| Assignment Title | Collecting Data | Date set | Spring 2 | Hours | 20 |
|---|---|---|---|---|---|

| Summary of Unit 3 | Key Words |
|---|---|
| To know the different methods to collecting data<br>To know how to avoid bias and errors when collecting data and how to approach them if problems arise | Summary, population, sample, predict, reliability, replication, advantages, disadvantages, experimental, simulation, questionnaires, observation, reference, census, leading questions, bias, open questions, biased questions, validity, sensitivity, level of control, pre-test, pilot study, extraneous values, outliers |

**Prior Knowledge**

Mr Khan asked the 22 students in his class what activity they wanted to do on a school trip.

Here are the results.

| | | | |
|---|---|---|---|
| bowling | swimming | roller skating | swimming |
| swimming | bowling | roller skating | roller skating |
| roller skating | swimming | roller skating | swimming |
| swimming | cinema | bowling | cinema |
| cinema | roller skating | swimming | swimming |
| swimming | bowling | | |

(a) Complete the frequency table.

| Activity | Tally | Frequency |
|---|---|---|
| bowling | | |
| swimming | | |
| roller skating | | |
| cinema | | |

# LEARNING JOURNEY

| Level | Task Description |
|---|---|
| 2-3 | To be able to describe the following types of data and know the difference between them: **discrete**, **continuous**, **quantitative** and **qualitative**.<br>To be able to group both discrete and continuous data. |
| 2-3 | To know the difference between **primary** and **secondary** data.<br>To be able to state and understand the advantages and disadvantages of each. |
| 4 | Know the difference and identify between **population**, **sample frame** and **sample** and be able to identify each in context |
| 4 - 6 | Understand and explain **how to use all different types of sampling.**<br>Know the advantages and disadvantages of each<br>Be able to calculate a stratified sample for one category.<br>Be able to calculate a stratified sample for **more than one category (H).** |
| 4 | Know the key features of and design **data collection sheets**<br>Write a **hypothesis** for an investigation. |
| 4 – 5 | **Awareness of advantages/disadvantages of each data collection type**.<br>Understand why we use **pilot studies.**<br>Know why and how we **clean data.** |
| 4-5 | Know the key features of **interviews** and **questionnaires**.<br>Identify and write suitable questions.<br>Use a **random response question** for sensitive questions. |
| 5-6 | Know the importance of identifying and controlling **extraneous values**.<br>Use **control groups** and **matched pairs**(H). |
| 6 - 7 | Apply **Peterson capture/recapture formula** to calculate estimate of the size of a population<br>Know the assumptions associated with capture recapture. |

**Diagnostic Test – Unit 1**

1. Which of these words can be used to describe the data in parts (a) to (f)?

   **Continuous discrete quantitative qualitative primary secondary**

   (a) Height
   (b) Colour
   (c) Number of aunts
   (d) Time
   (e) Census information from a website
   (f) A tally you make of car types

2. Describe the meaning of
   Population (b) Census

3. Explain how you would take a random sample of 50 pupils from the pupils in year 10

4. A zoologist wants to take a sample of 40 spiders, stratified by species from this population

| False Widow | Cardinal Spider | Money Spider |
|---|---|---|
| 65 | 104 | 37 |

Calculate the number of each species he needs

5. A hospital decides to investigate if they have more women than men visiting their A&E department. Write a suitable hypothesis they could use

6. Sarah writes the following questionnaire:
   How many brothers do you have?

   ☐ 1 ☐ 2 to 3 ☐ 3 to 4 ☐ 5

   You support the idea of a school uniform, don't you?

Give 3 issues with the questionnaire she has designed.

7. Design a new question she could use instead