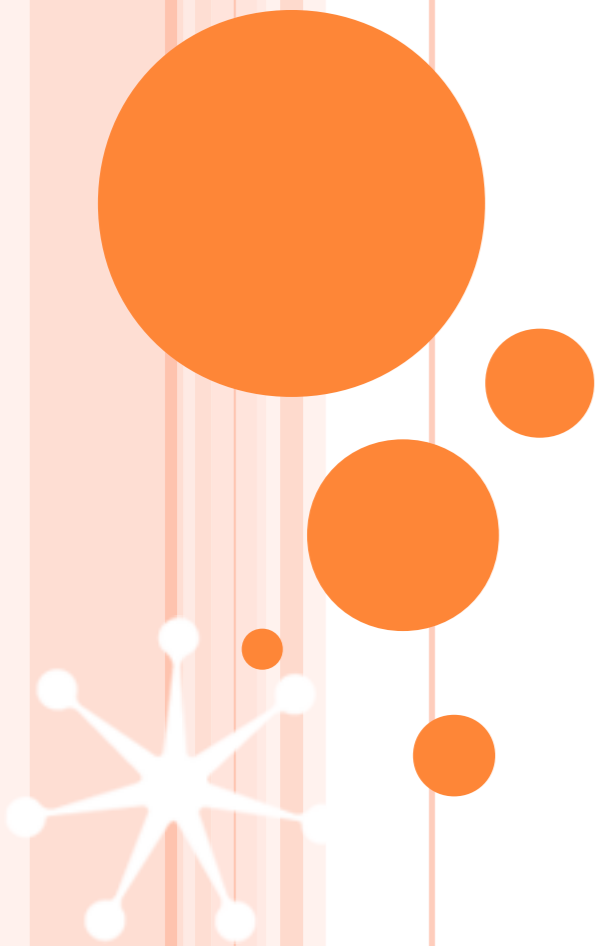
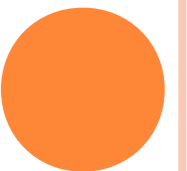


SAMPLE SURVEYS



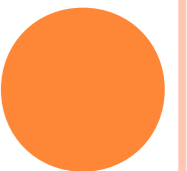
SAMPLE SURVEYS

- **SAMPLE SURVEYS:** are designed to ask questions of a small group of people in hope to learn something about the entire population.
- The **POPULATION** is the entire group that is being studied.
- A **CENSUS** is a survey of the whole population.
- A **SAMPLE** is a group that is selected from the population in order to gather information.



Example:

An online poll use voluntary response samples.
Why would these samples have bias?



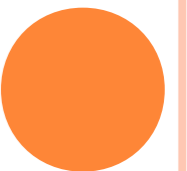
TYPES OF SAMPLING

1. SIMPLE RANDOM SAMPLING;

A sample size of n is selected in such a way that every possible sample of size n from the population has an equal chance of being selected.

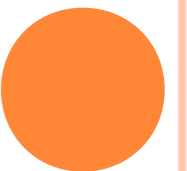
2. STRATIFIED RANDOM SAMPLING;

To do this first divide the population into at least two different subgroups so that the individuals or subjects within each subgroup share the same characteristics. Then a simple random sample is drawn from each subgroup and combined to form the full sample..



3. SYSTEMATIC RANDOM SAMPLE;

- Basically there is a system to applying a random sampling.
- That is say we wanted to have a sample of size 500 from a population of 10,000, we assign each member of the population with a number. Then we divide the population by the sample size, thus $10,000 \div 500 = 20$. Now we randomly pick some number between 1 and 20 say 13! Then 13 becomes our starting point and we select every 20th number from 13 onwards.



4. CLUSTER SAMPLING;

For this the population is divided into sections or clusters. Then some of those clusters are randomly selected and all members from those clusters are chosen.

5. QUOTA SAMPLING;

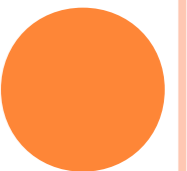
In quota sampling the selection of the sample is made by the interviewer, who has been given quotas to fill from specified sub-groups of the population. For example, an interviewer may be told to sample 50 females between the age of 45 and 60.

There are similarities with stratified sampling, but in quota sampling the selection of the sample is non-random. Anyone who has had the experience of trying to interview people in the street knows how tempting it is to ask those who look most helpful, hence it is not the most representative of samples, but extremely useful.



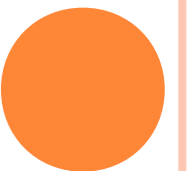
6. CONVENIENCE SAMPLING;

Subjects are chosen in the most convenient way possible.



