# 1B Random Sampling (Simple Random, Systematic & Statified)

Simple Random

Systematic

Stratified

| | Advantages | Disadvantages |
|---|---|---|
| Simple random sampling | → Free of bias<br>→ Easy and cheap to implement<br>→ Every unit has an equal chance of selection | → Not suitable for a large population or sample size<br>→ A sampling frame is needed |
| Systematic Sampling | → Simple and quick to use<br>→ Suitable for large samples and populations | → A sampling frame is needed<br>→ Possible bias as units do not have an equal chance of selection |
| Stratified Sampling | → Sample accurately reflects the population<br>→ Guarantees proportional representation of groups | → Population must be classified into groups which can be time-consuming<br>→ Selection within a group has the same issues as simple random sampling |

1. A yacht club with 100 members are listed alphabetically in the club's membership book. The committee wants to take a sample of 12 members to fill in a questionnaire.

a) Explain how they could use a random number generator to generate the sample

b) Explain how they could use a lottery system to generate the sample

2. A factory manager wants to find out what his workers think of the canteen facilities. He decides to give a questionnaire to a sample of 80 workers. It is believed that different age groups will have different opinions.

   The table to the right shows the number of workers in each age bracket.

a) What sampling method should be used?

| Age | Quantity |
| --- | --- |
| 18-32 | 75 |
| 33-47 | 140 |
| 48-62 | 85 |

b) How many workers should be selected from each age bracket?