ZIMBABWE

MINISTRY OF PRIMARY AND SECONDARY EDUCATION

STATISTICS SYLLABUS

FORMS 3 - 4

2015 - 2022

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CONTENTS

1.0 PREAMBLE

1.1 Introduction

The Forms 3 - 4 Statistics syllabus is a two-year learning phase which is designed to promote critical thinking, problem solving, analytical and organisational skills. The subject seeks to equip learners with knowledge which lays a foundation for its application in other learning areas, further studies and for future careers. It creates awareness of their immediate environment, enables them to solve socio-economic problems and make informed decisions.

1.2 Rationale

Statistics is significant to the development of the Zimbabwean society. The knowledge of statistics enables learners to develop statistical skills such as research and analytical competencies essential for sustainable development. The importance of statistics can be underpinned in inclusivity and human dignity (Unhu/ Ubuntu/Vumunhu) as it plays a pivotal role in careers such as education, medicine, agriculture, meteorology and engineering.

The statistics syllabus enables learners to develop skills in:

- Problem solving
- Critical thinking
- Decision making
- Leadership
- Self-management
- Communication
- Technology and innovation
- Enterprise

1.3 Summary of Content

The syllabus is designed to cover Forms 3-4 of secondary education in statistics which will lay a firm foundation for its application in other learning areas, further studies and career development. The syllabus covers theory and practical activities in data collection, presentation, interpretation, analysis and statistical inferences. Learners' performance will be evaluated through summative and continuous assessment.

1.4 Assumptions

It is assumed that learners:

- can carry out arithmetic operations
- engage in logical thinking
- have a basic knowledge of statistics
- have prior knowledge of ICT

1.5 Cross Cutting Themes

In order to foster competence development for further studies, life and work, the teaching and learning of Statistics at forms 3 - 4 should integrate the following cross cutting themes:

- Enterprise skills and financial literacy
- Digital literacy
- Collaboration
- HIV and AIDS
- Heritage studies
- Human Rights
- Gender
- Environmental issues
- Disaster Risk management

2.0 PRESENTATION OF SYLLABUS

The Statistics Forms 3 -4 syllabus is presented as one document. The syllabus has aims, objectives, methodology and time allocation, topics, scope and sequence, competency matrix and assessment.

3.0 AIMS

The syllabus enables learner to :

3.1 develop an appreciation of the role of statistics in national development
3.2 effectively use ICT tools to solve statistical problems
3.3 apply statistical knowledge and skills in other disciplines
3.4 develop a statistical foundation for further studies
3.5 use statistical data with integrity (Unhu/ Ubuntu/Vumunhu)
3.6 value heritage, history and culture through research and statistical inferences
3.7 acquire entrepreneurship and leadership skills

in an indigenised economy through research and project based learning

3.8 develop critical and logical thinking

4.0 SYLLABUS OBJECTIVES

By the end of the course learners should be able to:

4.1 define statistics and statistical terms
4.2 collect and present data in written, graphical, diagrammatical and tabular form
4.3 draw inferences through manipulation of statistical data
4.4 relate statistical concepts to real life situations
4.5 carry out statistical calculations
4.6 construct statistical arguments through appropriate use of precise statements and logical deduction
4.7 use ICT tools in statistical analysis
4.8 carry out statistical research projects

5.0 METHODOLOGY AND TIME ALLOCATION

5.1 Methodology

The following learner centred and participatory methods are recommended in the teaching of Statistics:

- Demonstrations
- Discovery
- Experimentation
- Group work
- Question and answer
- Problem solving
- Discussion
- Research and Presentations
- Project-based learning
- Simulation and modelling

The above suggested methods should be enhanced through the application of multisensory approaches to teaching and learning and principles of individualization, unification, concreteness, stimulation and self-activity

5.2 Time Allocation

The learning area should be allocated 5 periods of 40 minutes each per week.

