

## Data Handling

### Part 2: Collecting Data

#### Key Concepts

In this session, we will focus on summarising what you need to know about:

- Collecting data
- Representing data

#### Terminology & definitions

- **Data** is a computer term meaning information.
- When we **collect information**, particularly numeric information about a topic, we say that we are **collecting data**.

#### X-ample 1

Collecting the marks for a cycle test in a class.

#### X-ample 2

Collecting the heights of all the people in a school.

Once we have collected data, we need to process the data so that we can interpret the information in a meaningful way.

#### Concept: Collecting Data

The process of collecting data is called **primary research**.

We can use Interviews, Questionnaires or Surveys to collect data from various sources.

Designing a good interview, questionnaire or survey involves some important principles that we need to consider.

#### Steps to collect data

- Think of a question that needs an answer.
- Design an instrument to collect the information (data) that will help you answer your question.
- Collect the information (data)
- Process the information (data)
- Present an informed statement that answers the question.

Ensuring that our process of data collection gives us accurate results and maintains a high standard of integrity we will need to consider the **sample** we choose as well as the **ethics** involved.

A **sample** is a small selection of the population that we have chosen to use for the survey or interview.

### Samples

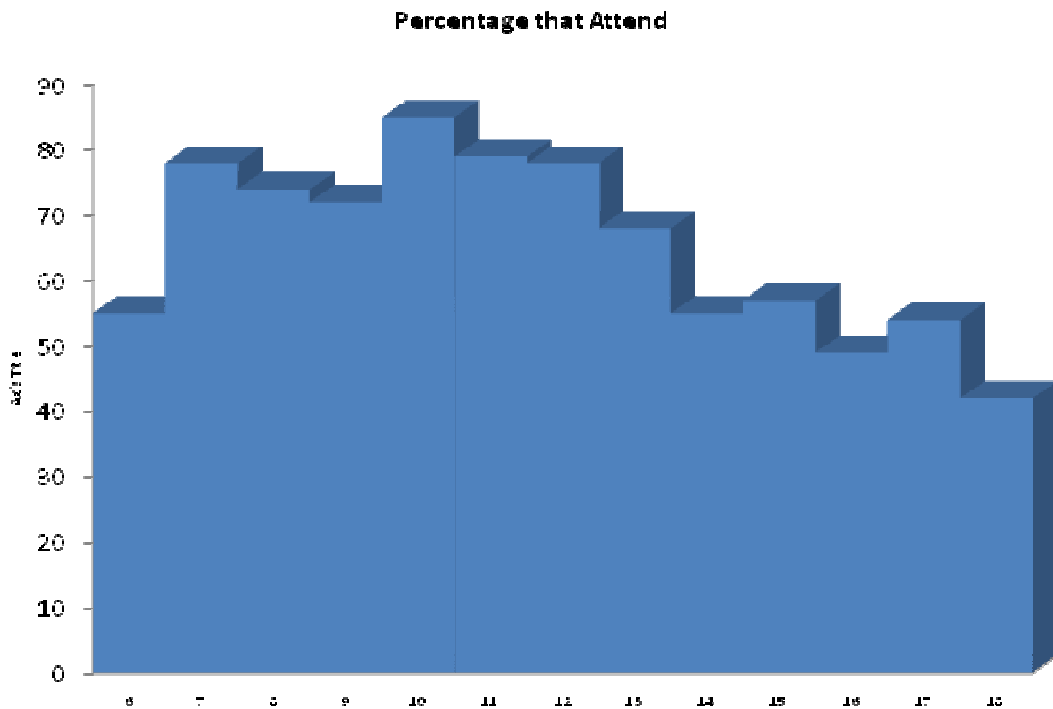
Samples must be representative (random sample)  
Samples must be unbiased.

