SECTION

5

WORKING WITH DATA

COLLECTING AND HANDLING DATA
Handling Data

In this section, you will learn to;

1. *Select a method for collecting data to answer a given question and justify the choice*
2. *Design and administer a questionnaire/interview for collecting data to answer a given question(s) and record the results*

INTRODUCTION

In this section you will select a method for collecting data to answer a given question and justify your choice, ensuring that the data collection process is appropriate and effective for the question at hand. Additionally, you will design and administer a questionnaire or interview to gather data, carefully recording the results to ensure accurate and useful information for answering the question.

DATA COLLECTION METHODS AND THEIR USES

FOCAL AREA 1: SELECTING AND JUSTIFYING A METHOD FOR COLLECTING DATA

Imagine you're planning a school event, like a fun fair and you want to make sure everyone has a great time. To do this, you need to know what activities students would enjoy most. Do you guess what they might like or do you ask them? And if you ask, how do you decide the best way to gather their opinions? This is where the concept of selecting and justifying a method for collecting data becomes important.

Collecting data means gathering information that helps you make informed decisions. In our fun fair example you need to collect data to find out what activities will be the most popular. But there are different ways to collect this data—surveys, interviews, observations or even looking at what students enjoyed in previous events.

Choosing the right method depends on factors like how much time you have, the number of students you want to ask and how detailed you want the information to

be. If you need quick answers from everyone, a survey might be best. If you want detailed feedback from a few people, interviews could be better.

It's important to learn how to select and justify a method for collecting data because this skill helps you gather the right information in the best way possible, whether you're planning an event, conducting a science experiment or even deciding which new game to buy based on friends' opinions. Making informed decisions with good data leads to better results in everything you do!

Reinforcement Activities

Exploring Methods of Collecting Data

Purpose: To prepare you for learning about different methods of collecting data—interviews, observations and questionnaires.

Activity Instructions:

1. **Pair Up:**

   - Pair up with a classmate for this activity.

2. **Exploration Task:**

   - Each pair will choose a simple, everyday topic to explore, such as:

     ◦ "How many students prefer playing soccer over other sports?"
     ◦ "What time do most students wake up in the morning?"
     ◦ "Which is the most popular snack at break?"

3. **Data Collection Planning:**

   - Discuss with your partner how you might collect data to answer your chosen question.
   - Think about three different ways you could gather information: asking people directly, watching what happens or using a questionnaire.

4. **Share Your Ideas:**

   - After discussing, share your ideas with the class.
   - Be ready to explain:

     ◦ Which method you would prefer to use.
     ◦ Why you think this method would be the most effective for your topic.

Reflection:
- How did your choice of method affect the kind of data you might collect?
- Are there situations where one method might work better than another?

METHOD OF COLLECTING DATA

Method of collecting data

To collect data, we can, for example;

a. ask appropriate persons orally (by phone or face to face)

b. listen to the news

c. read from the news print

d. request from people through a written sets of questions

e. observe the occurrence of situations

f. search through the internet, etc.

These means of getting information become our *methods of collecting data*.

Some methods of collecting data are interviews, observations, questionnaires, internet searches, existing documents (Databases), experiments, surveys, etc.

We will focus on interviews, observations and questionnaires.

Interview

The process where information or data is obtained through verbal or oral means is termed an **interview**. **Interviews can take place in-person, by phone or online between the interviewer and the interviewee (respondents).** In any of these cases, a guide to support the line of questioning will be needed to keep the interviewer and the interview session on track.

The advantages and disadvantages of an interview:

a. Helps to get needed information promptly.

b. Further details and clarity of information can be obtained.

c. It is very good for fewer respondents.

d. Responses can be recorded on tape.

e. It is not easy when there are many people to interview and some do not have the time to respond.

Observations

This is what we call the process where information is obtained by carefully watching a situation. We need to use our senses such as sight, smell, hearing and taste. In order not to forget or lose some elements of what we want to know while we observe, we are guided by an **observational check list.**

Questionnaires

The process where information is obtained by writing the questions on paper and the response is collected later is called a **questionnaire.** The tool we use (the set of written/typed questions) is termed the questionnaire.

