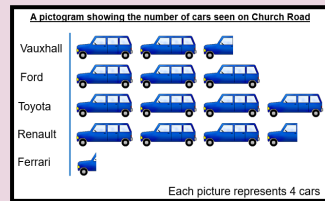


Diagrams

A pictogram uses pictures to show quantities of data.

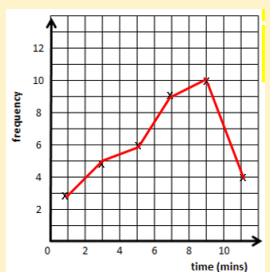


Frequency Polygons

Frequency polygons are plotted at the mid-point.

They are joined by straight lines

Waiting time, t (mins)	Frequency	Midpoints
$0 \leq t < 2$	3	1
$2 \leq t < 4$	5	3
$4 \leq t < 6$	6	5
$6 \leq t < 8$	9	7
$8 \leq t < 10$	10	9
$10 \leq t < 12$	4	11



Stem and Leaf

Stem and Leaf checklist:

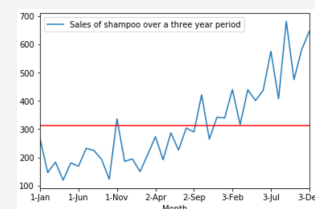
- 1) Numbers in ascending order
- 2) Line separating the units
- 3) Key

Males		Females	
7	3	2	2 4 7 9
9	6 2 1 0	3	1 2 5 5 7 9
8	8 7 5 3 2	4	0 4 4 7
9	2 1 0	5	2 7 9

Key 36 years = 6|3 Key 36 years = 3|6

Time Series

Time series graphs are line graphs plotted over time to show trends.



Unit 3: Data

Averages

Median from Frequency Tables

Finding the Median:

- 1) Find the cumulative frequency for the data
- 2) Add 1 to the total cumulative frequency, then divide by 2.
- 3) Find where the median value lies

SCORE (x)	FREQUENCY (f)	Cumulative frequency
1	10	10
2	11	21
3	15	36
4	9	45
5	12	57
Total	57	

Median value = $\frac{n+1}{2} = \frac{57+1}{2} = 29$ The median is 3

Mean

To find the mean add up all the numbers and divide by the amount.

Median

To find the median order the numbers and find the middle value

Mode

The mode is the most common value

Range

The range is the biggest value subtract the smallest

Mean from Frequency tables

Goals Scored	Frequency	F x GS
0	2	$0 \times 2 = 0$
1	5	$1 \times 5 = 5$
2	3	$2 \times 3 = 6$
3	8	$3 \times 8 = 24$
4	2	$4 \times 2 = 8$
Total	20	43

Total of all items = 43 Number of items = 20
 Mean = $43 \div 20 = 2.15$

Mean from a frequency table:

- 1) Find the total frequency
- 2) Multiply the first two columns together
- 3) Find the total of the f(x) column.
- 4) Divide the total f(x) by the total frequency

Mean from Grouped frequency tables

- 1) To find the mean first find the total of the frequency.
- 2) Find the mid points.
- 3) Multiply the frequency and the mid point.
- 4) Divide the total frequency x mid point by the total frequency.

Height cm	Frequency (f)	Mid-Value(x)	Group Total(fx)
5-15	6	10	$6 \times 10 = 60$
15-25	4	20	80
25-35	15	30	450
35-45	3	40	120
45-55	2	50	100
Total	30		810

Estimated mean = $\frac{810}{30} = 27$

Median from Frequency Tables

Finding the Median:

- 1) Find the cumulative frequency for the data
- 2) Add 1 to the total cumulative frequency, then divide by 2.
- 3) Find where the median value lies

Number of phones (x)	Frequency (f)	Cumulative Frequency
0-4	5	5
5-9	8	13
10-14	4	17
15-19	9	26
20-24	3	29

The middle data item will be: $\frac{n+1}{2} = \frac{29+1}{2} = 15$

Therefore we know that that the median lies in the group 10- 14

Pie Charts

Step 1: Find the total of the frequency column

Step 2: Divide 360 by the total frequency

$360^\circ \div 30 = 12 \text{ degrees per person}$

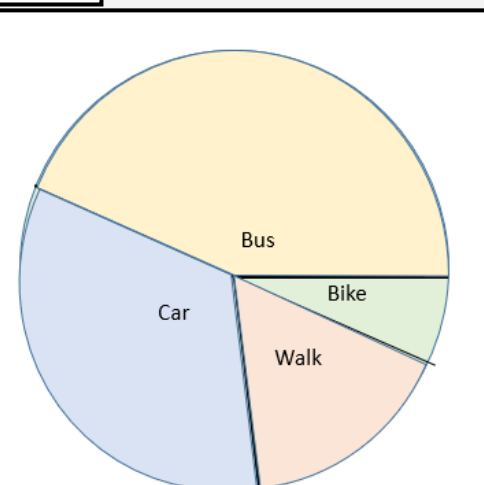
Step 3: Multiply each frequency by 12

Step 4: Draw your Pie Chart

A class was asked how they got to school:

Bus	13	156°
Car	10	120°
Bike	2	24°
Walk	5	60°
Total	30	360°

Draw a pie chart to represent this data



Averages