SUBJECT and GRADE	Mathematical Literacy Grade 10	
TERM 4	*Week 4*	
TOPIC	Data Handling	
AIMS OF LESSON	Representing and analyzing data	
RESOURCES	***Paper based resources***	***Digital resources***
	Mind the GAP: Page 140 Answer Series **Also use:** Via Afrika Platinum Or any CAPS approved textbook. Look under Data Handling Documents	*Learn.mindset,Africa/xtra/lessons/grade10/maths-literacy* *You tube presenting and interpreting data*

INTRODUCTION

By the end of the week you need to be able to work with the following:

- Represent and Analyzing data on:

With understanding of the following:

- Presenting the data using different diagrams and pictures

Previous knowledge

- Operations with whole numbers and decimal numbers and without a calculator (**B**rackets **O**f **D**ivide **M**ultiply **A**dd **S**ubtract)
- Rounding-off: to specific number of decimal places, to the nearest whole number, up or down
- Developing questions
- Collecting data
- Classifying and organizing data

The above were done in Term 1

CONCEPTS AND SKILLS

Terminologies to revise:

Percentages
Working with numbers and calculation skills (BODMAS)
Horizontal axis and vertical axis
Maximum and minimum
Categorical data
Numerical data
Discrete and continue data
Mean
Median
Mode range

<u>Representing data</u>

Pie charts – completed in week 3

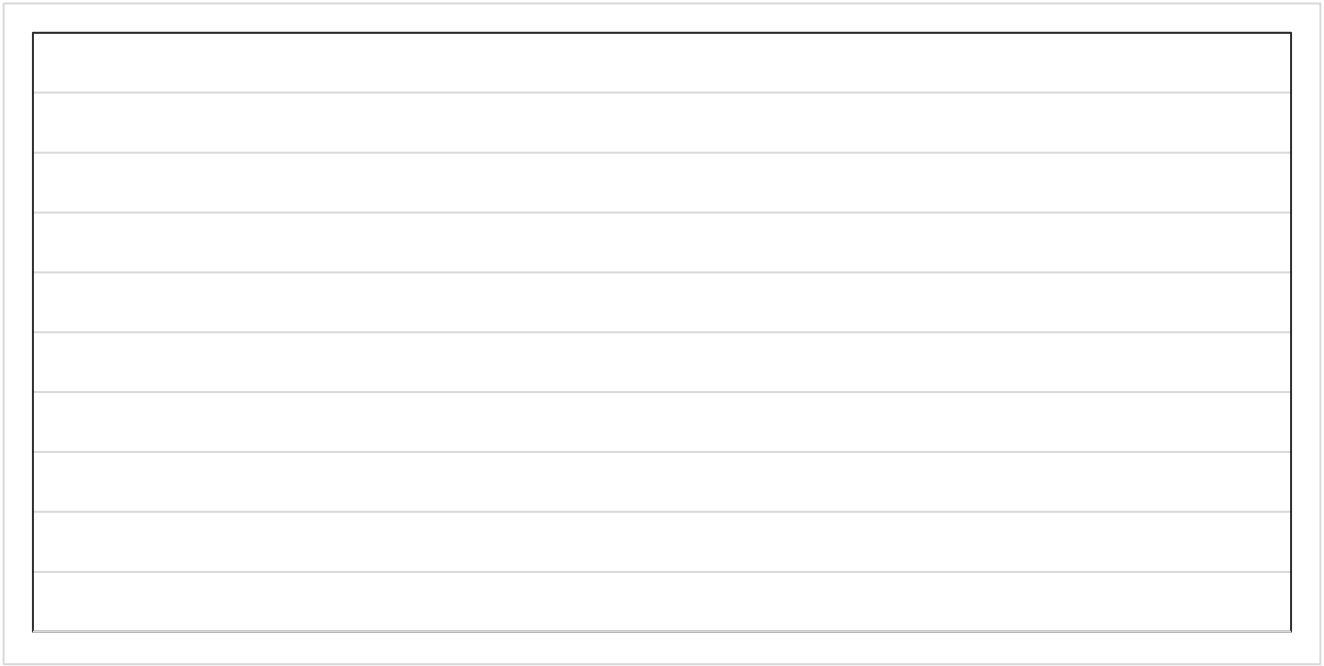
Single bar graph

- Shows the frequency of each element in a set of discrete categorical data
- Discrete data can only have distinct values – no 'grey areas' between, e.g. numbers of babies, colours of highlighters
- The different categories are represented by bars (vertical or horizontal)
- There are spaces between the bars to indicate the discrete nature of data.
- The bars are equally space and are of the same width.
- The height (length) of each bar represents the frequency of each category.
- There is usually a space at both the start and end of the graph.
- Categories are plotted on the *x*-axis (horizontal axis), while the frequency is plotted on the *y*-axis (vertical axis)

Work example 1

A hawker at a taxi rank sold 15 pawpaws, 5 grapefruit, 25 mangoes, 40 oranges and 50 apples in one week.

