

### Data Collection 1C

1 a i Divide the population into groups according to given characteristics. The size of each group determines the proportion of the sample that should have that characteristic. The interviewer should assess which group people fall into, as part of the interview. Once a quota has been filled, no more people in that group are interviewed.

ii Only sample the people who are available at the time the study is carried out, e.g. the first 40 shoppers who are available to be interviewed.

b Quota sampling, as opportunity sampling is unlikely to reflect the characteristics of the whole population.

2 A similarity between quota sampling and stratified random sampling is that the population is divided according to the characteristics of the whole population (into strata for stratified sampling, and groups for quota sampling). A difference between quota sampling and stratified random sampling is that quota sampling is non-random.

3 a Opportunity sampling

b Opportunity sampling is unlikely to reflect the characteristics of the whole population..

c He could survey people at different times of day.

He could survey people in other parts of the town, not just outside the fish and chip shop.

4 a  $\text{Mean} = \frac{4+7+6+8+2}{5} = \frac{27}{5} = 5.4 \text{ hours}$

b She has used opportunity sampling, which is unlikely to reflect the characteristics of the whole population of the town, and has used a very small sample, which is unlikely to be representative.

c Increase the number of people asked.

Ask people at different times and/or in different locations.

5 a Quota sampling

b Any one from:

No sampling frame is required.

It is quick.

It is easy.

It is inexpensive.

It allows for comparison between male and female boars.

c  $\text{Mean male weight} = \frac{75+80+90+85+82}{5} = \frac{412}{5} = 82 \text{ kg (to the nearest whole number)}$

$\text{Mean female weight} = \frac{67+72+75+68+65}{5} = \frac{347}{5} = 69 \text{ kg (to the nearest whole number)}$

$\text{Male range} = 90 - 75 = 15$

$\text{Female range} = 75 - 65 = 10$

Males are heavier on average, but have a greater spread.

- 5 d** Increase the sample size.  
Catch deer at random times during the day.
- 6 a** An example of an opportunity sample would be the first five heights, giving a sample of:  
1.8, 1.9, 2.3, 1.7, 2.1
- b** The second height is 1.9. To take a sample of 5, now choose every 4th height, giving a sample of:  
1.9, 2.0, 2.6, 2.3, 2.0
- c** Mean height for the opportunity sample =  $\frac{1.8+1.9+2.3+1.7+2.1}{5} = \frac{9.8}{5} = 1.96$  m (to 2 d.p.)  
Mean height for the systematic sample =  $\frac{1.9+2.0+2.6+2.3+2.0}{5} = \frac{10.8}{5} = 2.16$  m (to 2 d.p.)
- d** The systematic sample is likely to be more reliable, because it is random and likely to be more representative. The opportunity sample might just consider all the small values, as it does here.