This method works well if we want information from a large number of people or we wish to gather information from an individual who is scarcely available, etc. In any of these cases, this forms a guide to support us to get the exact information we need from the people we want.

Example

1. What type of data collection method could be involved in the pictures below?

2. If I get information from my phone or through my laptop. The method is …
   (Tick [√] the correct answer)
   Phone/laptop seller [ ]
   Electronic media /internet search[√]
   Calling/messaging friends   [ ]

3. Which of these can I easily get data on? *(Tick [√] as many as applicable)*
   Number of workers at a farm in a day   [√]
   Type of complexion of class members [√]
   Grades that Form 1 learners' got during BECE   [√]

Activity 5.1: Individual/Pair/Group Work

Applying Data Collection Methods

Purpose: To practise using different methods of data collection: interviews, observation, and questionnaires.

Instructions:

1. **Form Small Groups:**

   - Get into groups of 3-4 students.

2. **Choose a Topic:**

   - Each group will choose a topic to investigate. Some examples could be:

     - "What are the most common hobbies among students in our class?"

     - "How many students prefer reading to playing video games?"

     - "What is the most popular subject in school?"

3. **Plan Your Data Collection:**

   - **Interview:** Create 3-4 questions to ask your classmates about your chosen topic. Each group member will conduct 2-3 interviews with different classmates.

   - **Observation:** Decide what you will observe and how you will record your observations. For example, if your topic is about hobbies, you could observe what activities students do during break.

   - **Questionnaire:** Design a short questionnaire (5-6 questions) related to your topic. Distribute the questionnaire to at least 5 classmates.

4. **Collect Data:**

   - Each group will carry out their interviews, observations and distribute their questionnaires during the lesson.

5. **Analyse Your Data:**

   - After collecting the data, come together as a group to review and organise the information. Compare the results from each method.

6. **Present Your Findings:**

   - Prepare a short presentation (2-3 minutes) to share with the class:

- What did you discover from each method?
- Which method provided the most useful or interesting information?
- Were there any challenges you faced while collecting the data?

Reflection:

- How did the results from each data collection method differ?
- Which method did you find most reliable and why?

If you were to do this activity again, what would you do differently?

FOCAL AREA 2: DESIGNING AND ADMINISTERING A QUESTIONNAIRE, OBSERVATION CHECKLIST OR AN INTERVIEW GUIDE

Obtaining useful data requires conscious planning and structuring of the tool to be used. The tool for collecting these data is prepared (*designed*) with the purpose of collecting data and the kind of respondents in mind. A well-designed tool is then distributed or used in the interviews. In distributing or using the tool, we say, we are *administering* the tool.

Designing a data collection tool

The method we will use depends on our aim for the information we want, how easily we can obtain the information, who we want responding to the questions, the availability of the person, etc.

For example, to collect data on what happens at the palace, we might get the needed information orally (by *interview*). To obtain the same information, we might be able to go to the palace and observe proceedings (an *observation*) or submit a set of questions (by a *questionnaire*) which could be responded to at the convenience of the palace clerk.

To design a tool;

i. First we must write a brief introduction to what we want to find and what we are planning on doing with the data we collect.

ii. Then write the questions that will help us obtain the required data.

iii. Arrange our questions in a sensible and logical order.

iv. Try the items by answering them ourselves and try it with another person other than the actual person(s) who will be answering it to check it obtains the answers we want without causing upset or offence.

Example 1

A sample interview guide

This interview guide is to collect information on learners' courses and the related interest in learning. It is just for academic purpose and would not be published anywhere.

Date of interview: ……………………….

1. Gender of student

M ( ) F ( )

2. What level or form are you?

Form ( ) Form 2 ( ) Form 3 ( )

3. What course do you offer?

……………………………………………………………………

4. What is your favourite core subject in your course area?

English   ( )

Mathematics ( )

Science   ( )

Agriculture   ( )

5. Why do you like the subject?

……………………………………………………………………

……………………………………………………………………

……………………………………………………………………

Example 2 :

A sample observational check list

This Checklist is to collect information on a learner's behaviour during break time. It is just for academic purpose and would not be published anywhere.