Draw a vertical bar graph to show his week's sales. Label your axes and give your graph a suitable title.



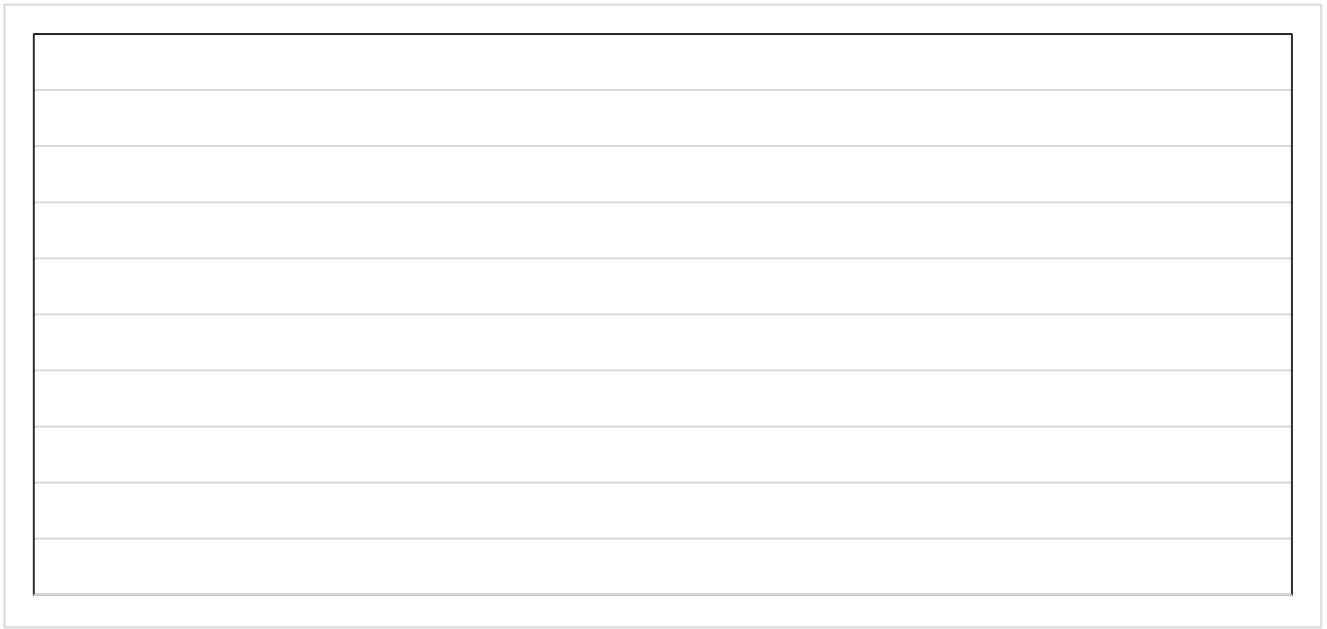
Histograms

- A **histogram** is used to display **continuous data**.
- The data is usually grouped into class intervals (eg. Height intervals age groups)
- Intervals are represented by bars with **no spaces between them**, to indicate the continuous nature of the data.
- The class intervals are on the horizontal axis where each bar represents one class or interval.
- The vertical axis shows the height of the bar and represents the frequency of the class or interval
- The bars are of the same width

Worked example 2

A fisherman recorded the masses of the last 22 fish he caught. Draw a histogram of the data in the table below. Label your axes and give your graph a suitable title.

