Data Handling

And

Probability

Statistical Diagrams 1

Contents

Statistical Diagrams

These are the different types of statistical diagrams :

Scatter Graph

Pictogram

Pie Chart

Bar - Line graph

Bar Chart

Frequency polygons

Objective : To know the different types of statistical diagrams.

Bar Charts

Example of Bar Chart and Table

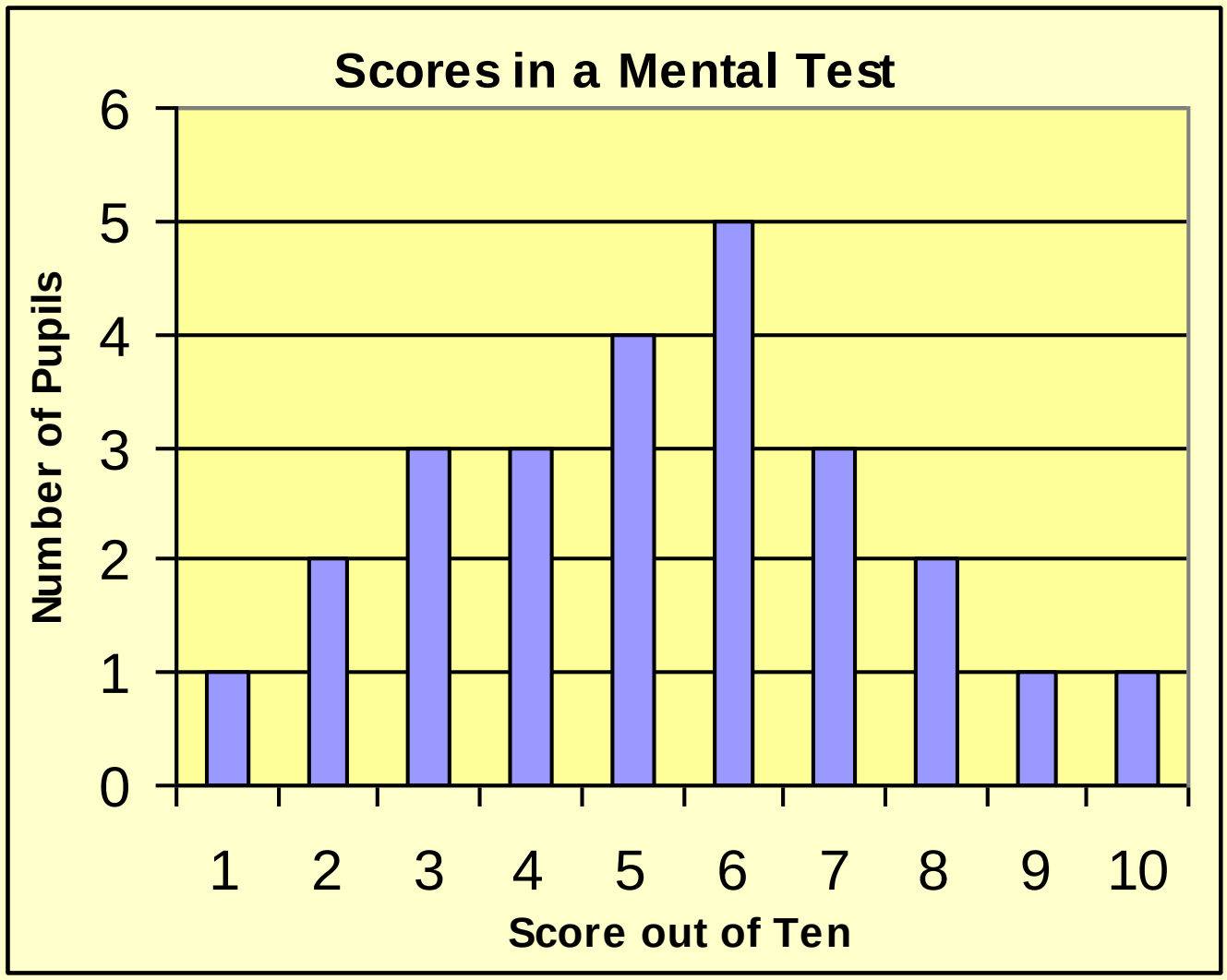


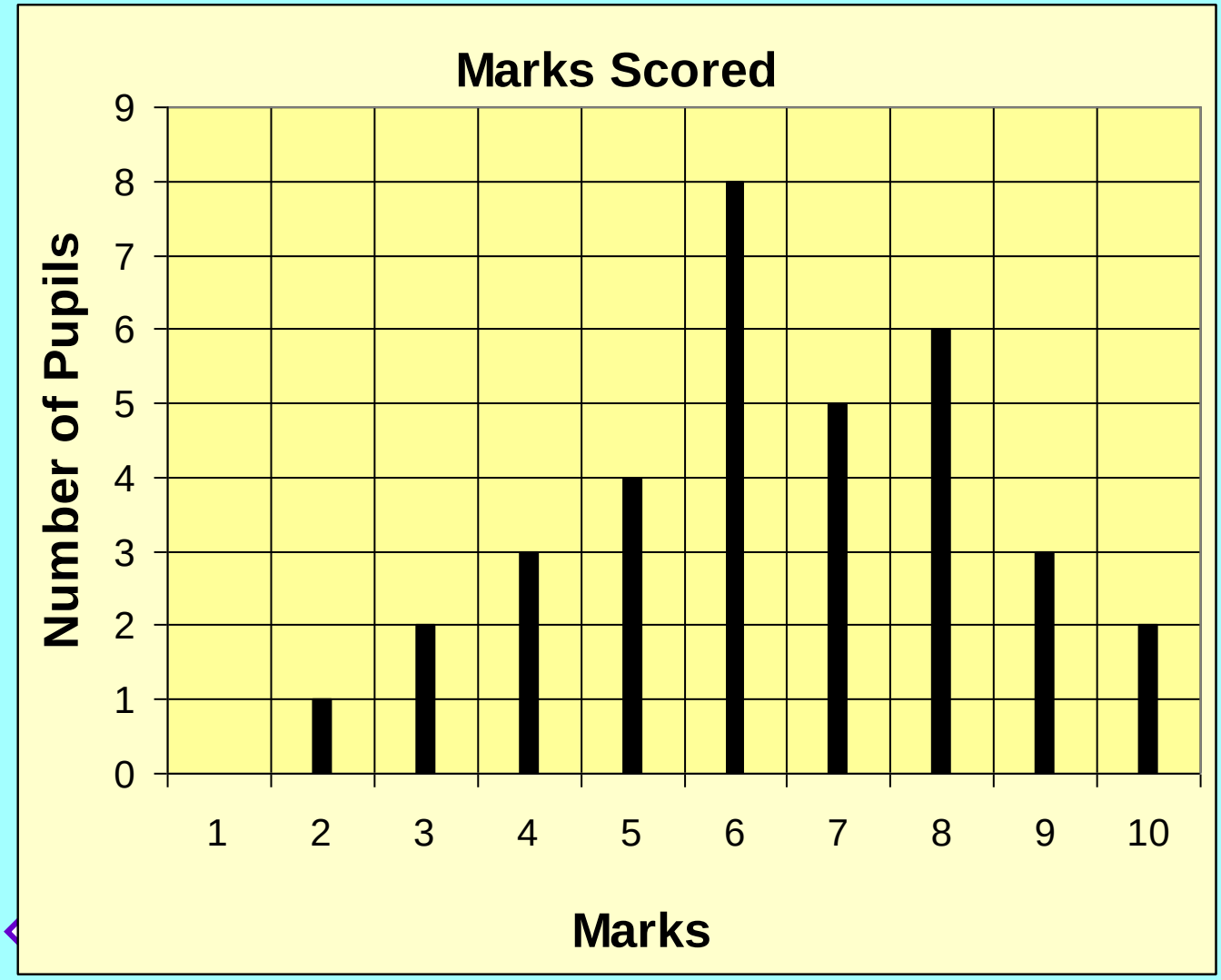
Table of data

Marks	Pupils
1	1
2	2
3	3
4	3
5	4
6	5
7	3
8	2
9	1

Bar Chart of Results.

Bar - Line Graph

A bar - line graph is exactly like the bar chart but instead of drawing bars, lines are drawn.



Checklist for Bar Chart and table

1. Draw a table with a title.
2. Draw both axis.
3. Label both axis.
4. Mark all bars.
5. Give the bar chart a Title.

Bar chart Questions

Draw a bar chart for the following tables :

