

Sampling

Starter

1. **(Review of last lesson)**
Two similar solids, A and B, have volumes 15 cm^3 and 960 cm^3 respectively. Given that the surface area of cone B is 848 cm^2 , find the surface area of cone A.
2. **(Review of last lesson)** Two solid spheres have surface areas of 5 cm^2 and 45 cm^2 respectively and the mass of the smaller sphere is 2 kg. Find the mass of the larger sphere.

Notes

Population vs. sample.

Before a general election predictions are made as to which political party will win. The aim is for the prediction to be as accurate as possible. However, it would be too time-consuming to ask every adult who can vote.

Therefore, a **sample** of adults are asked.

Population: the whole group under investigation.

Sample: a small part of the population under investigation.

Obviously sample size is important — the larger the sample, the more reliable the results should be.

Representative sample vs. restricted samples

Representative sample: the sample includes all the subgroups within a population (good).

Restricted sample: the sample includes only a few specific subgroups (not good).

For example, predicting an election.

A **representative sample** would include men and women, all ethnic groups, all age groups etc (and they should be in the same ratio as the population).

A **restricted sample** would, for example, only ask women or just people 18-24 years old. This might be useful for a political party though to see if they are appealing to one particular group.

When choosing a **representative sample**, the sample must

- Be random
- Avoid bias (age, sex, race etc.)
- Cover the whole population geographically
- Be as large, as possible

E.g. 1 What is wrong with the following samples to find out how people will vote?

- (a) Ask only your friends.
- (b) Ask only women.
- (c) Ask people in Ripon.

Working: (a) Sample size is too small so it would be a restricted sample

Video: [Random sampling](#)

[Solutions to Starter and E.g.s](#)

Exercise

9-1 class textbook: p365 M11.6 Qu 1-2 (discuss in pairs), 3
A*-G class textbook: p330 E11.1 Qu 1-2 (discuss in pairs), 3
9-1 homework book: p125 M11.6 Qu 1-2
A*-G homework book: p93 E11.1 Qu 1-2

Summary

Population: the whole group under investigation.

Sample: a small part of the population under investigation.

Representative sample: the sample includes all the subgroups within a population (good).

Restricted sample: the sample includes only a few specific subgroups (not good).

Homework book answers (only available during a lockdown)

