

UNIT 15 *Data Collection*

Introduction to SIM

Learning objectives

This unit introduces the topic of *data collection and presentation*. After completing this unit of STUDENT INSTRUCTIONAL MATERIAL (SIM) you should be able to

- understand how to produce unbiased questions
- appreciate the need for random samples
- use and apply tables such as distance charts
- present data clearly in the form of pictograms and charts.

Note that the first two sections,

15.1 Questionnaires and Surveys

15.2 Sampling

are not on the CXC/CSEC Mathematics syllabus but they do provide a good introduction to the work in this and the following three units.

Key points and principles

- Questions should be straightforward and not biased.
- Care must be taken to ensure that samples are representative.
- Data presentation should be
clear
straightforward
unambiguous
not biased
- Pictograms and bar charts are simple and effective ways of presenting data.

Facts to remember

- Questionnaires should be straightforward and only have unbiased questions
- Samples should be unbiased.

 denotes that the topic is not on the current CXC/CSEC Mathematics syllabus and therefore not examined, but is of relevance to the content of the Unit.

Introduction to SIM

Glossary of terms

- | | | |
|--------------------------|---|---|
| <i>Population</i> | - | this is the variable (e.g. age, height, weight, etc.) that you are investigating |
| <i>Sampling</i> | - | a number of members taken from a population; you take a sample from the population to estimate a particular characteristic of the population |
| <i>Random sample</i> | - | here every member of the population has an equal chance of being in the sample |
| <i>Systematic sample</i> | - | here the population is numbered, e.g. $1 \rightarrow 100$, and you take, for example, every 10th number (e.g. 1, 11, . . . , 91) to give a sample of, in this instance, size 10 |
| <i>Stratified sample</i> | - | here the population has distinct groups; you need to ensure that all groups are fairly represented in the sample |
| <i>Distance chart</i> | - | a matrix of values which shows distances between specified places |
| <i>Pictogram</i> | - | a pictorial representation of data. For example,
<div style="text-align: center;"> if  represents 10 balls,
 then  will represent 5 balls, etc. </div> |
| <i>Bar chart</i> | - | here the frequency of each event is illustrated on the y-axis. For example, |

Bar chart showing the number of times each number, 1 - 6, was obtained when a dice was thrown