1. Number of hours of TV watched per day

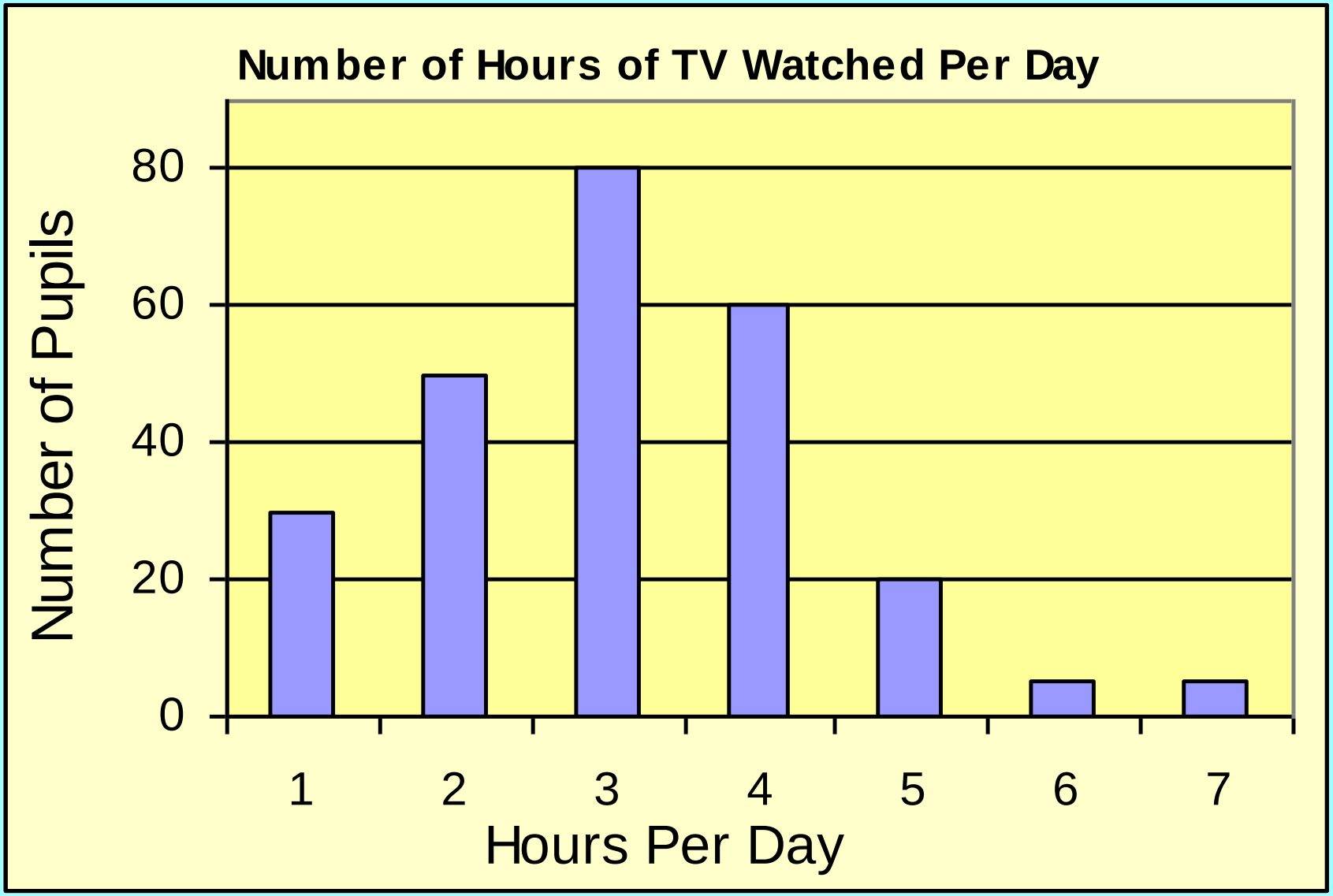
Hours per day	0	1	2	3	4	5	6
Number of pupils	30	50	80	60	20	5	5

