

Chapter 1 - Statistics

Data Collection

Chapter Overview

1. Populations and Samples
2. Sampling
3. Non-random Sampling
4. Types of Data
5. The Large Data Set

Topics	What students need to learn:	
	Content	Guidance
1 Statistical sampling	<p>1.1</p> <p>Understand and use the terms 'population' and 'sample'.</p> <p>Use samples to make informal inferences about the population.</p> <p>Understand and use sampling techniques, including simple random sampling and opportunity sampling.</p> <p>Select or critique sampling techniques in the context of solving a statistical problem, including understanding that different samples can lead to different conclusions about the population.</p>	<p>Students will be expected to comment on the advantages and disadvantages associated with a census and a sample.</p> <p>Students will be expected to be familiar with: simple random sampling, stratified sampling, systematic sampling, quota sampling and opportunity (or convenience) sampling.</p>

Populations and Samples

A **population** is –

A **sample** is –

A **census** is -

Key words:

Individual units of a population are called _____. E.g. each individual person/item

Often sampling units of a population are individually named or numbered to form a list called a _____. E.g. the list of all people/items

What are the advantages and disadvantages between taking a census and a sample?

	Advantages	Disadvantages
Census	<ul style="list-style-type: none">• It should give a completely accurate result	<ul style="list-style-type: none">• Time consuming and expensive• Cannot be used when the testing process destroys the item• Hard to process large quantity of data
Sample	<ul style="list-style-type: none">• Less time consuming and expensive than a census• Fewer people have to respond• Less data to process than in a census	<ul style="list-style-type: none">• The data may not be as accurate• The sample may not be large enough to give information about small sub-groups of the population

Example: A supermarket wants to test a delivery of avocados for ripeness by cutting them in half.

- a. Suggest a reason why the supermarket should not test all the avocados in the delivery.
- b. The supermarket tests a sample of 5 avocados and finds that 4 of them are ripe. They estimate that 80% of the avocados in the deliver are ripe. Suggest one way that the supermarket could improve their estimate.