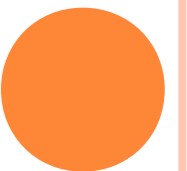
EXAMPLES: IN EACH OF THE FOLLOWING, IDENTIFY THE TYPE OF SAMPLING USED:

A marketing expert from RTE(Retail Technology Experts) is conducting a survey in which 500 people will be selected from each age group of 10-19, 20-29, 30-39 and so on.



SOLUTION

A **STRATIFIED RANDOM SAMPLE** is used. Here the population is divided into distinct groups and each group is sampled. As all the age groups should contain the same number of people, the same sample size is taken from each group. If the groups or strata were of different sizes, our samples would have to be reflect these proportions.

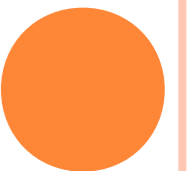


SURVEYS

Most Surveys use a questionnaire and can be carried out by:

- Face-to-face interviews
- Telephone interviews
- Sending a questionnaire by post
- Making a questionnaire available online
- Observation

What do you think are the positives and negatives of each type of survey?

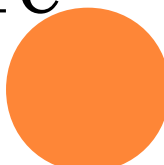


Survey	Advantages	Disadvantages
Face-to face interview	Questions can be explained to the interviews.	<ul style="list-style-type: none"> - Not random. - Expensive to carry out.
Telephone interview	<ul style="list-style-type: none"> - It is possible to select sample from almost the entire adult population. - Questions can be explained to the interviewee. 	Expensive in comparison to postal and online surveys.
Postal questionnaire	Inexpensive.	People do not always reply to postal surveys and those who reply may not be representative of the whole population.
Online questionnaires	<ul style="list-style-type: none"> - Very low cost. - Anonymity of respondents ensures more honest answers to sensitive questions. 	<p>Not representative of the whole population.</p> <p>Only those who go online and do online surveys are represented.</p>
Observations	<ul style="list-style-type: none"> - Low cost. - Easy to administer. 	<ul style="list-style-type: none"> - Not suitable for many surveys. - Questions cannot be explained.

HOW DO WE DESIGN A QUESTIONNAIRE?

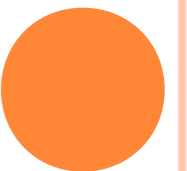
A questionnaire is a set of questions designed to obtain data from a population.

QUESTIONS SHOULD:

- Be useful and relevant to the survey you are understanding
 - Use clear and simple language
 - Be as brief as possible
 - Begin with simple questions to encourage people to complete them
 - Accommodate all possible answers
 - Be clear where answers should be recorded
 - Contain no leading questions
 - Contain no questions which ask for a response to more than one topic
- 

HOMEWORK CHECK!

1. What are the advantages and disadvantages of using an online questionnaires when carrying out a survey?



Britney wants to gather information on people's interest in sport. Here is the questionnaire she designs.

1. What is your favourite sport?

- (i) Tennis
- (ii) Rugby
- (iii) Athletics

2. How far would you travel to see a competitive sports fixture?

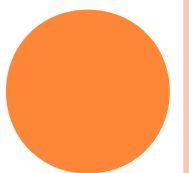
- (i) Less than 1 km
- (ii) 5-10 km
- (iii) Greater than 20 km

3. Do you participate in sport or watch sport on TV?

- (i) Yes
- (ii) No

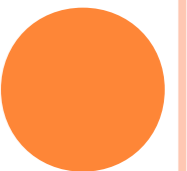
(a) What is wrong with these questions?

(b) Design better questions for Britney to use?



STEPS IN A STATISTICAL INVESTIGATION

1. Define your Research Aims.
2. Identify the Population and Sample Size.
3. Decide how to Collect the Data.
 - Carry out Pilot Survey.
4. Present the Data.
5. Analyse the Data.
6. Interpret the Results.



SOLUTION

QUESTION 1

(a) The question does not allow for all possible sports. While it may not be possible to include all types of sport, it is possible to cater for everybody if an 'Other' alternative is included.

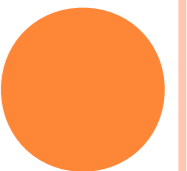
1. What is your favourite type of sport?

(i) Tennis

(ii) Rugby

(iii) Athletics

(iv) Other



Q UESTION 2.

(a) There are gaps between 1km and 5km and also between 10km and 20km.

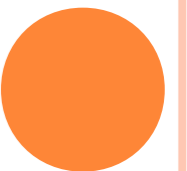
2. How far would you travel to see a competitive sports fixture?

(i) Less than 1km

(ii) 1 - 10 km

(iii) Greater than 10km but less than 20km

(iv) 20 km or more



QUESTION 3.

(a) This question needs to be split into two questions.

3. Do you participate in sport?

(i) Yes

(ii) No

4. Do you watch sport on TV?

(i) Yes

(ii) No