2. Favourite Channel

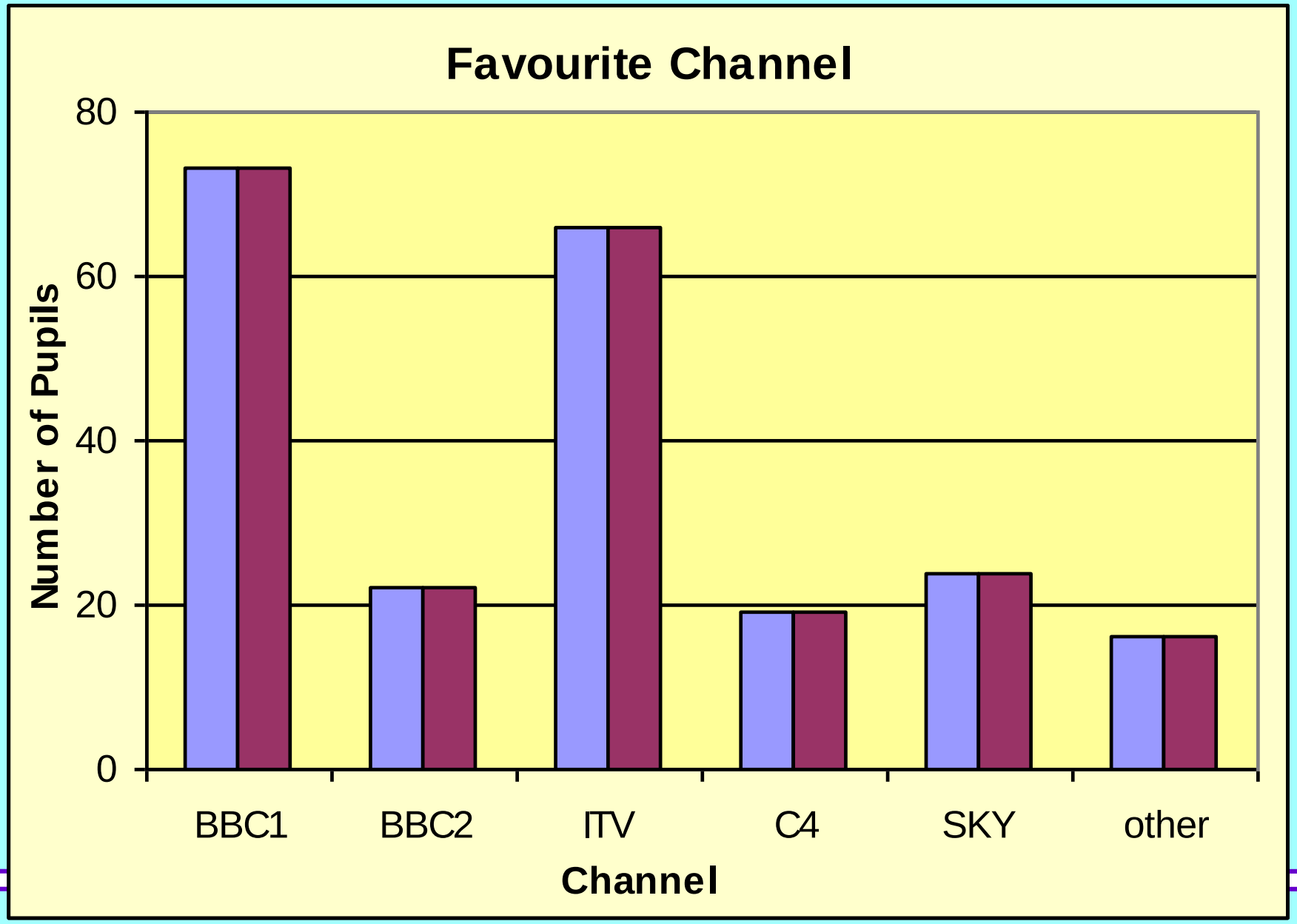
Channel	BBC1	BBC2	ITV	C4	SKY	other
Number of pupils	73	22	66	19	24	16

Objective : To be able to draw bar charts.

1. Answers


Number of Hours of TV Watched Per Day
Number of Pupils
80
60
40
20
0
1
2
3
4
5
6
7
Hours Per Day

2. Answers


Favourite Channel
Number of Pupils
80
60
40
20
0
BBC1
BBC2
ITV
C4
SKY
other
Channel

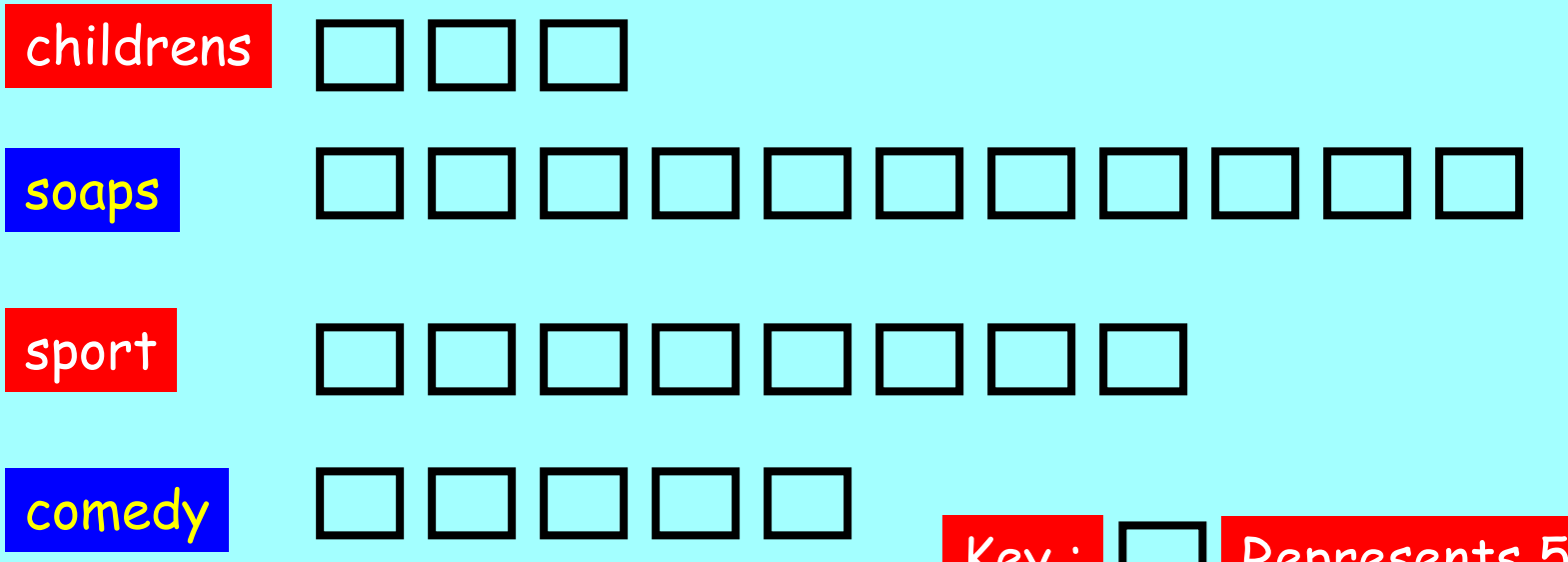
Pictogram

Example of Pictogram and Key

Favourite Type of TV Programme

Type of Programme	childrens	soaps	sport	comedy
Number of Pupils	15	55	40	25

Favourite Type of TV Programme



Objective : To be able to draw pictograms.