Mass (m) in kg	Frequency
$1,0 < m \leq 1,5$	4
$1,5 < m \leq 2,0$	1
$2,0 < m \leq 2,5$	7
$2,5 < m \leq 3,0$	2
$3,0 < m \leq 3,5$	5
$3,5 < m \leq 4,0$	3
Total	22



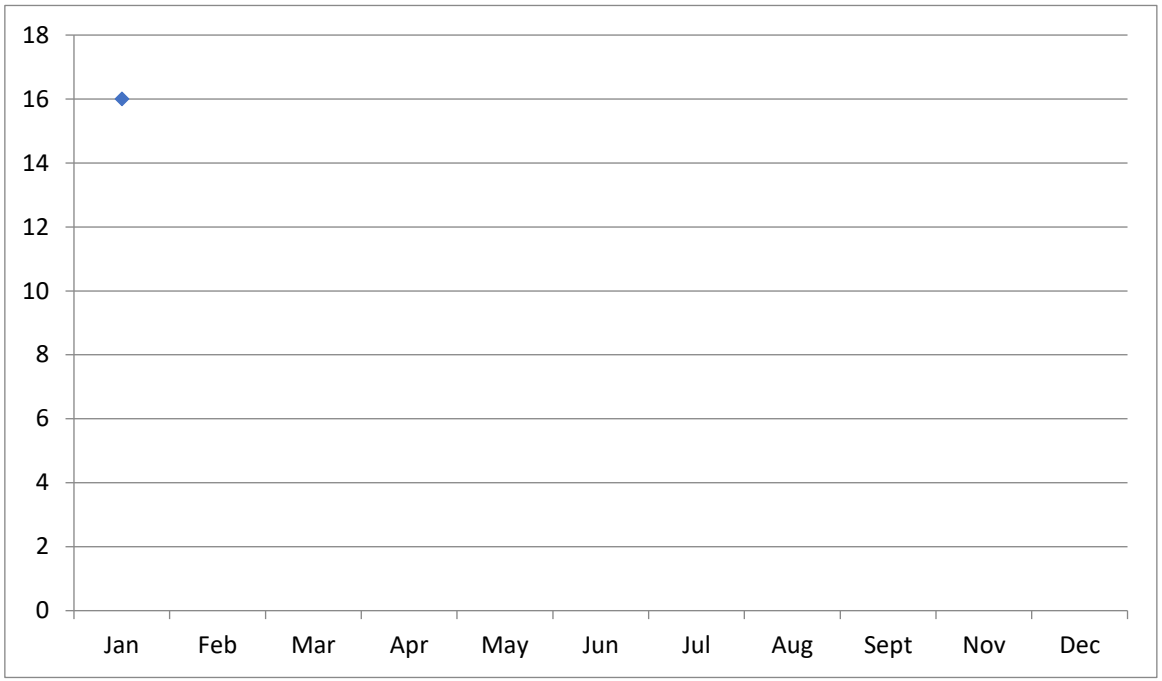
Line and broken line graphs:

- A line graph and a broken line graph refer to graphs whose points are joined by a line (for continuous data) or a broken-line (for discrete data
- These graphs show trends (i.e. how something has changed over a period of time)

Work example 3

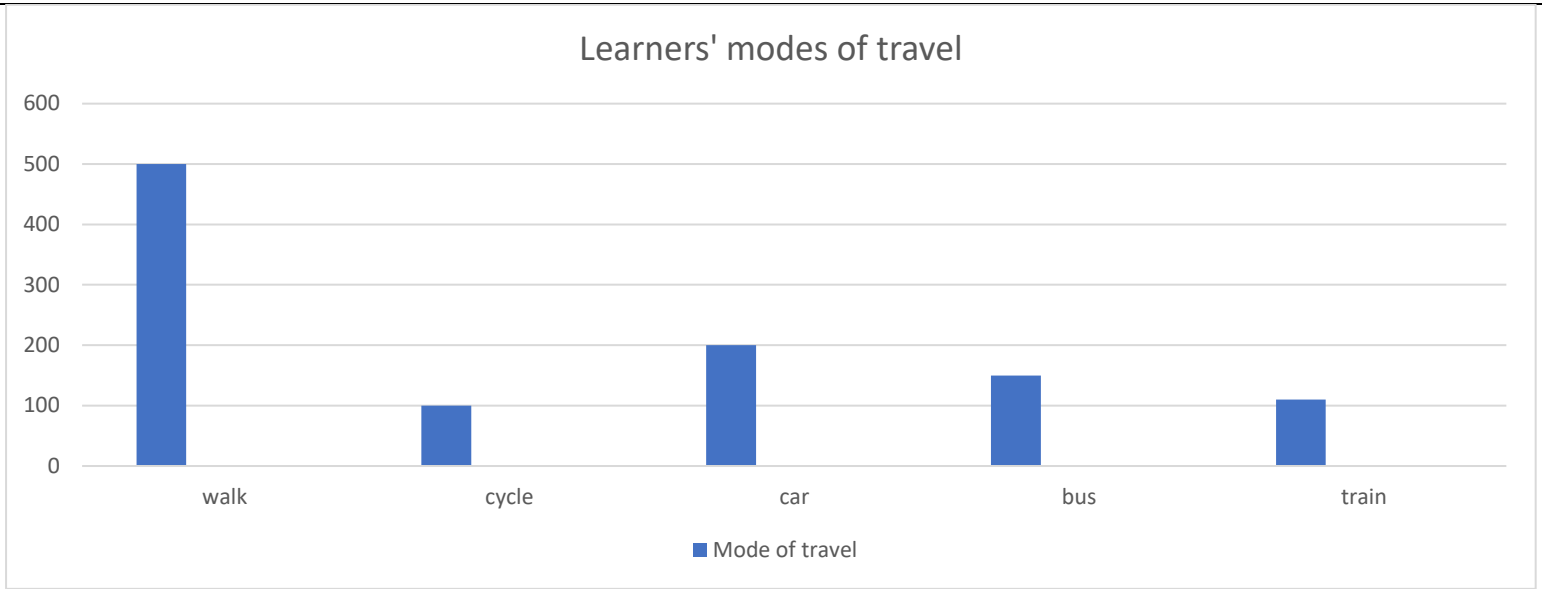
The following table shows the average (mean) number of days it rains per month in Johannesburg over a ten-year period. Draw a line graph to represent the mean number of days per month it rains in Johannesburg.