### Ethics

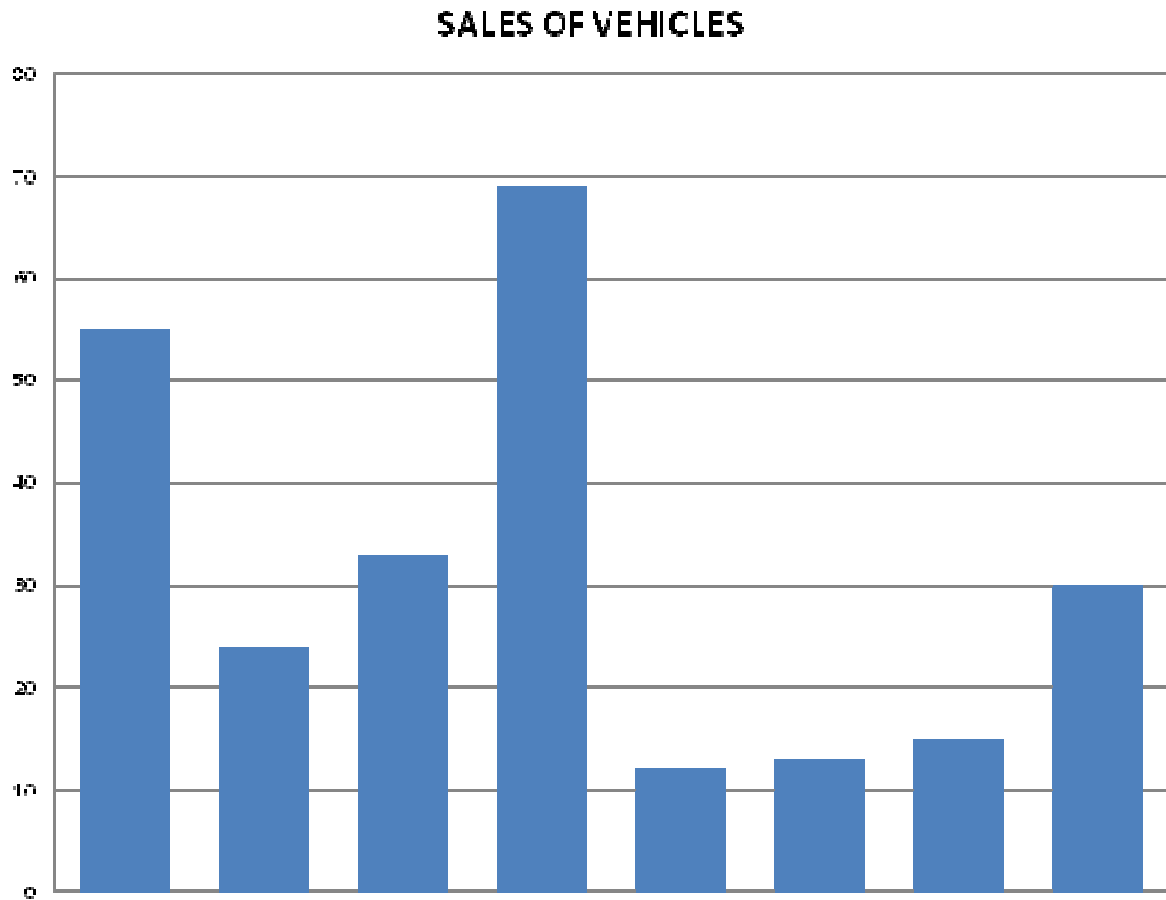
Respondents must consent to participation.  
Respondents must be assured of confidentiality.

### Concept: Representing Data

Histograms are used for data that has a continuous sequential set of data.