Date of observation: …………… Code for learner: ……………………

S. No.	Item Description	Very active	Fairly active	Not active
1	Playful			
2	Adventurous			
3	Communicative			
4	Personal reading /Visiting the library			
5	Creating problems / bullying			
6	Solving problems / helping others			

Example 3:

A sample questionnaire

This questionnaire is to collect information on teachers' expectation of learners during lessons. It is just for academic purpose and would not be published anywhere. Your responses will therefore be kept confidential.

Please read through to answer with best responses.

Please ask for clarification if you are not clear about anything.

Serial number: ………….

Gender of teacher

     M ( ) F ( )

What form do you teach?

     Form ( )   Form 2 ( )   Form 3 ( )

What subject do you teach? …………………………………………

What are some of the behaviour learners put up during lesson?

     Active in answering questions.   ( )

     Distracted and   ( )

     Non-participatory ( )

     Collaborative( )

How does appropriate learner behaviour support good academic performance?

 Very well   ( )

 Somehow well   ()

 Not supportive   ()

What is your best moment about learners' attitude during lessons?

……………………………………………………………………………

……………………………………………………………………………

Administer questionnaire/observation/interview to appropriate respondents

The questionnaire must be distributed and interviews conducted to the required respondents to obtain the required data.

Key notes on administering questionnaires and conducting interviews

It is important to give clear instructions to respondents on what is expected of them, the mode of submission and what will happen to the data they are submitting.

Questionnaires can be distributed personally, through other persons, through Google forms or through a social media platform.

In conducting interview, ask questions in an orderly manner as this will help you see patterns in responses. Keep to the line of questioning as much as possible and yet be flexible during interviews.

ACTIVITY 5.2: Individual/Pair/Group Work

Creating and Using Data Collection Guides

Purpose: To practise designing and using an interview guide, observation guide and questionnaire to collect data.

Instructions:

1. **Form Small Groups:**

   - Divide into groups of 3-4 students.

2. **Choose a Research Topic:**

   - As a group, decide on a topic you want to research. Examples could include:

     - "Students' favorite sports activities."
     - "The most common modes of transportation to school."
     - "How students manage their homework time."

3. **Design Your Data Collection Tools:**

   - **Interview Guide:**

     - Write 5-6 open-ended questions that you will ask during interviews.
       Make sure your questions are clear and related to your topic.
     - Example: "What do you like most about your favorite sport?"

- **Observation Guide:**
  - Create a checklist or a set of points that you will observe related to your topic. Decide on what you will look for and how you will record your observations.
  - Example: "Observe how many students play soccer during recess."

- **Questionnaire:**
  - Develop a simple questionnaire with 5-8 questions. Include both multiple-choice and short answer questions to gather a variety of responses.
  - Example: "How do you usually get to school? (a) Bus (b) Walk (c) Bicycle (d) Car."

4.. **Conduct Data Collection:**

- **Interviews:**
  - Each group member will conduct interviews with 2-3 classmates, using your interview guide. Record their responses carefully.

- **Observations:**
  - Choose a time (like recess or after school) to observe students based on your observation guide. Take notes on what you see.

- **Questionnaires:**
  - Distribute your questionnaires to at least 5 classmates and collect their responses.

5. **Analyse Your Data:**

- Come together as a group to review the information collected from the interviews, observations and questionnaires. Discuss any patterns or interesting findings.

6. **Create a Summary Report:**

- Write a short report (1-2 pages) summarising your findings from each data collection method. Be sure to include:
  - What you learned from the interviews, observations and questionnaires.

○ Which method provided the most useful information for your topic.

○ Any challenges you faced while collecting the data.

7. **Present Your Report:**

- Share your findings with the class in a brief presentation (3-5 minutes). Discuss how each method helped you understand your research topic.

Reflection:

· What did you find most interesting about designing and using your data collection tools?

· How did the information gathered from each method compare?

· Which method would you prefer to use in the future and why?

FOCAL AREA 3: RECORDING AND GRAPHING RESPONSES FROM QUESTIONNAIRES/INTERVIEWS

It is important to follow up and collect all questionnaires at the stipulated time so that no data will be lost. When data is collected it is organised to make it concise for further consideration. The organised work is then represented on graphs or charts for easier reflection and judgement.