6.0 TOPICS

6.1 Introduction to Statistics
6.2 Data Collection and Presentation
6.3 Measures of Central Tendency
6.4 Measures of Dispersion
6.5 Sampling
6.6 Probability
6.7 Random Variables
6.8 Errors
6.9 Index Numbers
6.10 Time Series
6.11 Linear Regression

7.0 SCOPE AND SEQUENCE

TOPIC 7.1.0 INTRODUCTION TO STATISTICS

SUB TOPIC	FORM 3	FORM 4
Introduction to statistics	• Statistical terms - Statistics - Data - Frequency - Tally system - Descriptive - Inferential	
Importance of Statistics	• Statics in the - home - School - community	• Techniques of collecting data • Methods of representing data

TOPIC 7.1.1 DATA COLLECTION AND PRESENTATION

SUB TOPIC	FORM 3	FORM 4
Types of Data	• Types of data - Primary data and secondary data - Grouped and ungrouped - Qualitative and quantitative - Discrete and continuous	
Methods of collecting data	• Methods of collecting data: - Survey - Observational Study - Census - Experiment	• Techniques of collecting data: - Observation - Questionnaire - Interviews

TOPIC 7.1.2 DATA COLLECTION AND PRESENTATION

SUB TOPIC	FORM 3	FORM 4
Methods of representing data	• Pictogram • Pie chart • Bar chart	• Graphs - Line graphs - Histograms - Frequency polygon - Cumulative curve

TOPIC 7.1. 3 MEASURES OF CENTRAL TENDENCY

SUB TOPIC	FORM 3	FORM 4
Mean, mode and median of ungrouped data and grouped data	• Ungrouped data - Mean - Mode - Median	• Grouped data - Mean - Mode - Median

TOPIC 7.1.4 MEASURES OF DISPERSION

SUB TOPIC	FORM 3	FORM 4
Range	• Identify highest and lowest values of ungrouped data • Define range of ungrouped data • Calculate range of raw data • State advantages and disadvantages of using data	

TOPIC 7.1 5 MEASURES OF DISPERSION

SUB TOPIC	FORM 3	FORM 4
Measures of relative position	• Ungrouped data - Quartiles - In quartile range - Semi quartile range	• Grouped data - Quartiles of grouped data - In quartile range - Semi quartile range - Percentiles - Deciles
Variance and Standard deviation	• Variance • Standard deviation	• Variance • Standard deviation

TOPIC 7.1 6 SAMPLING

SUB TOPIC	FORM 3	FORM 4
Sampling – key terms	• Sampling • Population • Randomness • Sample Survey • Census	
Sampling – techniques	• Random sampling • Non- random sampling • Biased sampling • Representative sample	
Sampling – methods		• Simple random sampling • Systematic samp0ling • Stratified sam0pling • Cluster sampling • Quota sampling • Convenient Sampling

TOPIC 7.1 7 PROBABILITY

SUB TOPIC	FORM 3	FORM 4
Probability – key terms	• Probability • Trial • Sample space • Outcome • Events • Experiment	
Experimental and theoretical probability	• Experimental probability • Theoretical probability	
Combined events		• Combined events • Probability space • Probability rules • Conditional; probability

TOPIC 7.1 8 RANDOM VARIABLES

SUB TOPIC	FORM 3	FORM 4
Types of variables	• Variable • Randomness • Discrete random variable • Continues random variables	
Discrete random variable		• Discrete random variable

TOPIC 7.1 9 ERRORS

SUB TOPIC	FORM 3	FORM 4
Estimation	• Estimation • Measurement	
Types of errors	• Errors - Absolute - Relative • Source of errors - Rounded off - estimation	
Computation of errors		• Errors - absolute - relative

TOPIC 7.1 10 INDEX NUMBERS

SUB TOPIC	FORM 3	FORM 4
Types and uses of index numbers	• index numbers • base year • price relative • unweighted and weighted aggregate cost index • average percentage base period	
Price index and expenditure index		- Price relative index - Expenditure index - Average percentage - Weighted and unweighted average
Demographic rates		• Demographic rates - Crude death rate - Crude birth rate - Growth rate - Standardized rates

TOPIC 7.1 11 TIME SERIES

SUB TOPIC	FORM 3	FORM 4
Time series – key terms	• Time series • Variables • Period: day/ week/ month/ season	
Components of time series	• Seasonal • Cyclic • Random variations • Trend	
Time series graphs		• Time series graphs

TOPIC 7.1 12 LINEAR PROGRESSION

SUB TOPIC	FORM 3	FORM 4
Dependent and independent variables	• Variables - Dependent - independent	
Scatter diagrams	• Scatter diagrams - Drawing - Interpretation	
Line of best fit		• Scattergram • Line of best fit • Equation of a straight line