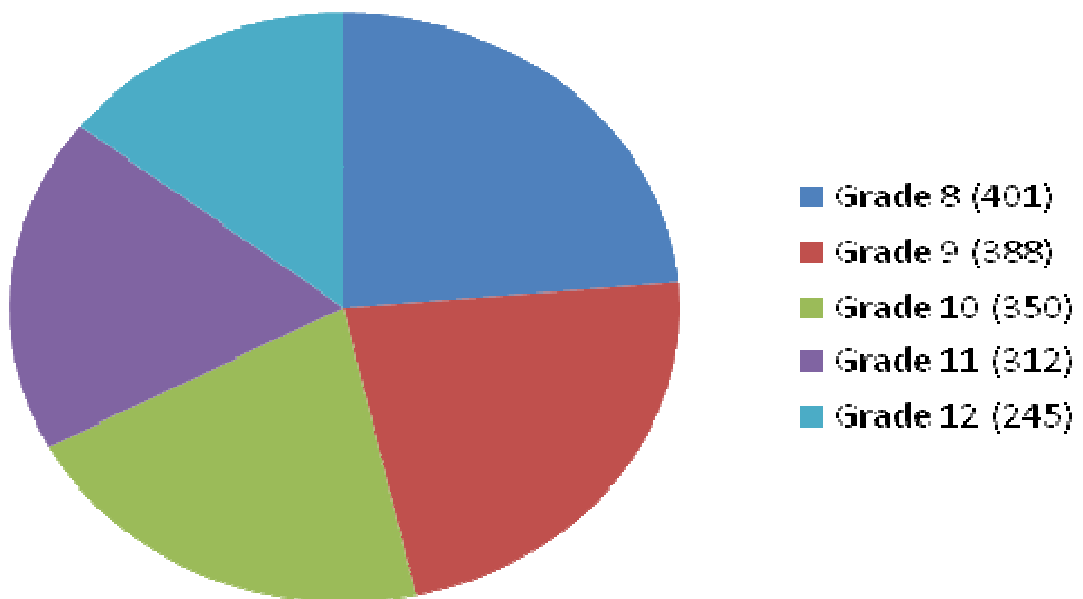


Bar Charts are used for discrete data.



Pie Charts are used for representing data that, taken together, forms a whole.

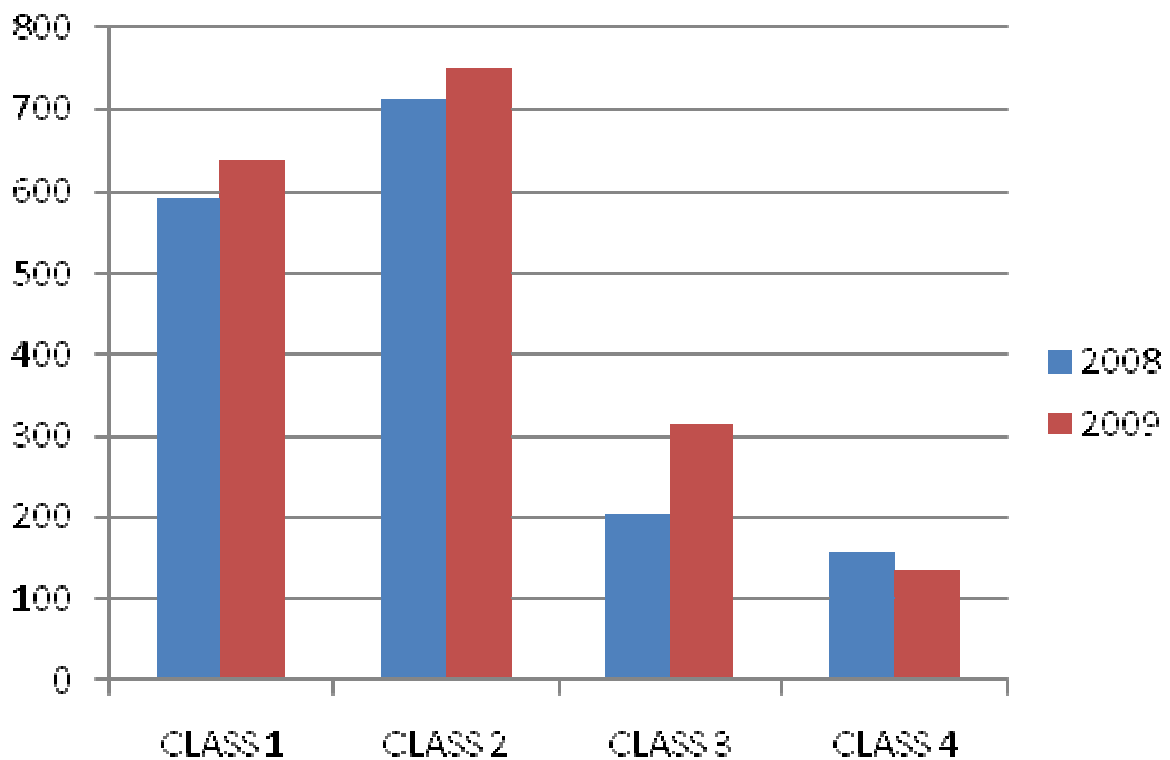
### PUPILS AT KATLEHONG SECONDARY SCHOOL



### X-ample 1

A local car rental agency showed the following statistics for various classes of vehicle hire.

	2008	2009
<b>CLASS 1</b>	592	640
<b>CLASS 2</b>	712	750
<b>CLASS 3</b>	204	315
<b>CLASS 4</b>	156	135



1. Which class of vehicle rental had the best sales over both years?
2. Which class of vehicle rental was the only one to perform worse in 2009?
3. What was the average number of rentals for class 3 over both years?
4. What was the percentage increase in rental sales for class 3 in 2009?

### X-ample 2

Question: What percentage of South African children do not attend school?