Example

The data below were responses obtained through interview which was conducted on learners' means of transport to school.
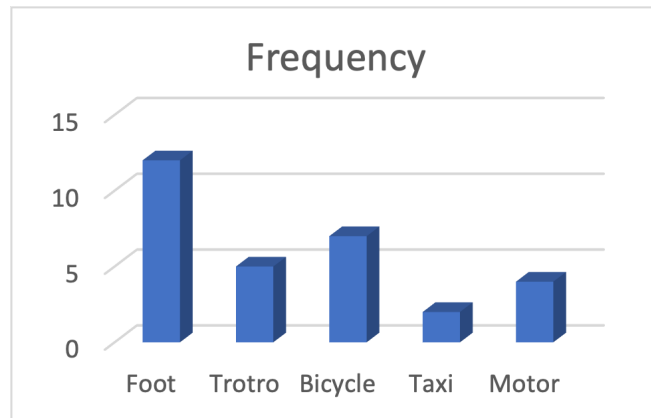
Foot, Taxi, Trotro, Foot, Motor, Bicycle, Foot, Bicycle, Foot, Motor, Foot, Trotro, Foot, Taxi, Foot, Motor, Foot, Bicycle, Trotro, Foot, Bicycle, Motor, Bicycle, Foot, Foot, Trotro, Bicycle, Foot, Trotro, Bicycle

Represent the data on a graph.

Solution

Means of Transport	Frequency
Foot	12
Trotro	5
Bicycle	7
Taxi	2
Motor	4
Total	**30**

ACTIVITY 5.3: Individual/Pair/Group Work

Recording and Graphing Responses

Purpose: To practise recording and graphing data collected from a questionnaire, interview or observation guide.

Instructions:

1. **Prepare Your Data:**
   - Gather the data you collected from your questionnaire, interviews or observation guide.
   - Organise the data into categories or groups. For example, if you asked about favourite sports, your categories might be soccer, basketball, swimming, etc.

2. **Record Your Data:**
   - **Create a Data Table:**
     - On a sheet of paper or in your notebook, create a table to record your data. The table should have columns for each category and rows for the number of responses or observations.
     - Example:

Category	Number of Responses
Soccer	10
Basketball	8
Swimming	5
Other	3

- Fill in the table with the data you have collected.

3. **Choose a Graph Type:**

- Decide on the best type of graph to represent your data. You can choose from:

  - **Bar Graph:** Great for comparing the frequency of different categories.
  - **Pie Chart:** Useful for showing proportions of each category.
  - **Line Graph:** Ideal for showing changes over time, if applicable.

4. **Create Your Graph:**

- **Bar Graph:**

  - Draw the x-axis (horizontal) and y-axis (vertical) on a sheet of graph paper.
  - Label the x-axis with your categories (e.g., Soccer, Basketball).
  - Label the y-axis with the number of responses (e.g., 0, 5, 10).
  - Draw bars for each category, making sure the height of each bar matches the number of responses.

5. **Analyse Your Graph:**

- Once your graph is complete, answer the following questions:

  - Which category had the most responses?
  - Which category had the least?
  - What patterns or trends do you notice?

- Write a brief summary of your findings based on the graph.

6. **Present Your Graph:**

- Share your graph with the class and explain what the data shows. Discuss any interesting trends or surprising results.

Reflection:

- How did creating a graph help you better understand your data?
- Which type of graph did you find most effective for displaying your data, and why?
- What challenges did you face in recording and graphing your data?

1. Match the activities in 'A' to appropriate method of collecting data in 'B'.

A	B
Looking at who becomes first in athletics	Questionnaire
Ask appropriate persons	Observation
Taking information using written questions	Interview

2. a. Write one place you would want to visit outside your community?

    ………………………………………….…………………..

    b. What will you want to know about that place?

    ………………………….………………………….…..……….

    c. What method will you use to get that information?