8.1 FORM THREE

8.1.1 TOPIC 1: INTRODUCTION TO STATISTICS

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Introduction to statistics	• define statistical terms • stateTEH branches of statistics	• Statistical terms: - Statistics - Data - Frequency - Tally system • Descriptive • Inferential	• Discussing statistical terms • Explaining meanings of terms • Counting and grouping items • Citing relevant examples of branches of statistics	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Available objects
Importance of Statistics	• state the importance of statistics • explain the value of Statistics in life	• statistics in the - home, - school - community	• Discussing the significance of statistics in the home, school and community • Researching on the application of statistics in the home, school and community	• ICT tools • Relevant texts • Braille material and equipment • Talking books

8.1 .2 : DATA COLLECTION AND PRESENTATION

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Types of Data	• name the types of data in statistics • compare different types of data	• Types of data - Primary data and secondary data - Grouped and ungrouped - Qualitative and Quantitative - Discrete and Continuous	• Discussing the types of data in statistics • Explaining the difference between two given types of data • Classifying data according to type	• ICT tools • Relevant texts • Braille material and equipment • Talking books
Methods of collecting data	• explain methods of collecting data • use the methods to collect data	• Methods of collecting data: - Survey - Observational study - Census - Experiment	• Discussing and demonstrating methods of collecting data • Designing and administering: - Questionnaires - Interview guides • Carrying out experiments such as tossing a coin or throwing a die • Observing events and recording outcomes	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Local environment
Methods of representing data	• explain ways of representing ungrouped data • represent ungrouped data in various forms • interpret statistical diagrams	• Pictogram • Pie chart • Bar Chart	• Explaining ways of representing data • Drawing: - Pictograms - Pie chart - Bar chart • Interpreting statistical diagrams	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Pictures • Drawing instruments

8.1.3: MEASURES OF CENTRAL TENDENCY

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Mean, mode and median of ungrouped data	• define terms: - Mean - Mode - Median • find the mode of ungrouped data • find the median of ungrouped data • calculate the mean of ungrouped data • explain the advantages and disadvantages of the measures of central tendency • solve problems involving measures of central tendency	• Mean • Mode • Median	• Discussing - Mean - Mode - Median • Calculating mean and median of ungrouped data • identifying mode from ungrouped data • discussing the advantages and disadvantages of the measures of central tendency • solving problems involving measures of central tendency	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Objects of different sizes, colour or shapes

8.1.4: MEASURES OF DISPERSION

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Range	• identify highest and lowest values of ungrouped data • define range of ungrouped data • calculate range of raw data • state advantages and disadvantages of using range	• Range	• identifying highest and lowest values of ungrouped data • Calculating range for raw data • Discussing advantages and disadvantages of using range	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Measuring instruments
Measures of relative position	• define quartiles • arrange numbers in ascending order • determine quartiles • calculate: - interquartile range - semi-interquartile range - from ungrouped data • explain the meaning of interquartile range	• Quartiles • Interquartile range • Semi-interquartile range	• Finding quartiles from ungrouped data • Calculating: - interquartile range - semi interquartile range • discussing the significance of interquartile range	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Measuring instruments
Variance and standard deviation	• Define: - variance - standard deviation • calculate: - variance of ungrouped data - standard deviation of ungrouped data • explain the significance of: - variance - standard deviation	• Variance • Standard deviation	• Calculating variance and standard deviation • Discussing the significance of variance and standard variation	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Local environment

8.1.5: SAMPLING

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Sampling - key terms	• explain the key terms: - sample and sampling - population - randomness - survey - census • differentiate between: - population and sample - census and survey	• Sampling • Population • Randomness • Sample • Survey • Census	• Discussing the meanings of the following key terms: - sample and sampling - population - randomness - survey - census • Comparing: - Population and sample - Census and survey	• ICT tools • Relevant texts • Braille material and equipment • Talking books
Sampling techniques	• differentiate between random and non-random sampling • differentiate between representative and biased samples • give sources of bias • explain ways of overcoming bias • deduce advantages and disadvantages of the sampling techniques • identify situations in which random and non-random sampling can be used	• Random sampling • Non-random sampling • Biased sample • Representative sample	• Listing differences between random and non-random sampling • Distinguishing between biased and representative sample • Identifying sources of bias • Discussing ways of overcoming bias • Discussing advantages and disadvantages of sampling techniques • Citing situations in which random and non-random sampling can be used	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Raffles

