter of shapes.
- 9.3.4 Working out problems involving perimeter in real life situation.

10.0 AREA

10.1 Specific Objectives

- By the end of the topic, the learner should be able to:
- calculate the area of a circle
 - work out problems involving area of a circle
 - calculate the area of trapeziums and parallelograms
 - work out problems involving area of borders and combined shapes
 - calculate surface area of cuboids and cylinders.

10.2 Content

- 10.2.1 Working out area of circles practically.
- 10.2.2 Working out problems involving area of circles using formulae.
- 10.2.3 Working out area of trapezium and parallelogram practically.
- 10.2.4 Area of combined shapes and borders.
- 10.2.5 Working out surface area of cubes, cuboids and cylinders practically.
- 10.2.6 Working out problems involving surface area of cubes, cuboids and cylinders.

11.0 VOLUME

11.1 Specific Objectives

- By the end of the topic, the learner should be able to:
- recognize and identify cross sectional area of regular solids
 - work out problems involving volume of cubes, cuboids and cylinders.

11.2 Content

- 11.2.1 Cross - sectional area of regular solids.
- 11.2.2 Volume of cubes and cuboids.
- 11.2.3 Volume of cylinders through piling.
- 11.2.4 Volume of cylinders using the formula.

12.0 CAPACITY

12.1 Specific Objectives

- By the end of the topic, the learner should be able to:
- work out problems involving capacity of cubes, cuboids and cylinders
 - recognize and identify the relationship between capacity and volume.

12.2 Content

- 12.2.1 Capacity of cubes, cuboids and cylinders.
- 12.2.2 Relationship between capacity and volume.

13.0 MASS

13.1 Specific Objective

- By the end of the topic, the learner should be able to work out problems involving units of mass

13.2 Content

- 13.2.1 Mass in grams, kilograms and tonnes.

14.0 MONEY

14.1 Specific Objectives

- By the end of the topic, the learner should be able to:
- work out problems involving discount, and percentage discount
 - work out problems involving commission and percentage commission
 - work out problems involving simple interest

- d) work out problems involving hire purchase
- e) work out problems involving bills in buying and selling.

14.2 Content

- 14.2.1 Discount and percentage discount.
- 14.2.2 Commission and percentage commission.
- 14.2.3 Simple interest.
- 14.2.4 Hire purchase.
- 14.2.5 Bills.

15.0 POSTAL CHARGES

15.1 Specific Objectives

By the end of the topic, the learner should be able to:

- a) work out problems involving inland and international postal charges
- b) recognize and identify money orders and postal orders
- c) work out problems involving telegrams.

15.2 Content

- 15.2.1 Inland and international postal charges.
- 15.2.2 Money and postal orders.
- 15.2.3 Writing telegrams.
- 15.2.4 Working out telegram charges.

16.0 TIME AND SPEED

16.1 Specific Objectives

By the end of the topic, the learner should be able to:

- a) work out problems involving time
- b) work out problems involving air flight, bus and train tables
- c) convert speed from kilometres per hour (km/h) to metres per second (m/s) and vice versa.

16.2 Content

- 16.2.1 Operations involving units of time.

- 16.2.2 Air flight, bus and train tables involving time, fare and distance.

- 16.2.3 Conversion involving units of speed.

17.0 TEMPERATURE

17.1 Specific Objectives

By the end of the topic, the learner should be able to:

- a) compare temperature using hotter, warmer, colder and same as
- b) recognize and identify degree celcius as a unit of measuring temperature.

17.2 Content

- 17.2.1 Direct comparison of temperature.
- 17.2.2 Degree celcius ($^{\circ}\text{C}$).

18.0 GEOMETRY

18.1 Specific Objectives

By the end of the topic, the learner should be able to:

- a) recognize and identify angle properties of parallel lines and quadrilaterals
- b) work out problems involving angle properties of parallel lines
- c) construct right angled, isosceles and equilateral triangles using a ruler and a pair of compasses
- d) construct circles passing through vertices of a triangle
- e) recognize and identify Pythagorean relationship
- f) make models of cubes, cuboids and cylinders
- g) make patterns involving rectangles, triangles and circles.

18.2 Content

- 18.2.1 Parallel lines and transversals.
- 18.2.2 Perpendicular bisectors of lines.

- 18.2.3 Working out problems involving angle properties of parallel lines.
- 18.2.4 Angle properties of squares, rectangles, rhombuses, parallelograms and trapeziums.
- 18.2.5 Construction of triangles.
- 18.2.6 Constructions of circles.
- 18.2.7 Pythagorean relationship 3 - 4 - 5.
- 18.2.8 Net of cubes, cuboids and cylinders.
- 18.2.9 Models of cubes, cuboids and cylinders.
- 18.2.10 Making patterns.

19.0 ALGEBRA

19.1 Specific Objectives

By the end of the topic, the learner should be able to:

- a) form and simplify algebraic expressions
- b) work out the value of algebraic expressions through substitution
- c) form and solve equations in one unknown
- d) simplify inequalities in one unknown.

19.2 Content

- 19.2.1 Formation and simplification of algebraic expressions.
- 19.2.2 Substitution in algebraic expressions.
- 19.2.3 Forming and solving equations.
- 19.2.4 Simplifying inequalities in one unknown.

20.0 TABLES AND GRAPHS

20.1 Specific Objectives

By the end of the topic, the learner should be able to:

- a) determine appropriate scale for graphs
- b) read and interpret tables in real life situations
- c) represent data on bar graphs, pie charts, travel graphs and line graphs

- d) read and interpret bar graphs, pie charts, line graphs and travel graphs
- e) work out problems involving the mean and the mode.

20.2 Content

- 20.2.1 Linear scale.
- 20.2.2 Tables involving real life situations.
- 20.2.3 Drawing graphs.
- 20.2.4 Reading and interpreting graphs.
- 20.2.5 Arithmetic mean and mode.

21.0 SCALE DRAWING

21.1 Specific Objectives

By the end of the topic, the learner should be able to:

- a) read and write linear scale in ratio form
- b) convert linear scale from statement to ratio form and ratio to statement
- c) work out problems involving scale drawings.

22.2 Content

- 22.2.1 Linear scale in ratio form.
- 22.2.2 Conversion of scale from one form to another.
- 22.2.3 Making scale drawing.
- 22.2.4 Working out problems involving scale drawing.

23.0 RATIO AND PROPORTION

23.1 Specific Objectives

By the end of the topic, the learner should be able to:

- a) recognize and identify ratio as a fraction
- b) interpret and use ratio in sharing
- c) work out problems involving ratio using unitary method
- d) interpret and use ratio in increasing and decreasing quantities

- e) recognize and identify simple direct and indirect proportion
- f) work out problems involving simple direct and indirect proportions.

23.2 Content

- 23.2.1 Ratio as a fraction.
- 23.2.2 Sharing using ratio.
- 23.2.3 Working out problems involving ratio using unitary method.
- 23.2.4 Increasing and decreasing quantities using ratio.
- 23.2.5 Direct and indirect proportion.
- 23.2.6 Working out problems involving simple direct and indirect proportion.