    ………………………………………………………….………

3. Study the graph and answer the questions that follow.

Learners' means of transport to school
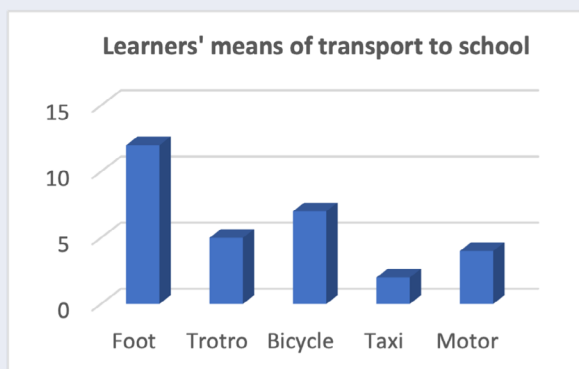
a. What is the most popular means of transport to school?

b. What will be the most likely reason why learners choose to travel to school on foot? *(Tick [√] the correct answer)*

    i.   Learners stay far from the school   [ ]

    ii. Learners like walking   [ ]

    iii. Learners stay close to the school   [ ]

iv.   There is no car in the town   [ ]

c.   Write one reason why in your view, few people come to school by taxi.

   ....

   ....

1.

A	B
Looking at who becomes first in athletics	Questionnaire
Ask appropriate persons	Observation
Taking information using written questions	Interview

2. **a.** For example, The Airport.

b. For example, See how the aircraft take-off.

c. For example, Observation.

3. **a.** By foot

b. Learners stay close to the school   [√]

c. For example, It is the most expensive means of transport.

Mathematics Projects: A Valuable Learning Experience

Projects in mathematics are more than just assignments—they are opportunities for deep, meaningful learning. Here's why carrying out mathematics projects is essential for learning:

Real-World Application:

- Projects allow you to apply mathematical concepts to real-life situations. Whether it's measuring, analysing data, or solving practical problems, projects help you see how math is used in everyday life.

Developing Problem-Solving Skills:

- By working on a project, you learn to tackle complex problems, think critically and devise strategies to find solutions. This process enhances your problem-solving skills, which are crucial in both maths and other areas of life.

Encouraging Creativity:

- Mathematics projects often require creative thinking. Designing a project, choosing methods and presenting results all involve creative approaches to problem-solving and representation.

Improving Understanding:

- Projects provide a chance to explore mathematical concepts in depth. As you work through different aspects of a project, you reinforce your understanding of the material and see how different concepts connect.

Fostering Collaboration:

- Many projects are done in groups, which encourages collaboration and teamwork. Working with classmates helps you learn from others, share ideas and develop communication skills.

Building Confidence:

- Successfully completing a project boosts your confidence in your mathematical abilities. Seeing the results of your hard work and understanding the concepts more deeply makes you feel accomplished and motivated.

Enhancing Presentation Skills:

- Projects often culminate in a presentation or report. This helps you develop skills in organising information, explaining your findings and presenting your work clearly and effectively.

Connecting Math to Interests:

- Projects can be tailored to your interests, making maths more engaging and relevant. Whether you're interested in sports, science, or art, you can find ways to incorporate these interests into your mathematical investigations.

Mini-Project: Measurement of Area of 2D Shapes

Project Overview

In this project, you will measure and calculate the area of real-life objects that are regular shapes (squares and rectangles) and irregular shapes. You will use square grids to measure irregular shapes and formulas to determine the area of regular shapes.

Materials Needed

- Square grids (graph paper)
- Rulers or measuring tapes
- Scissors
- Adhesive (e.g., glue stick or tape)
- Real-life objects (e.g., book, notebook, small box, piece of fabric)
- Paper and pencils

Project Steps

1. **Selecting and Measuring Objects**

   - Choose 3-5 real-life objects that are square or rectangular.

   - For each object, measure the length and width (if rectangular) or the side length (if square) using a ruler or measuring tape.

   - Record these measurements.

2. **Calculating the Area of Regular Shapes**

   - Use the formula Area = length × width for rectangles and Area = side length × side length for squares.

   - Calculate the area of each object and record it.
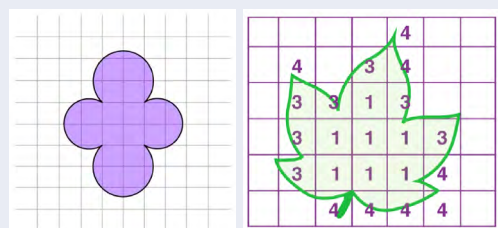
3. **Creating and Measuring Irregular Shapes**
   - Select relatively small irregular objects.
   - Trace the outline of each irregular shape onto a piece of graph paper.
   - Count the number of full square grids that fit inside the shape and estimate the area of any partial grids.

