Chapter 4: Representing Data

Extra questions

Company data has been presented by region as follows:

Region	Company Sales Value
North	257
Midlands	348
South West	285
South East	584
Scotland	266
Wales	260
Total	**2000**

1.   Create a pie chart for this data

2.   If we assume the company sells computers, create a pictogram for this data

A supermarket is looking at the way in which it uses its space and has given you the following information.

Product Group	Sales Value (%)	Floor Space (%)
Fruit and Veg	5	14
Canned Food	10	10
Bread & Cakes	8	12
Beers, Wines & Spirits	15	10
Coffee, Tea, Soft Drinks	6	7
Household Goods	11	15
Clothes	17	17
Electrical	12	10
Records, CD's, DVD's	16	5
Total	**100**	**100**

3.   Create a bar chart to show sales and one to show floor-space.

4.   Create a 3D pie chart with the Records, CD's & DVD's segment pulled out

5.   Write a brief commentary on the use of floor-space as a report to the supermarket managers.

Visitor Numbers 1988 – 2000

Year	Amount of Visitors
1988/9	3.4 million
1989/0	3.4 million
1990/1	3.7 million
1991/2	4.4 million
1992/3	4.2 million
1993/4	4.0 million

1994/5   4.4 million
1995/6   4.5 million
1996/7   5.0 million
1997/8   4.9 million
1998/9   4.8 million
1999/0   5.0 million

Data used by kind permission of the National Gallery, New Media Department:
http://www.nationalgallery.org.uk/default.htm

6.   Illustrate this data using a bar chart

7.   Write a brief report on Visitor Numbers as if to the managers of the National Gallery.

8.   A survey has been carried out amongst a group of shift workers. In response to a question on amount of overtime worked, the following set of responses were obtained:

Amount of Overtime Worked	Number of People
0 but under 1 hour	35
1 but under 2 hours	25
2 but under 4 hours	20
4 but under 6 hours	10
6 but under 10 hours	5
Total	**95**

(a)   Create a histogram to illustrate this data
(b)   Superimpose a frequency polygon onto your histogram

Extra answers
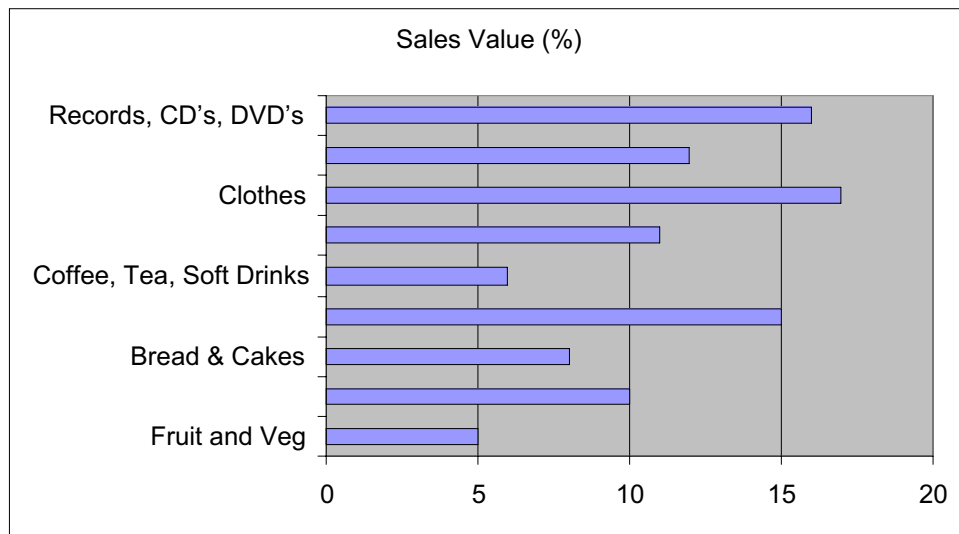
1.   Using Excel you would get:

Company Sales Value
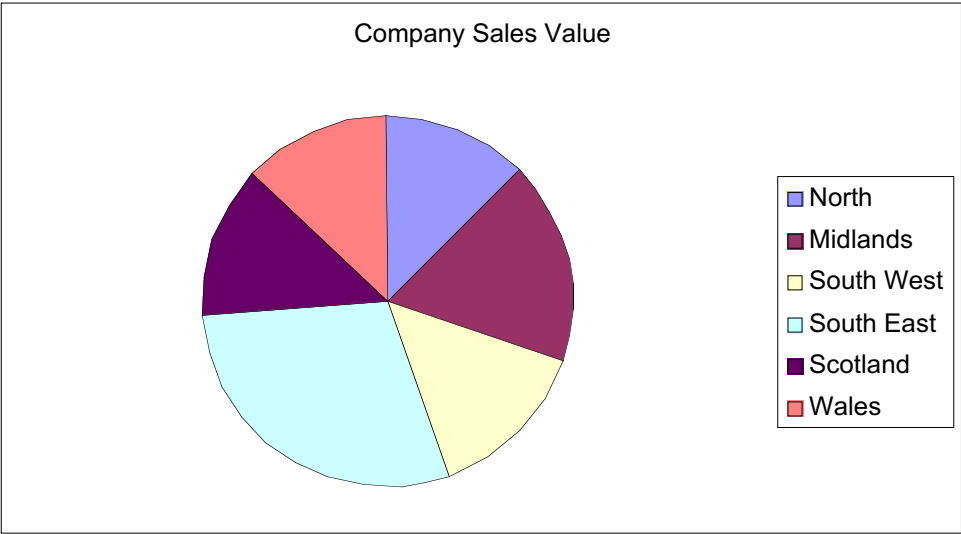
2.   We have used ClipArt pictures from Microsoft Office for our pictogram:

North   Midlands   S. West   S. East   Scotland   Wales

As you can see, each complete picture represents 100 of Sales Value.