Questions

The tables below show what type of programme pupils watch.

Draw a pictogram to represent these results.

1. *Favourite Type of TV Programme For 10FL*

Type of Programme	childrens	soaps	sport	comedy
Number of Pupils	15	30	50	20

2. *Favourite Type of TV Programme For 10RL*

Type of Programme	childrens	soaps	sport	comedy
Number of Pupils	20	50	30	15

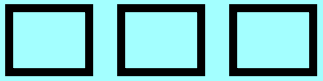
Objective : To be able to draw pictograms.

Answers to Pictogram

1. *Favourite Type of TV Programme For 10FL*

Type of Programme	childrens	soaps	sport	comedy
Number of Pupils	15	30	50	20

Favourite Type of TV Programme

childrens 

soaps 

sport 

comedy 

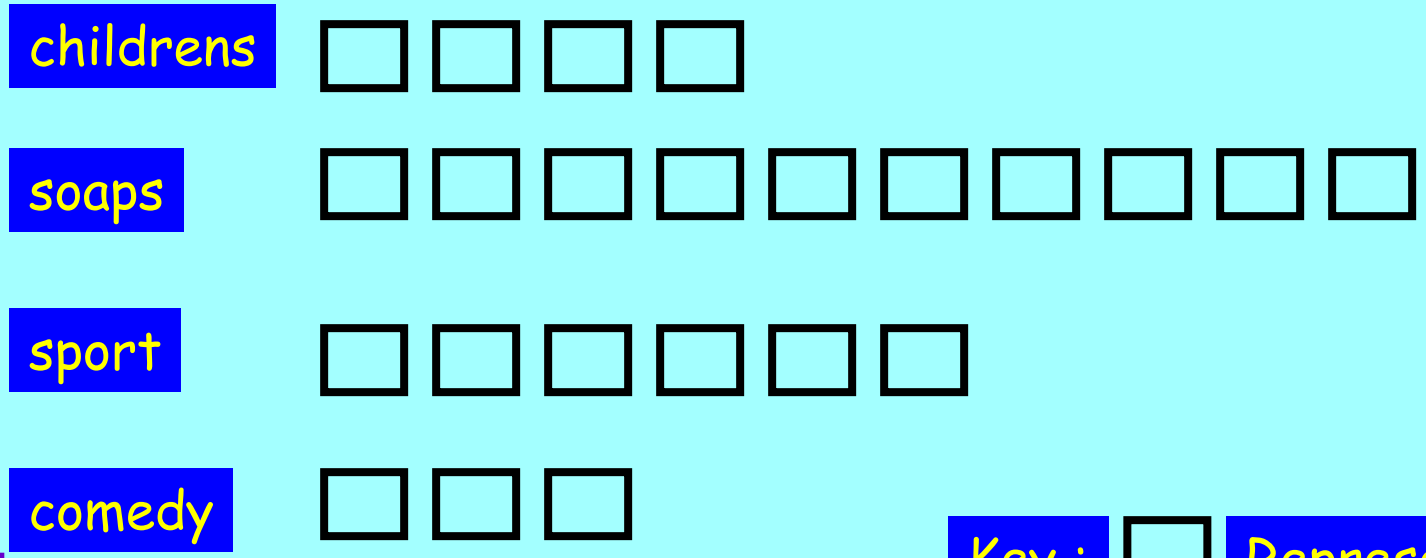
Key :  Represents 5 pupils

Answers to Pictogram

2. *Favourite Type of TV Programme For 10RL*

Type of Programme	childrens	soaps	sport	comedy
Number of Pupils	20	50	30	15

Favourite Type of TV Programme

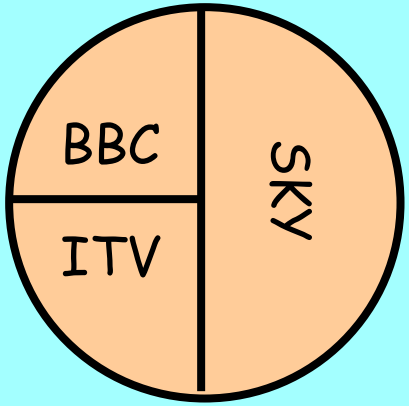


Pie Charts

Pie Charts

A Pie Chart is a circle divided up into segments which are representative of the data.