4. **Drawing and Measuring on Graph Paper**
   - On a new sheet of graph paper, draw your regular and irregular shapes according to the measurements you took.
   - Use the graph paper to count the number of square units that cover the area of each shape.

5. **Presenting Your Findings**
   - Create a presentation that includes the following:
     ◦ A drawing of each object on graph paper.
     ◦ The measurements and area calculations for each regular shape.
     ◦ The method and result of measuring the area of irregular shapes using the grid paper.
     ◦ Any observations or challenges you encountered.

Rubric for Scoring

Criteria	Excellent (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)
Accuracy of Measurements	Measurements are precise and accurate for all objects.	Measurements are mostly accurate with minor errors.	Measurements have some inaccuracies.	Measurements are inaccurate or missing.
Area Calculations	Correct area calculated for all shapes using formulas.	Correct area for most shapes, with few errors.	Some correct area calculations with noticeable errors.	Incorrect calculations for most shapes.

Criteria	Excellent (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)
Graph Paper Drawings	Drawings are clear, accurate, and to scale.	Drawings are mostly clear and accurate.	Drawings are somewhat clear but not to scale.	Drawings are unclear and not to scale.
Use of Grid Paper for Irregular Shapes	Accurate counting of square units; clear estimation.	Mostly accurate counting with minor estimation errors.	Some errors in counting and estimation.	Inaccurate counting and estimation.
Presentation and Organisation	Presentation is well-organised, neat, and detailed.	Presentation is organised with some detail.	Presentation is somewhat organised but lacks detail.	Presentation is disorganised or lacks detail.

Mini-Project: Determining the Volume of Cubes and Cuboids

Project Overview

In this project, you will measure, calculate and compare the volume of real-life objects that are cube-shaped or cuboid-shaped. You will use measuring tools to find the dimensions and then apply the formula for volume to determine the space each object occupies.

Materials Needed

- Rulers or measuring tapes
- Small boxes, containers, or other cuboid and cube-shaped objects
- Grid paper
- Scissors
- Paper and pencils
- Calculator (optional)

Project Steps

1. **Selecting Objects**
   - Choose 3-5 real-life objects that are shaped like cubes or cuboids (e.g., a small box, dice, storage container).
   - Make sure the objects vary in size to explore different volumes.

2. **Measuring Dimensions**
   - For each cuboid, measure the length, width and height using a ruler or measuring tape.
   - For each cube, measure the side length.
   - Record all measurements carefully.

3. **Calculating the Volume**
   - Use the formula for the volume of a cuboid: Volume = length × width × height.
   - Use the formula for the volume of a cube: Volume = side length × side length × side length.
   - Calculate the volume for each object and record your results.

4. **Constructing Shapes on Grid Paper**
   - Using grid paper, draw a net (a 2D representation) of each object based on its measurements.
   - Cut out the net and fold it to form the 3D shape (if possible), matching the original object.
   - This will help visualise how the dimensions contribute to the total volume.

5. **Comparison and Analysis**
   - Compare the volumes of the objects to see which occupies the most or least space.
   - Discuss any observations, such as how doubling a dimension affects the overall volume.

6. **Presenting Your Findings**
   - Create a presentation or report that includes:
     - The dimensions and calculated volume of each object.
     - The grid paper nets and 3D models (if created).

- A comparison of volumes and any patterns or relationships observed.
- Reflections on how the shape and size of the object affect its volume.

Rubric for Scoring

Criteria	Excellent (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)
Accuracy of Measurements	Measurements are precise and accurate for all objects.	Measurements are mostly accurate with minor errors.	Measurements have some inaccuracies.	Measurements are inaccurate or missing.
Volume Calculations	Correct volume calculated for all objects using formulas.	Correct volume for most objects, with few errors.	Some correct volume calculations with noticeable errors.	Incorrect calculations for most objects.
Grid Paper Nets and Models	Nets are accurate, clear, and successfully folded into 3D models.	Nets are mostly accurate with minor issues in folding.	Nets are somewhat accurate but may not fold correctly.	Nets are inaccurate or poorly constructed.
Comparison and Analysis	Detailed comparison and insightful analysis of volumes.	Clear comparison with some analysis.	Basic comparison with limited analysis.	Poor comparison with little or no analysis.
Presentation and Organisation	Presentation is well-organised, neat, and detailed.	Presentation is organised with some detail.	Presentation is somewhat organised but lacks detail.	Presentation is disorganised or lacks detail.