3.   Sales Bar Chart:

Sales Value (%)

Category	Values
Records, CD's, DVD's	16, 12
Clothes	17, 11
Coffee, Tea, Soft Drinks	6, 15
Bread & Cakes	8, 10
Fruit and Veg	5

Axis: 0, 5, 10, 15, 20

Floor space bar chart:

Floor Space (%)

Category	Values
Records, CD's, DVD's	5, 10
Clothes	17, 15
Coffee, Tea, Soft Drinks	7, 10
Bread & Cakes	12, 10
Fruit and Veg	14

Axis: 0, 5, 10, 15, 20
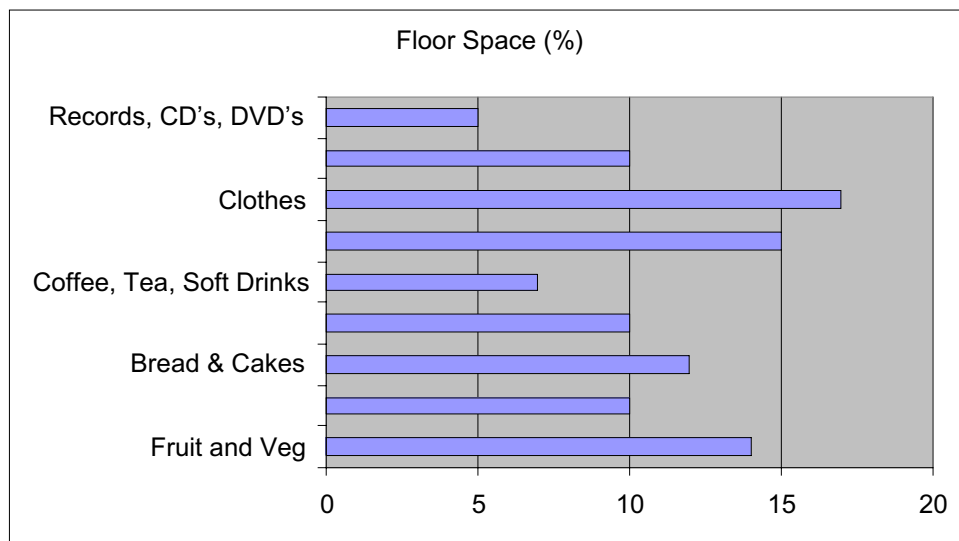
4.   Again we used Excel, and after a little manipulation we got:

Sales Value

Legend:
- Fruit and Veg
- Canned Food
- Bread & Cakes
- Beers, Wines & Spirits
- Coffee, Tea, Soft Drinks
- Household Goods
- Clothes
- Electrical
- Records, CD's, DVD's
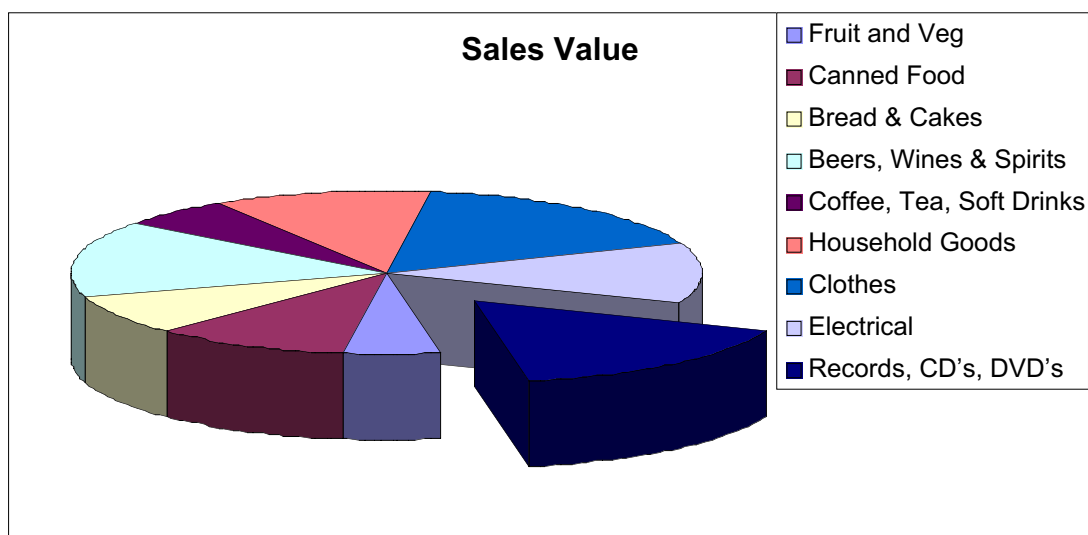
5.   Your brief report might look at the differences between the amount of space devoted to a group of items and their sales vales, giving a table such as this:

Product Group	Difference
Fruit and Veg	-9
Canned Food	0
Bread & Cakes	-4
Beers, Wines & Spirits	5
Coffee, Tea, Soft Drinks	-1
Household Goods	-4
Clothes	0
Electrical	2
Records, CD's, DVD's	11

You might also go on to say that there are significant differences in mark-up between the product groups, that certain items such as fresh veg take up a lot of space, and that a supermarket is expected to sell certain things – it could probably not stop selling bread.

6. Using Excel gave:

Visitor Numbers (Millions)
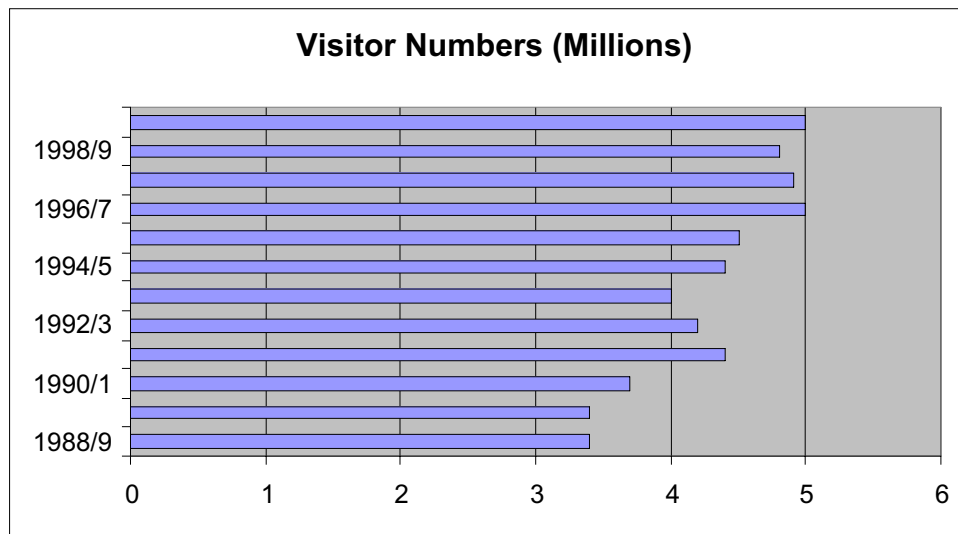
7. Your report might highlight the success of the National Gallery in attracting extra visitors, nearly a 50% increase over the time period covered. You might want to add something about location of the Gallery in London and with a little research, something about exhibitions, how frequently they are changed, getting art on loan for short periods, etc.

8. You would normally use graph paper to draw the histogram, but it can be done on a PC:
    To construct the histogram we need to find heights relative to the frequencies by allowing for the widths of the groups. This can be done in a table:

Group	Width	Frequency	Height
0 – 1	1	35	35
1 – 2	1	25	25
2 – 4	2	20	10
4 – 6	2	10	5
6 - 10	4	5	1.25

This now allows us to draw the histogram:
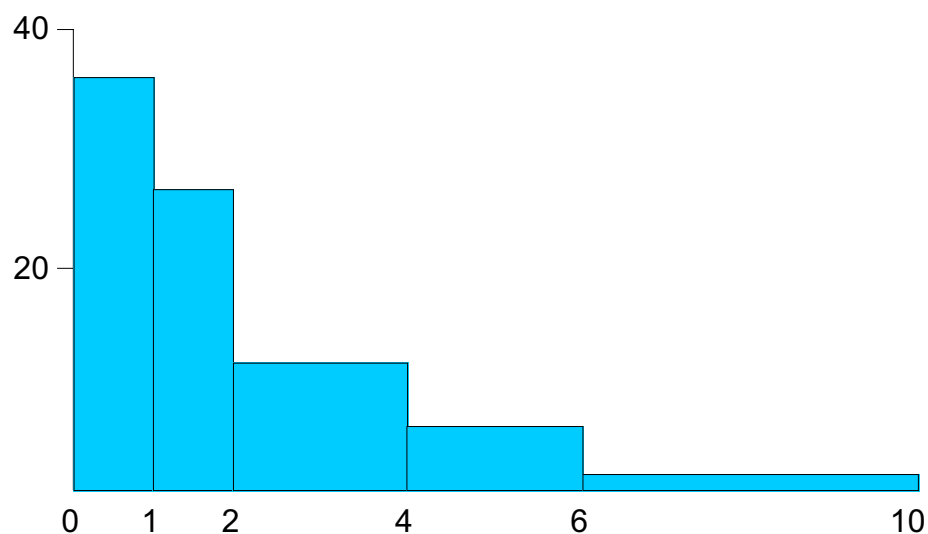
We can then superimpose the frequency polygon onto this histogram by joining the midpoints together at the top of the blocks