Example



Favourite Channel

Sky represents 1/2 or 50 %
BBC represents 1/4 or 25 %
ITV represents 1/4 or 25 %

Objective : To be able to draw pie charts.

Two Different Ways of Working Out Pie Charts

There are two ways of working out the angles ready to draw a pie chart.

The first is to work out how many degrees are needed to represent each person.

The second method is to work out what fraction of the total we are trying to represent and multiply this by 360 degrees.

Example

30 people were asked which newspapers they read.

The results were :

The Guardian	8	*The Sun*	6
Daily Mirror	7	*Daily Express*	6
The Times	3		

Show these results in a pie chart.

Example Using Way 1

1. Divide up the 360°.
   There are 30 people in the survey so 360 °/30 = 12°.
   This means that each person gets 12° of the circle.

2. Work out the angle for each newspaper. This is very easy to do in a table.

Newspaper	Number of People	Working	Angle
The Guardian	8	8 x 12°	96°
Daily Mirror	7	7 x 12°	84°
The Times	3	3 x 12°	36°
The Sun	6	6 x 12°	72°
Daily Express	6	6 x 12°	72°
Total	30		360°

Example Using Way 1

3. Check to ensure that the angles add up to 360°.
$96° + 84° + 36° + 72° + 72° = 360°$

4. Draw a circle. Mark the centre. Draw a radius line.

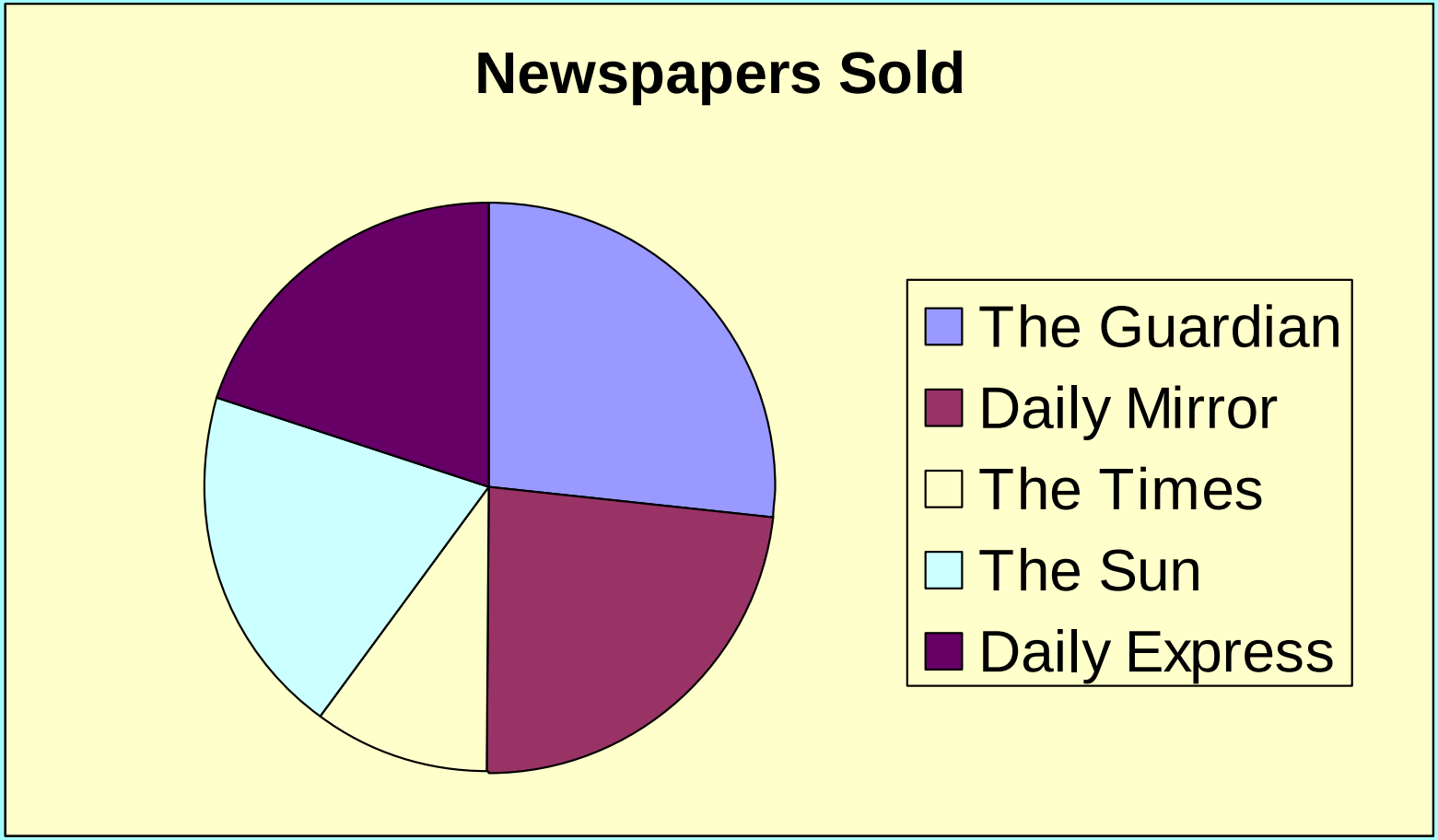
5. Draw the first angle (96°).