Method: Prepare a survey.

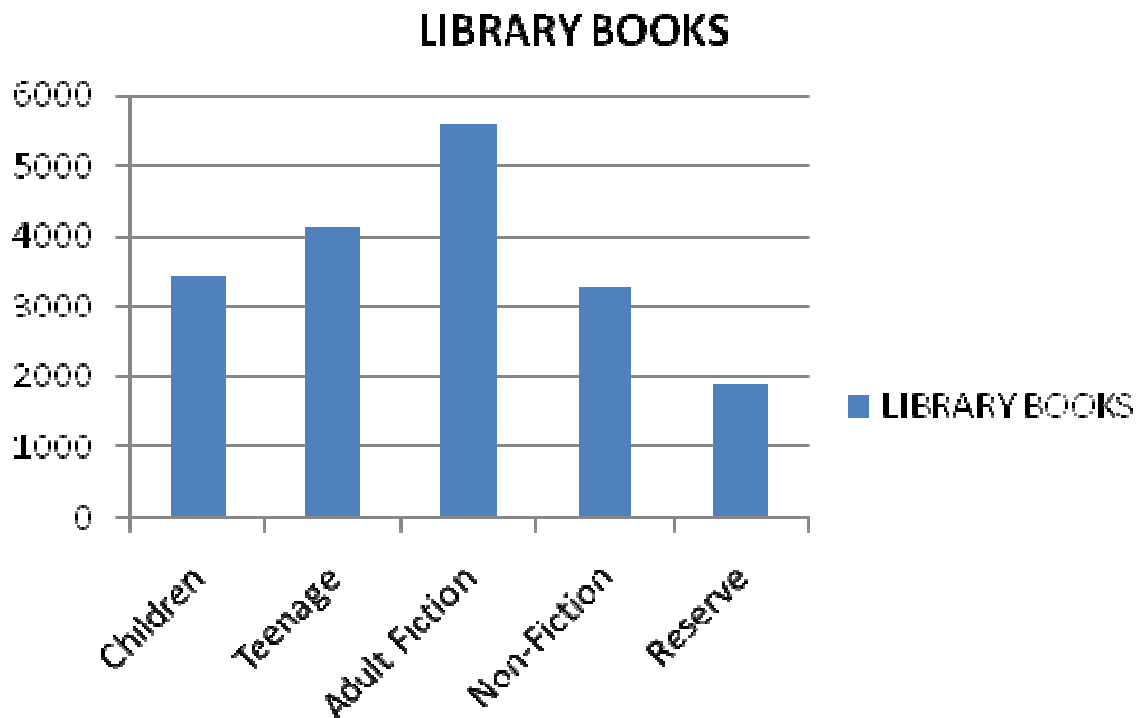
- Ensure **confidentiality**
- Ensure **representation**
- Collect **data**
- Organise **data**

### X-ample 3

The following information was collected at a local library.

No. of children's books	3 420
Teenage books	4 135
Adult Fiction	5 612
Non-Fiction	3 258
Reserve Books	1 895

Decide what type of chart will be most useful to represent the data.



### X-ample 3

1. Decide what value makes up 100% of the pie.

The total number of books =  
= 100% of the pie.

2. Find the % of books in each category.

[www.mindset.co.za/learn](http://www.mindset.co.za/learn)

