MATHEMATICS – BASIC 9

THIRD TERM SCHEME OF LEARNING

WEEKS	STRAND	SUB STRAND	INDICATORS	RESOURCES
1	Handling Data	**Data** ● B9.4.1.1Select, justify, and use appropriate methods of collecting data (grouped/ungrouped), use the data to construct and interpret frequency tables and histogram and use it to determine the mode and to solve and/or pose problems.	B9.4.1.1.1 Select and justify a method to collect data (quantitative and qualitative) to answer a given question.	Rule, pencils
2	Handling Data		B9.4.1.1.2-3 Organize data (grouped/ungrouped) present it in frequency tables, line graphs, pie graphs, bar graphs and/or pictographs and analyze it to solve and/or pose problems. Use a histogram to determine the mode of a given data to solve and/or pose real life cases.	Rule, pencils
3	Handling Data	**Data** ● B9.4.1.2 Select, justify, and use appropriate methods of collecting data (quantitative and qualitative), organise and analyse the data (grouped/ungrouped) to interpret the results using the descriptive statistics (measures of central tendency and range).	B9.4.1.2.1-2 Select a method for collecting data (quantitative and qualitative), taking into consideration how bias (use of language, ethics, cost, time and timing, privacy or cultural sensitivity) may influence data. Organize and analyze data and interpret the results using the descriptive statistics (i.e. minimum, maximum, measures of central tendency and range) to answer a given question.	Rule, pencils
4	Geometry & Measurement	**Measurement**	B9.4.1.2.3	Protractor, rule

		• B.9.3.2.1 Derive the formulas for determining the surface area of prisms (i.e. cuboid and triangular prism) and use to solve problems.	Demonstrate the effect on the mean, median, and mode when extreme data is included in a data set B9.3.2.1.1 Identify cuboids and triangular prisms; draw their nets to construct the 3-D shapes and use it to determine the surface area.	
5	Geometry & Measurement	**Measurement** • B.9.3.2.1 Derive the formulas for determining the surface area of prisms (i.e. cuboid and triangular prism) and use to solve problems.	B9.3.2.1.2-3 Use the net of a cuboid to determine its surface area. Use the net of a triangular prism to determine its surface area.	Protractor, rule
6	Geometry & Measurement		B9.3.2.1.4 Express points in the Cartesian plane as position vectors	Protractor, rule
7	Geometry & Measurement	**Measurement** • B9.3.2.2 Solve problems involving bearings and addition/subtraction of vectors	B9.3.2.2.1-2 Show an understanding of parallel vectors and perpendicular vectors. Apply the triangular and parallelogram laws of addition to resolve vectors.	Protractor, rule
8	Geometry & Measurement	**Position and Transformation** • B9.3.3.1 Demonstrate understanding of how to perform an enlargement on a geometrical shape given a scale factor and describe the properties of the image under the transformation (i.e. congruence, similarity, etc.)	B9.3.3.1.1 Know examples of situations in everyday life that depict enlargement situations in everyday life.	Protractor, rule
9	Geometry & Measurement		B9.3.3.1.2 Understand enlargement and identify real-life situations involving enlargement.	Protractor, rule

10	Geometry & Measurement	**Position and Transformation** ● B9.3.3.1 Demonstrate understanding of how to perform an enlargement on a geometrical shape given a scale factor and describe the properties of the image under the transformation (i.e. congruence, similarity, etc.)	B9.3.3.1.3 Investigate the concept of congruent and similar shapes	Protractor, rule
11	Handling Data	**Chance or Probability** ● B9.4.2.1 Identify the sample space for a probability experiment involving two dependent events and express the probabilities of given events as fractions, decimals, percentages and/or ratios to solve problems.	B9.4.2.1.1 -2 Perform a probability experiment involving two dependent events e.g. drawing colored bottle tops from a bag without replacement Express the probabilities of the events as fractions, decimals, percentages and/or ratios; e.g. using a tree diagram, table or another graphic organizer	Coins, dice, etc.
12	REVISION			
13	EXAMINATION AND VACATION			

THIRD TERM
WEEKLY LESSON NOTES
WEEK 1

Week Ending:		DAY:		Subject: Mathematics	
Duration: 60MINS				Strand: Handling Data	
Class: B9		Class Size:		Sub Strand: Data	
Content Standard: B9.4.1.1Select, justify, and use appropriate methods of collecting data (grouped/ungrouped), use the data to construct and interpret frequency tables and histogram and use it to determine the mode and to solve and/or pose problems.			Indicator: B9.4.1.1.1 Select and justify a method to collect data (quantitative and qualitative) to answer a given question.		Lesson: 1 of 1
Performance Indicator: Learners can identify the type of data needed to answer a question (quantitative vs. qualitative).				Core Competencies: Communication and Collaboration (CC) Critical Thinking and Problem solving.	
References: Mathematics Curriculum Pg.					
New words:					

Phase/Duration	Learners Activities	Resources
PHASE 1: STARTER	Write "data" on the board and ask learners what it means. Encourage them to share examples of data they encounter in daily life (e.g., weather reports, sports scores, opinion polls). Briefly introduce the two study areas (Musa's book club and travel mode in schools). Ask learners: How can we find out the information needed for these studies?	
PHASE 2: NEW LEARNING	Present a real-life scenario where data is needed to make a decision (e.g., choosing a movie to watch with friends). Ask learners: What kind of information would be helpful to make a decision? (e.g., Reviews, genre preferences)	Counters, bundle and loose straws base ten cut square, Bundle of sticks

| | Introduce the concept of data (quantitative - numerical, qualitative - descriptive) and its role in decision making.

Divide learners into small groups.
Assign each group one of the following case studies:

Case Study A: Musa's Book Club (Quantitative and Qualitative Data)
Question: What are the most popular books among Ayisha's friends?