Mini Project: Data Collection, Organization, and Presentation

Project Overview

In this project,you will work in groups to choose a data collection method (interview, observation, or questionnaire), design the data collection tool, gather data, organise the data into a frequency table and then create a bar graph to visually represent your findings. Finally, you will present your findings to the class.

Materials Needed

- Paper and pencils
- Computers or tablets (optional, for digital design and data organization)
- Rulers and graph paper
- Markers or coloured pencils
- Flip chart or poster board (for presentation)

Project Steps

1. **Choosing a Data Collection Method**

   - In your group, decide on a topic or question you are interested in exploring (e.g., favorite school subjects, preferred modes of transportation to school, etc.).

   - Choose a method to collect data: **Interview, Observation, or Questionnaire**.

   - Discuss why you chose this method and how it will help you gather reliable data.

2. **Designing the Data Collection Tool**

   - Based on your chosen method, design a tool to collect data:

     - **Interview**: Write 5-10 questions to ask participants.

     - **Observation**: Create an observation guide with specific behaviors or actions to track.

     - **Questionnaire**: Develop a short survey with multiple-choice or open-ended questions.

   - Make sure your tool is clear and easy to use.

3. **Collecting the Data**
   - Use your tool to collect data from at least 20 participants.
   - Record the responses accurately.
   - Organise your raw data to ensure it is ready for analysis.

4. **Organising Data into a Frequency Table**
   - Analyse your collected data and organise it into a frequency table.
   - The table should include categories or responses, the frequency (how often each response occurred), and any other relevant information.

5. **Plotting a Bar Graph**
   - Use the frequency table to create a bar graph.
   - Label your graph clearly with a title, labeled axes, and bars that accurately represent the data.
   - Use different colours or patterns to distinguish between categories.

6. **Presenting Your Findings**
   - Prepare a presentation that includes:
     ○ An explanation of why you chose the data collection method.
     ○ A description of how you collected the data.
     ○ The frequency table and bar graph showing your organised data.
     ○ A summary of your findings and any conclusions you can draw from the data.
   - Practise delivering your presentation to ensure clarity and confidence.

Rubric for Scoring

Criteria	Excellent (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)
Choice of Data Collection Method	Clear and well-justified choice of method.	Method chosen with good justification.	Method chosen with some justification.	Method chosen with little or no justification.

Criteria	Excellent (4)	Good (3)	Satisfactory (2)	Needs Improvement (1)
Design of Data Collection Tool	Tool is well-designed, clear, and effective for collecting data.	Tool is mostly clear and effective with minor issues.	Tool is somewhat clear but may have effectiveness issues.	Tool is unclear or ineffective.
Data Collection Accuracy	Data is collected accurately and completely.	Data is mostly accurate with minor errors.	Some inaccuracies in data collection.	Significant errors or incomplete data collection.
Frequency Table Organisation	Frequency table is accurate, clear, and well-organised.	Frequency table is mostly accurate with minor errors.	Frequency table is somewhat organised but contains noticeable errors.	Frequency table is inaccurate or poorly organised.
Bar Graph Creation	Bar graph is accurate, clear, and well-labeled.	Bar graph is mostly accurate with minor labeling issues.	Bar graph is somewhat accurate but may have labeling errors.	Bar graph is inaccurate or poorly labeled.
Presentation of Findings	Presentation is clear, well-organised, and effectively communicates findings.	Presentation is mostly clear and organised with minor issues.	Presentation is somewhat clear but lacks organization or clarity.	Presentation is unclear, disorganised, or ineffective.

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List of Contributors

Name	Institution
Gideon Kwame Ahiadziefe	OLA SHS
Evelyn Adjei	St. Vincent College of Education, Yendi
Adablah Mensah	St. Paul's Senior High School and Minor Seminary
Juliana Opare	St. Paul's Senior High School and Minor Seminary