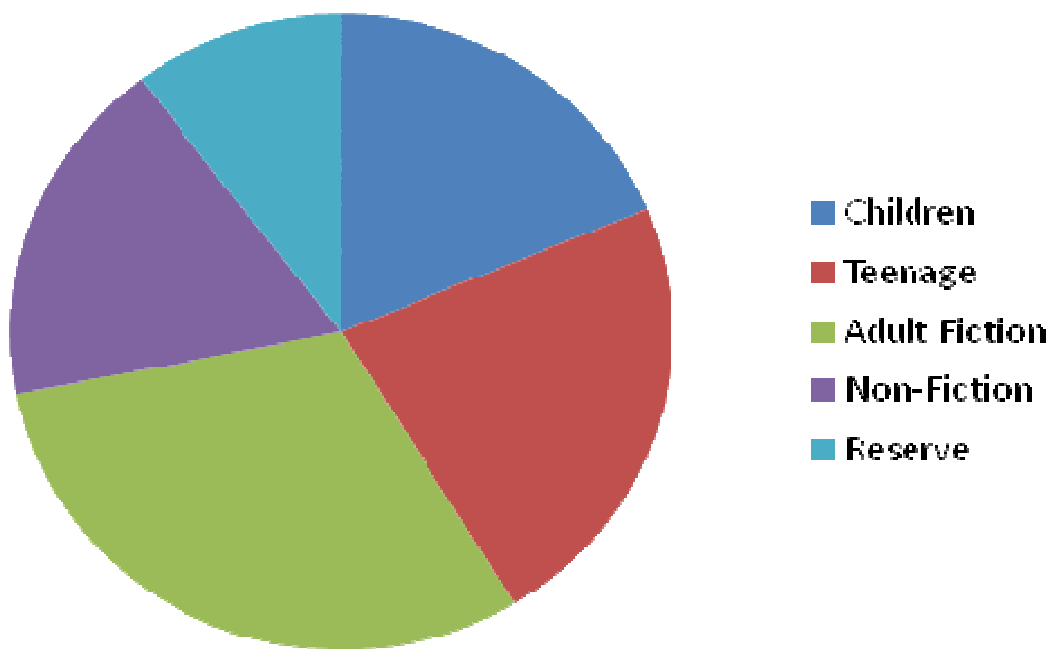
Contact us at: [info@mindset.co.za](mailto:info@mindset.co.za)

Children's =  
Teenage =  
Adult Fiction =  
Non- Fiction =  
Reserve =

3. Calculate the number of degrees that make up each category

Children's =  
Teenage =  
Adult Fiction =  
Non- Fiction =  
Reserve =

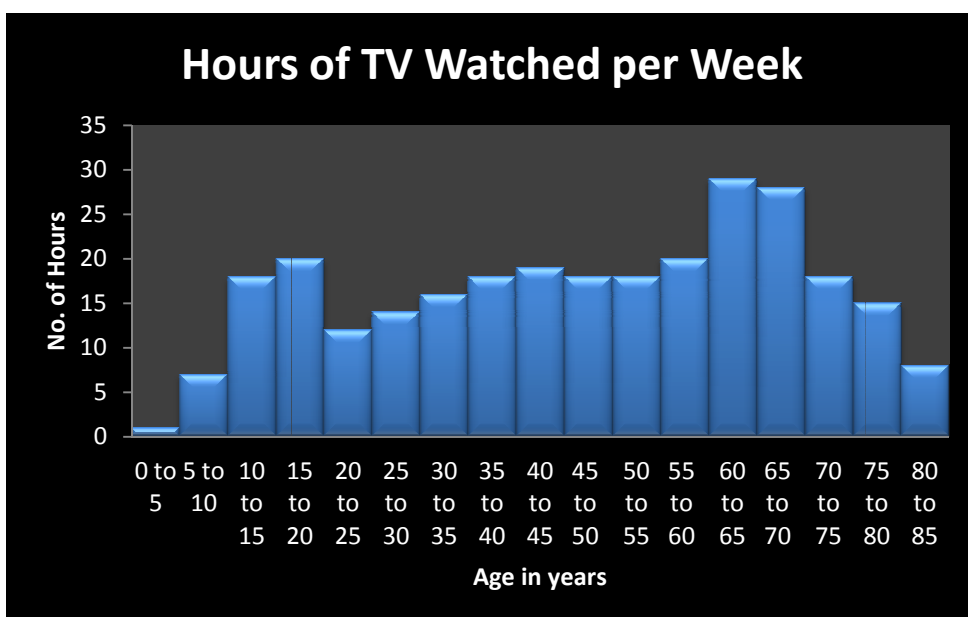
### LIBRARY BOOKS



#### X-ercise

1. In Grade 10 at the National Art College, students have a choice of 4 subjects in the group C subject choice. 36 students chose Drama, 15 students chose Music, 24 chose Visual Art and 20 chose Dance.
  - a. What is the total number of students in Grade 10?
  - b. What percentage of the Grade 10's chose Music?
  - c. What percentage chose Drama?
  - d. Calculate the size of the angles for each of the 4 categories so that you can represent this information on a pie chart.
  - e. Draw the pie chart to represent this information

2. A group of tour operators have six tours available. Tour A had 17 people on it during the December break. Tour B had 34 people. Tour C had 26, while Tour D had 47. Tour E and F both had 38 each.
  - a. Represent this information on a suitable chart.
  - b. Which tour was the most popular?
  - c. Which tour was the least popular?
  - d. Would a bar chart or histogram be more appropriate in this example? Give a reason.
  