Month	**Mean number of days it rain**
Jan	16
Feb	11
Mar	12
Apr	9
May	3
Jun	2
Jul	1
Aug	2
Sept	4
Oct	10
Nov	15
Dec	14



Exercise

1. The bar graph below shows how the learners at South High travel to school.



1.1. What does the vertical axis represent?

1.2. How many learners travel to school by car?

1.3. Which mode of transport is used by the majority of learners?

1.4. Which mode of transport is used by the least number of learners?

1.5. Approximately how many learners cycle to school?

2. A random sample of 70 motorists recorded the number of kilometers they travelled per day. The results were as follows.

Kilometers travelled per day (km)	**Frequency**
$1 < km \leq 10$	2
$10 < km \leq 20$	4
$20 < km \leq 30$	12
$30 < km \leq 40$	28
$40 < km \leq 50$	24
Total	50

Draw a histogram to represent the data given in the above table. Make sure you label your axes and give your graph a suitable title.

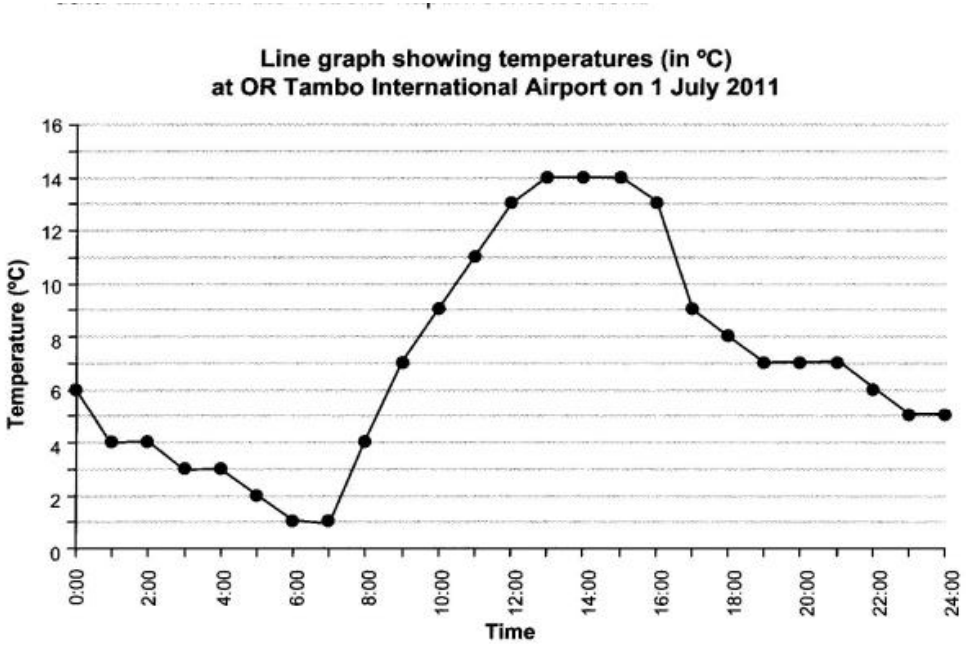
The ages of the number of people entering a mall between 10:00 am and 11:00am 0n a particular day is represented by the histogram shown below.