6. Measure the second angle from the last line you have drawn.

7. Continue until all the lines are drawn for each angle.

8. Colour your pie chart and add a key.

Example Using Way 1



Example Using Way 2

1. Work out the total.
   30 people took part in the survey so the total is 30.

2. Work out the angle for each newspaper by expressing the number of people as a fraction out of the total then multiply by 360 °.

$$\frac{\text{number}}{\text{total}} \times 360\,°$$

The Guardian	8/30 x 360 ° = 96 °
Daily Mirror	7/30 x 360 ° = 84 °
The Times	3/30 x 360 ° = 36 °
The Sun	6/30 x 360 ° = 72 °
Daily Express	6/30 x 360 ° = 72 °

Example Using Way 2

3. Check to ensure that the angles add up to 360°.
   96° + 84° + 36° + 72° + 72° = 360°

4. Draw a circle. Mark the centre. Draw a radius line.

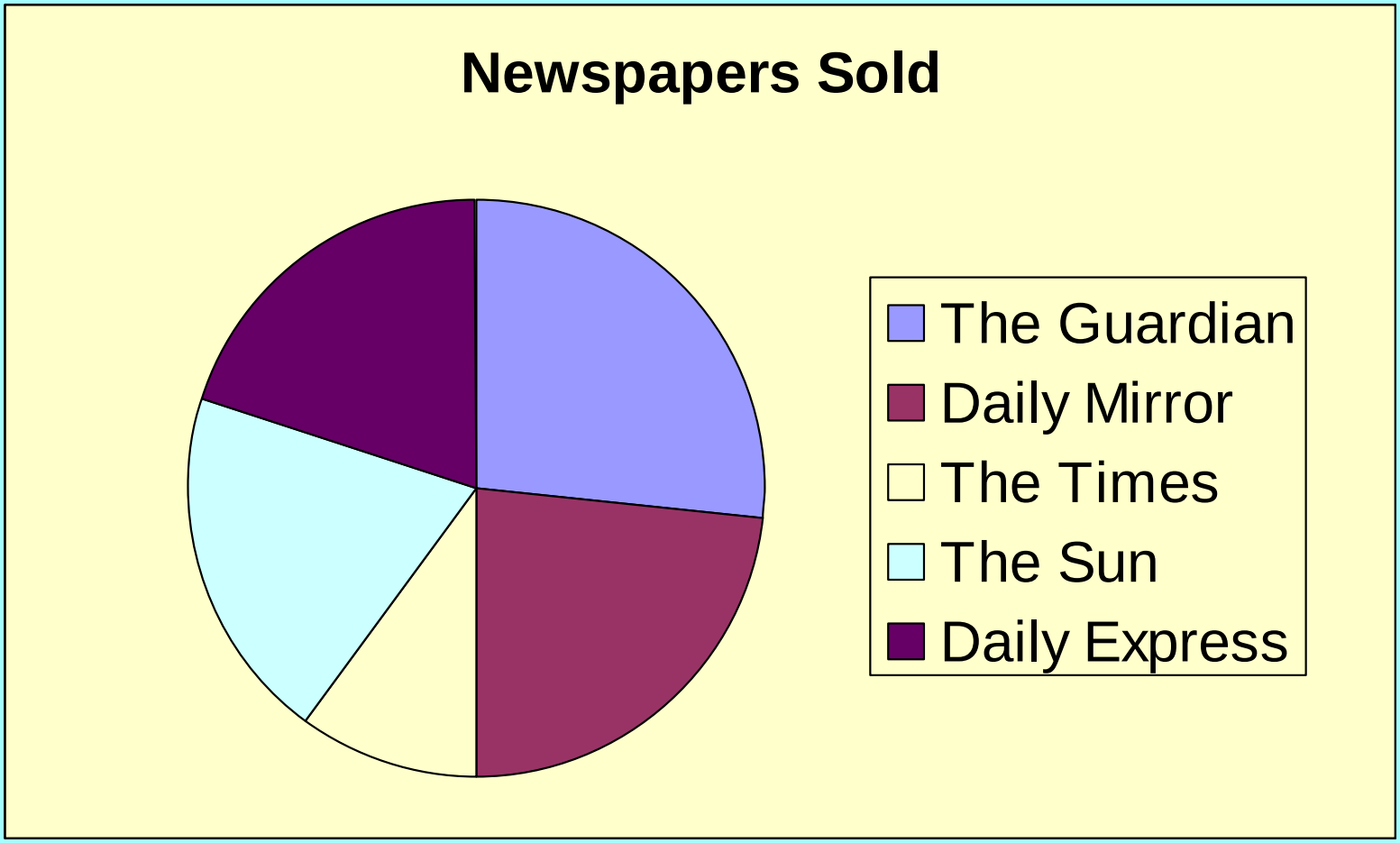
5. Draw the first angle (96°).