8.1.6 : PROBABILITY

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Probability –key terms	• Define key terms - probability - trial - sample space - outcome - event - experiment	• Probability • Trial • Sample space • Outcome • Event • Experiment	• Discussing the following probability key terms: - probability - trial - sample space - outcome - event - experiment	• ICT tools • Relevant texts • Braille material and equipment • Talking books
Experimental and theoretical probability	• describe: - experimental probability - theoretical probability • deduce probabilities from results of experiments • identify situations where experimental or theoretical probabilities are used	• Experimental probability • Theoretical probability	• Discussing theoretical and experimental probabilities • Citing situations where experimental or theoretical probabilities are used • Carrying out experiments such as tossing a coin and throwing a die • Computing probabilities of events	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Spinning wheel • Coins • Dice
Single events	• calculate probabilities of single events • compute probabilities of complementary events	• probability space • complementary events	• Carrying out experiments of single events • Computing probabilities of complementary events	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Coins • Dice • Balls • Playing cards

8.1.7: RANDOM VARIABLES

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Types of random variables	• define : - variable - randomness - random variable • state the types of random variables • describe the properties of: - discrete random variables - continuous random variables	• Variable • Randomness • Discrete random variables • Continuous random variables	• Discussing types of random variables • Discussing the properties of discrete random variables and continuous random variables • Conducting experiments to show randomness	• ICT tools • Relevant texts • Braille material and equipment • Talking books Balls of different colours • Metre rule, Clothing, foot wear, scale and clock

8.1.8: ERRORS

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Estimation	• use the approximation sign • define the term estimation • estimate quantities • measure quantities	• Estimation • Measurement	• Discussing estimation • Estimating quantities • Measuring quantities	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Rulers, scale, measuring cylinders
Types of errors	• define an error • state the types of errors • distinguish between absolute error and relative error • state sources of errors	• Errors - Absolute - Relative • Sources of errors - Rounding off - Estimation	• Discussing the types of errors • Differentiating absolute error from relative error • Measuring quantities and giving results to an appropriate degree of accuracy	• ICT tools • Relevant texts • Braille material and equipment • Talking books Rulers, scales and clocks

8.1. 9: INDEX NUMBERS

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Types and uses of index numbers	• define : - index number - price relative - base year - weighted and un-weighted aggregate cost index • calculate price relative numbers using base year price • interpret a given price relative index number • identify applications of price relative index numbers	• index numbers • base year • price relative • unweighted and weighted aggregate cost index • Average percentage base period	• Discussing index number terms • Collecting prices of different items such as bread, sugar, cooking oil, salt, soap over a specified period • Computing the price relative index numbers • Discussing application of index number • Debating on cost of living and adjustments of wages	• ICT tools • Relevant texts • Braille material and equipment • Talking books Price fliers • Resource person • Price Fliers

8.1. 10: TIME SERIES

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Time series – key terms	• define: - time series - variable - period • identify time series data	• Time series • Variable • Period: day/week/month/ season	• Observing and analyzing examples of time series graphs • Explaining variables and period • Identifying time series data	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Resource person
Components of time series	• identify the components of time series	• Seasonal • Cyclic • Random variations • Trend	• discussing components of time series	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Time series records

8.1 11: LINEAR REGRESSION

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Dependent and independent variables	• define variables • explain dependent and independent variables	• Variables - dependent - independent	• Describing variables • Discussing dependent and independent variables	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Flyers
Scatter diagrams	• collect raw data • identify dependent and independent variables • plot scatter diagrams • interpret scatter diagrams • use scatter diagrams to make statistical inference	• Scatter diagrams - drawing - interpretation	• Gathering raw data • Identifying dependent and independent variables • Plotting scatter diagrams • Interpreting scatter diagrams • Using scatter diagrams to make statistical inferences	• ICT tools • Relevant texts • Braille material and equipment • Talking books Drawing tools

8.2 FORM 4

8.2 1: DATA COLLECTION AND PRESENTATION

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Techniques of collecting data	• design questionnaires and interview guides • conduct a survey • state advantages and disadvantages of each technique	• observation • questionnaire • interviews	• Designing questionnaires for data collection • Conducting a survey using data collecting techniques • Discussing advantages and disadvantages of each data collection technique	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Local environment
Methods of representing data	• explain ways of representing grouped data • represent grouped data in various forms • interpret graphs of grouped data	• Graphs - Line graphs - Histograms - Frequency polygon - Cumulative frequency curve	• Explaining ways of representing data • Constructing graphs from data collected in the environment • Interpreting line graphs, histogram, frequency polygon and cumulative frequency curve	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Drawing instruments