3.1 Which was the modal age group?

3.2 Why do you think there are so few people in the 80 – 100 interval?

3.3 Do you think this day is during holidays or not? Justify your answer?

The following line graph on the next page shows the temperature recorded at hourly intervals at OR Tambo International Airport On 1 July 2011. This graph is based on data taken from the website http:freemeteo.com/



Answer the following questions with reference to the graph above.

4.1 What was the temperature at 9:00?

4.2 For how many hours was the temperature 13°C or hotter?

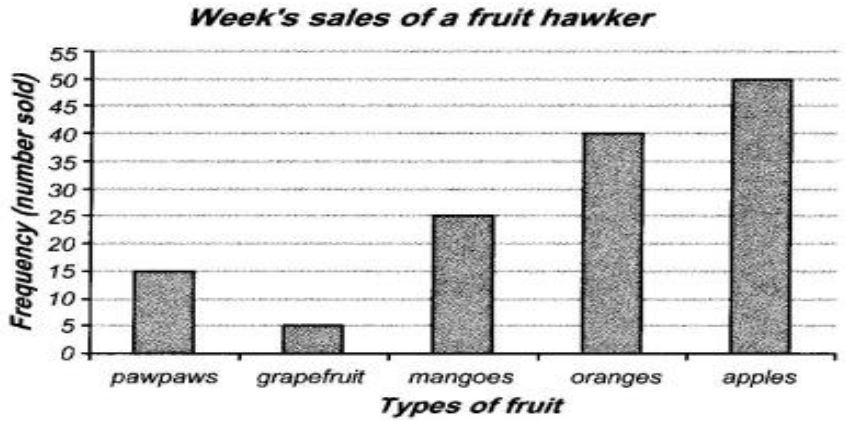
4.3 Calculate the range in temperature on this day.

4.4 Determine the hour period in which the greatest temperature change ocucurred.

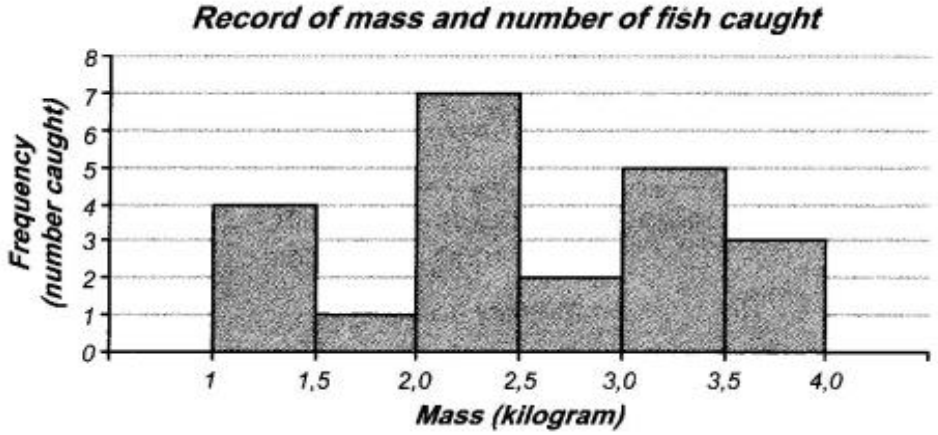
4.5 Estimate what time sunrise occurred on this day.

Solutions:

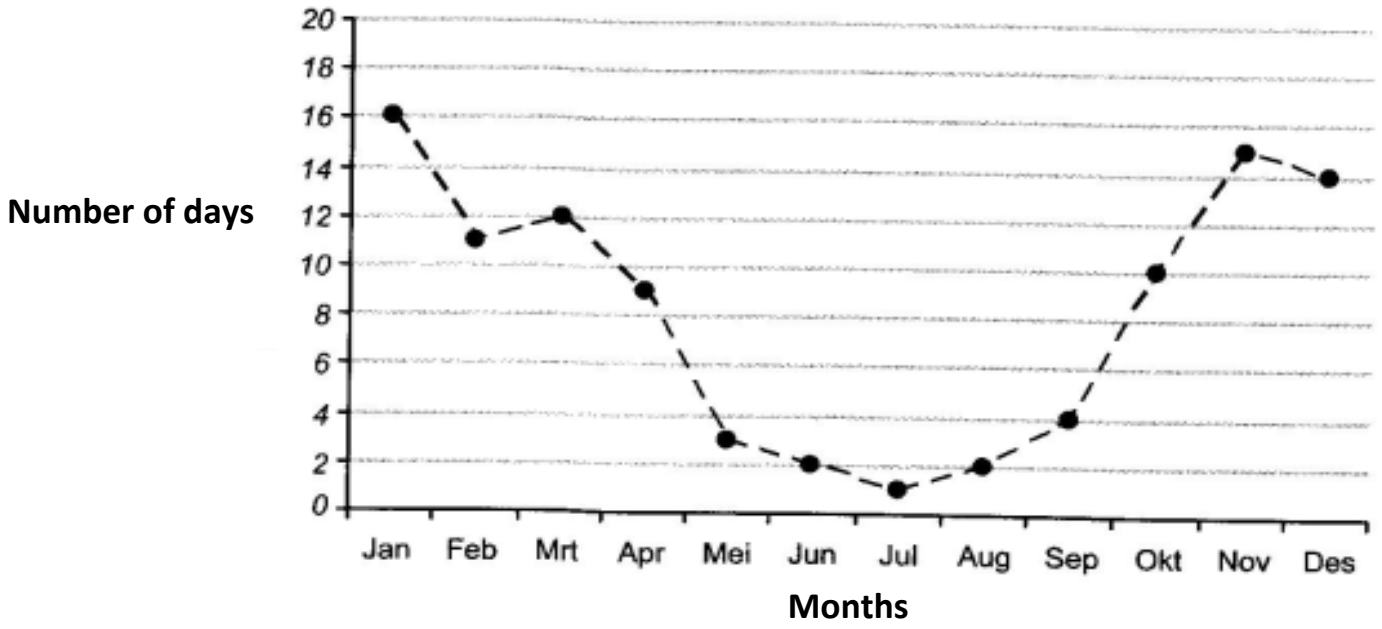
Work example 1



Work Example 2



Work Example 3



Solutions
Exercise

1.1 Number of learners/frequencies

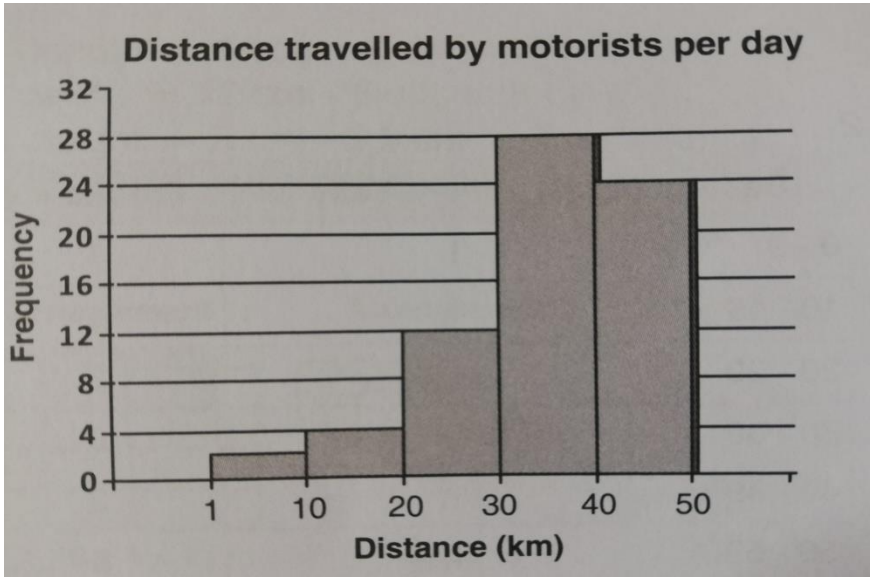
1.2 200 learners

1.3 Walking

1.4 Cycling

1.5 100 learners

2.



3.1 30 – 40 years
3.2 Older people do not shop so often. Shopping os often done for them
3.3 It is not school holidays as very few children are in the mall.

4.1 7°C
4.2 4 hours (from 12:00 – 16:00)
4.3 range = 14 – 1 = 13°C
4.4 Between 16:00 and 17:00
4.5 at 7:00

CONSOLIDATION	*Make sure that after going through this lesson you can:* Represent data in different ways
VALUES	*Work independently.* *Calculate accurately.*