6. Measure the second angle from the last line you have drawn.

7. Continue until all the lines are drawn for each angle.

8. Colour your pie chart and add a key.

Example Using Way 2



Question Using Way 1

1. Class 9L were asked how they travelled to school.

a) Copy this table.

Method of Travel	Number of Pupils	Working	Angle
walk	14		
bus	7		
car	6		
bike			
other	0		
Total	30		360°

b) Fill in the rest of the table.

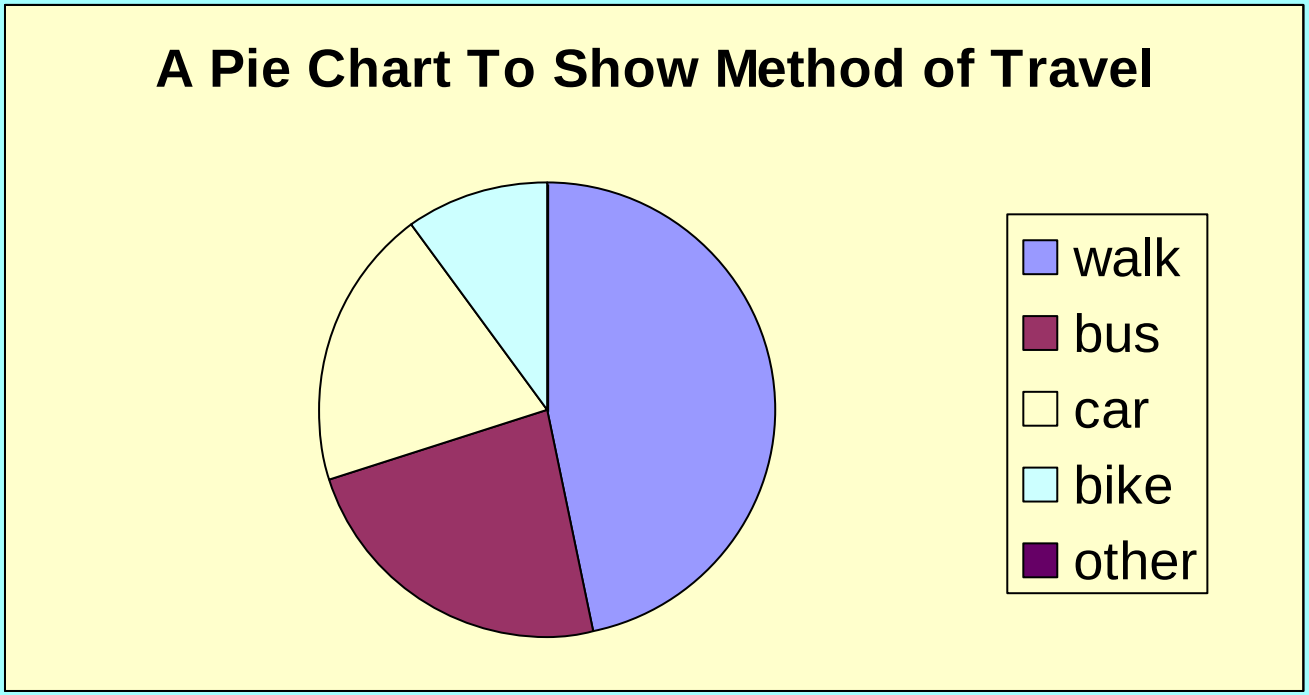
c) Draw a pie chart to show this information.
Don't forget the key.

Objective : To be able to draw pie charts.

Answer

1.

Method of Travel	Number of Pupils	Working	Angle
walk	14	14 x 12°	168°
bus	7	7 x 12°	84°
car	6	6 x 12°	72°
bike	3	3 x 12°	36°
other	0	0 x 12°	0
Total	30		360°

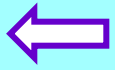


Question Using Way 2

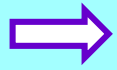
2. Class 9K also did the same survey. Here are there results :

Method of Travel	Number of Pupils
walk	10
bus	7
car	6
bike	1

Draw a pie chart to show these results.
Don't forget the key.



Objective : To be able to draw pie charts.



Answer

2. Total = 24 pupils

walk	10/24 x 360° = 150°
bus	7/24 x 360° = 105°
car	6/24 x 360° = 90°
bike	1/24 x 360° = 15°

Check : 150° + 105° + 90° + 15° = 360°