8.2.2 : MEASURES OF CENTRAL TENDENCY

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Mean, mode and median of grouped data	• Compute estimates of median and mean of grouped data • find the modal class of grouped data • solve problems involving measures of central tendency	• mean • mode • median	• Computing estimates of median and mean of grouped data • Stating the modal class of grouped data • solving problems involving measures of central tendency	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Local environment

8.2.3: MEASURES OF DISPERSION

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Measures of relative position of grouped data	• find quartiles from cumulative frequency curves • calculate: - inter-quartile range - semi-interquartile range • interpret the significance of the inter-quartile and semi-interquartile range • find percentiles and deciles from cumulative frequency curves • Relate deciles to percentiles	• Quartiles of grouped data • Interquartile range • Semi-interquartile range • Percentile • Deciles	• Using cumulative frequency curves to estimate measures of relative position • Calculating the: - Interquartile range - Semi-interquartile range • Discussing the significance of: - Interquartile range - Semi Interquartile range • Finding deciles and percentiles from cumulative frequency curves • Comparing deciles and percentiles	• ICT tools • Relevant texts • Braille material and equipment • Talking books
Variance and standard deviation	• Calculate estimates of variance and standard deviation of grouped data • explain the significance of variance and standard deviation of grouped data • solve problems involving variance and standard deviation for grouped data	• Variance • Standard deviation	• Calculating estimates of variance and standard deviation of grouped data • commenting on the value of the variance and standard deviation of grouped data • solving problems involving variance and standard deviation for grouped data	• ICT tools • Relevant texts • Braille material and equipment • Talking books

8.2.4: SAMPLING

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Sampling methods	• state sampling methods • describe each of the sampling methods • explain situations in which random and non-random sampling methods are used • describe advantages and disadvantages of each of the sampling method	• Simple random sampling • Systematic sampling • Stratified sampling • Cluster sampling • Quota sampling • Convenient sampling	• Explaining each of the sampling methods • identifying situations in which sampling methods are used • Discussing the advantages and disadvantages of each of the sampling method	• ICT tools • Relevant texts • Braille material and equipment • Talking books

8.2. 5: PROBABILITY

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Combined events	• define with examples combined events • construct outcome tables and probability space diagrams • use probability rules in the computation of probabilities • calculate conditional probabilities • solve problems involving probability in life situations	• Combined events • Probability space • Probability rules • Conditional probability	• Discussing combined events • Citing examples of combined events • Constructing outcome tables and probability space diagrams • Computing probability using probability rules • solving problems involving probability in life situations	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Dice • Coins • Playing cards • Balls

8.2 6: RANDOM VARIABLES

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Discrete random variables	• Construct the probability distribution table • Calculate the E(X)and Var (X)	• Discrete random variables	• Carrying out experiments such as tossing a coin, throwing a die • Drawing up a probability distribution table • Computing the E(X)and Var (X)	• ICT tools • Relevant texts • Braille material and equipment • Talking books • Coins • Dice • Scale • Ruler

8.2.7: ERRORS

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Computation of errors	• Calculate errors: - absolute error - relative error	• Errors: - absolute - relative	• Computing absolute and relative errors • Discussing how knowledge of errors can be applied in everyday life • Explaining the dangers related to errors	• ICT tools • Relevant texts • Braille material and equipment • Talking books

8.2 8: INDEX NUMBERS

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Price index and expenditure index	• define: - average percentage - expenditure index • distinguish between price relative and expenditure index • calculate expenditure index of households • state the importance of expenditure index • use expenditure index in everyday life	• Price relative index • Expenditure index • Average percentage • Weighted and un-weighted averages	• Describing: - price relative index -expenditure index • Computing expenditure index of households • Explaining the importance of expenditure index • Discussing the use of expenditure index in everyday life	• ICT tools • Relevant texts • Braille material and equipment • Talking books
Demographic rates	• define demographic rates • calculate demographic rates	• Demographic rates - Crude death rate - Crude birth rate - Growth rate - Standardized rates	• Describing the demographic rates • Computing the demographic rates	• ICT tools • Relevant texts • Braille material and equipment • Talking books