3. Refer to the following chart then answer the questions that follow.

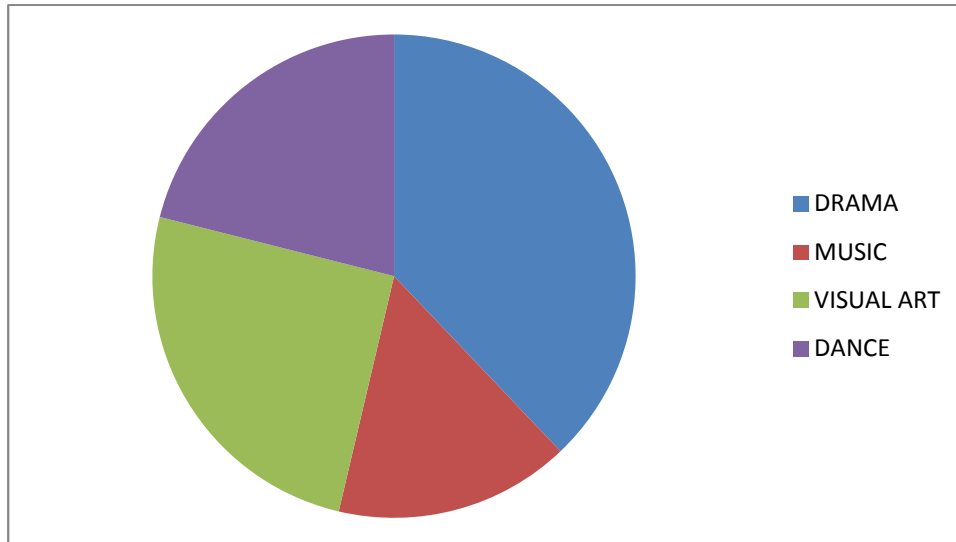


- a. Is this a histogram or a bar chart? Explain.
- b. Which age group watched the most TV?
- c. Which age group watched the least TV?
- d. Suggest a reason why the first age group is so low
- e. Suggest a reason for the spike around the ages of 60 to 70 years of age.

## X-ercise Answers

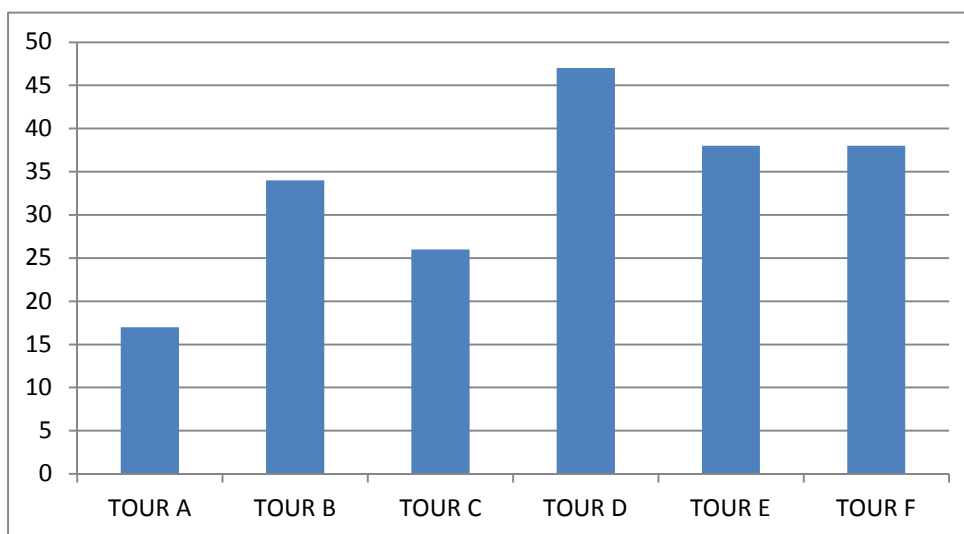
1.

- a. 95
- b. 15,8%
- c. 37,9%
- d. Drama 136° , Music 57° , Dance 76° , Visual Art 91°
- e.



2

a.



- b. TOUR D
- c. TOUR A
- d. Bar chart - the data is not continuous, it is discrete.

3.

- a. Histogram- data is continuous in terms of ages
- b. 60 to 65 years
- c. 0 to 5 years
- d. This age group sleep and play more and don't have a long concentration span.
- e. This age group have often just retired and are probably catching up on programmes they missed during their working years