Case Study B: Travel Modes in Oyoko Schools (Quantitative Data)
Question: What is the most common mode of travel used by learners in Oyoko Junior and Senior High Schools?

Each group will discuss and answer the following questions for their assigned case study:

● What type of data is needed to answer the question (quantitative or qualitative)? Why?
● Where/whom should we collect data from (target audience)?
● What data collection methods would be most appropriate? Consider factors like efficiency, accuracy, and practicality. (e.g., Survey, Interview, Observation)

Each group will present their case study and choices for data collection methods.

Facilitate a discussion on the reasoning behind their choices. Encourage justifications based on data type, target audience, and practicality.

Introduce additional data collection methods like questionnaires and online polls. | |
| PHASE 3: **REFLECTION** | Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.

Take feedback from learners and summarize the lesson. | |

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Content Standard: B9.4.1.1Select, justify, and use appropriate methods of collecting data (grouped/ungrouped), use the data to construct and interpret frequency tables and histogram and use it to determine the mode and to solve and/or pose problems.		**Indicator:** B9.4.1.1.2 Organize data (grouped/ungrouped) present it in frequency tables, line graphs, pie graphs, bar graphs and/or pictographs and analyze it to solve and/or pose problems			**Lesson:** 1 of 1
Performance Indicator: Learners can construct frequency tables for grouped and ungrouped data.				**Core Competencies:** Communication and Collaboration (CC) Critical Thinking and Problem solving	
References: Mathematics Curriculum Pg.					
New words:					

Phase/Duration	Learners Activities	Resources
PHASE 1: **STARTER**	Begin with a simple question like "What is your favorite color?" and collect responses from learners. Show how to organize the responses into a frequency table, counting the number of times each color is chosen.	
PHASE 2: **NEW LEARNING**	Present two data sets, one grouped (e.g., test scores grouped into ranges like 70-79, 80-89) and the other ungrouped (e.g., individual test scores). Ask learners to identify which data set shows individual values and which one groups the values together. Explain the terms "grouped data" and "ungrouped data." Provide learners with counters or small objects and ask them to create their own ungrouped data set (e.g., sorting the objects by color). Have them group the objects based on a certain criteria (e.g., size) and create a grouped data set. Discuss the difference in representation.	Data sets (e.g., heights of learners, temperatures over a week, sales data) Graph paper

Introduce the concept of a frequency table. Explain that it helps us organize and count data sets.

Show learners an example of a frequency table with labeled columns (value/category, frequency).

Provide a data set (e.g., ages of learners in the class) and guide learners in creating a frequency table.

Explain how to determine the frequency of each data point and organize it in a table format.

Solve an example together to ensure understanding.
Example 1: Thirty bulbs were life-tested and their lifespan to the nearest hour are as follows:

167 171 179 167 171 165 175 179 169 171

177 169 171 177 173 165 175 167 174 177

172 164 175 179 179 174 174 168 171 168

Present the raw data in a frequency table by completing the table below:

Lifespan of Bulbs (hours)	Tally	Frequency
164 - 167		
168 – 171		
172 - 175		
176 – 179		

What is the modal group? Justify your decision for that choice.

Write this on the board. Test Scores: 85, 78, 92, 88, 75, 82, 95, 80

Travel Time to School (minutes): 0-15 (5 learners), 16-30 (10 learners), 31-45 (3 learners)

Instruct learners to create frequency tables for their assigned data sets. Guide them through labeling the columns and tallying the occurrences of each value/category.

Have learners share their completed frequency tables with a partner. Encourage them to discuss what the data reveals (e.g., most common test score range, most popular travel time to school).
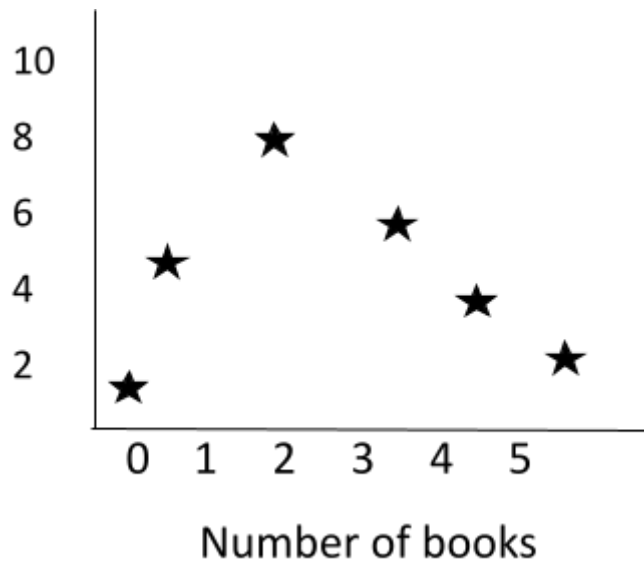
Introduce line graphs and their use in representing data trends over time or categories.

Demonstrate how to label the axes (x-axis for categories, y-axis for frequencies) and plot the data points.

Discuss the importance of a title and labeling units on the axes.

Use the frequency table below to create a line graph.

Number of Books	Frequency
0	2
1	5
2	8
3	6
4	4
5	3

Guide learners to analyze the graph.
- The line graph shows that most learners read between 1 and 3 books per month, with fewer learners reading 0 or 4 books.

	• This data can be used to discuss reading habits and preferences among learners. Have learners work in pairs or small groups to create their own frequency tables and line graphs using different data sets provided. Encourage them to choose data relevant to their interests or experiences (e.g., favorite sports, daily temperatures). Circulate to provide assistance and check understanding.	
PHASE 3: **REFLECTION**	Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson. Take feedback from learners and summarize the lesson.	