8.2 9: TIME SERIES

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Time series graphs	• analyse time series graphs • identify components from a time series graph	• Time series graphs	• Discussing time series graphs • identifying components from a time series graph	• ICT tools • Relevant texts • Braille material and equipment • Talking books
Smoothening	• explain the purpose of smoothening • calculate moving averages • draw trend lines • plot moving averages • solve problems involving time series in life	• Moving averages • Trend lines	• Discussing the purpose of smoothening • Computing moving averages • Constructing trend lines • Interpreting the trend lines • Plotting moving averages • Solving problems involving time series in life	• ICT tools • Relevant texts • Braille material and equipment • Talking books

8.2. 10 LINEAR REGRESSION

SUB TOPIC	LEARNING OBJECTIVES Learners should be able to:	CONTENT (Attitudes, Skills and Knowledge)	SUGGESTED NOTES AND ACTIVITIES	SUGGESTED RESOURCES
Line of best fit	• plot the scatter diagram • draw the line of best fit by eye • determine the equation of line of best fit in the form $y = mx + c$ • use the equation of the line of best fit to estimate value of y given x • solve problems involving linear regression	• Scattergram • Line of best fit • Equation of a straight line	• Drawing a scatter diagram • Drawing the line of best fit • Finding the equation of the line of best fit • Estimating the value of y for a given value of x • solving problems involving linear regression	• ICT tools • Relevant texts • Braille material and equipment • Talking books

9.0 ASSESSMENT

9.1 ASSESSMENT OBJECTIVES

Learners will be assessed on their ability to:

- Recall, recognize and use statistical terms and definitions
- carry out calculations accurately showing all the necessary steps
- explain statistical terms, processes and procedures
- estimate and approximate quantities to a suitable degree of accuracy
- measure variables to a suitable degree of accuracy
- draw tables, graphs, charts and diagrams
- read and interpret tables, graphs, charts and diagrams accurately
- use appropriate statistical methods to collect data
- analyse and interpret data accurately
- make statistical inferences
- use research skills to investigate, analyse and solve personal and community problems

9.2 SCHEME OF ASSESSMENT

The Forms 3 - 4 assessment in Statistics will be based on 30% continuous assessment and 70% summative assessment.

Arrangements, accommodation and modifications must be visible in both continuous and summative assessment to enable learners with special needs to access assessment and receive accurate performance measurement of their abilities. Access arrangements must neither give these candidates an undue advantage over others nor compromise the standards being assessed.
Candidates who are unable to access the assessments of any component or part of component due to disability (transitory or permanent) may be eligible to receive an award based on the assessment they would have taken.

a)Continuous Assessment
Continuous assessment will consists of topic tasks, written tests and end of term examinations:
i) Topic Tasks
These are activities that teachers use in their day to day teaching. These may include assignments and team work activities.

ii) Written Tests
These are tests set by the teacher to assess the concepts covered during a given period of up to a month. The tests should consist of short structured questions as well as long structured questions.

iii) End of term examinations
These are comprehensive tests of the whole term’s or year’s work. These can be set at school, cluster, district or provincial level.

iv) Project
This should be done from term two to term five.

Summary of Continuous Assessment Tasks
From term one to five, candidates are expected to have done at least the following recorded tasks per term:

- 1 Topic task
- 2 Written tests

Detailed Continuous Assessment Tasks Table

Term	Number of Topic Tasks	Number of Written Tests	Number of End of Term Tests	Project	Total
1	1	2	1		
2	1	2	1	Starts	
3	1	2	1	In progress	
4	1	2	1	In progress	
5	1	2	1	Finalization	
Weighting	15%	15%	30%	40%	100%
Actual weight	4.5%	4.5%	9%	12%	**30%**

Comment: Term 6 is for the National Examination

Specification grid for continuous assessment

Component Skills	Topic Tasks	Written Tests	End of Term	Project
Skill 1 Knowledge Comprehension	30%	30%	30%	30%
Skill 2 Application Analysis	50%	50%	50%	50%
Skill 3 Synthesis Evaluation	20%	20%	**20%**	**20%**
Total	**100%**	**100%**	**100%**	**100%**
Actual weighting	**4.5%**	**4.5%**	**9%**	**12%**

9.3 ASSESSMENT MODEL

Learners will be assessed using both continuous and summative assessments