GCSE Maths – Statistics

Tables, Charts and Diagrams

Worksheet

WORKED SOLUTIONS

This worksheet will show you how to work out different types of questions relating to tables, charts and diagrams. Each section contains a worked example, a question with hints and then questions for you to work through on your own.

Section A

Worked Example

The teacher asks her class of 15 students to count the number of trees in their garden. The students came back with the results: 0, 0, 0, 0, 1, 1, 1, 2, 2, 3, 4, 4, 5, 5, 6. Display this information in a frequency table.

Step 1: The left-hand column will be the number of trees in the garden. The right-hand column will be the number of students who recorded that many trees.

No. of Trees (x)	Frequency (f)
0	4 (count the number of children who had 0 trees in their garden)
1	3 (meaning 3 children had 1 tree in their garden)
2	2
3	1
4	2
5	2
6	1

Step 2: *Check that the sum of the frequencies adds up to the correct total.*

Add up all numbers in the frequency column to get:

$$Total\ Frequency = 15$$

This is the total number of people that the teacher asked in the class.
The frequency in a table must always add up to the number of trials.

Guided Example

People in the queue at a bakery were asked if they preferred brown or white bread, and whether they bought their bread ready sliced. Complete the table below:

	Sliced	Not sliced	Total
White	7	7	14
Brown	8	3	11
Total	15	10	25

Step 1: Add the values in each row and column to find the totals. Use the totals to work out the values in empty cells, as shown in blue.

Total white : $7 + 7 = 14$
Not sliced brown : $11 - 8 = 3$
Total sliced : $7 + 8 = 15$

Now it's your turn!
If you get stuck, look back at the worked and guided examples.

1. Students in a school were asked if they have a garden, and whether they have a dog or not. Fill in the missing cells in the table below:

	Garden	No garden	Total
Dog	4	3	7
No dog	9	9	18
Total	13	12	25

Total garden = 4 + 9 = 13
No dog garden = 12 - 3 = 9
Total dog = 4 + 3 = 7

2. A group of students were asked to count the number of bedrooms in their house. The students came back with the results: 2, 2, 3, 3, 3, 3, 4, 4, 5, 5, 5, 5, 5, 5, 6, 6, 7.

   Display this information in a frequency table.

Count the number of times each number is present

No. of bedrooms (x)	Frequency (f)
2	2
3	4
4	2
5	6
6	2
7	1

Section B

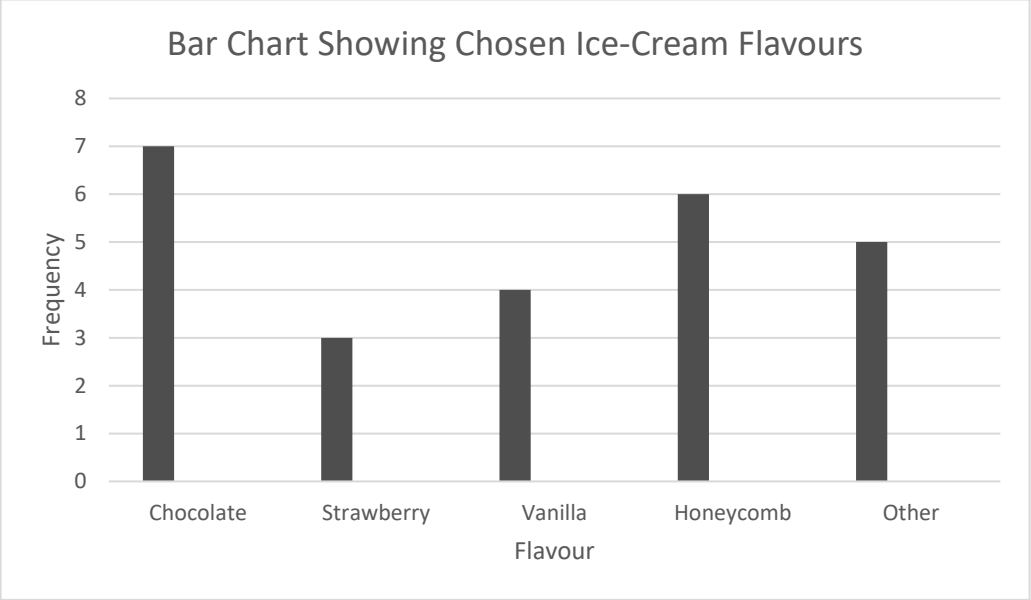
Worked Example

People at an ice-cream parlour were asked what flavour ice cream they were going to buy. Their responses are shown in the table below. Display this information in a bar chart.

Flavour (x)	Frequency (f)
Chocolate	7
Strawberry	3
Vanilla	4
Honeycomb	6
Other	5

Step 1: Draw a bar for each category. The bar's height should be equal to the frequency of that category.

For example, 7 people chose chocolate so the bar should be 7 units tall. Label each bar with the category. Give the bar chart a suitable title.



Guided Example

Create a pie chart from the data shown below about animals on George's farm.

Animal (x)	Frequency (f)
Cows	25
Sheep	100
Pigs	15
Horses	10

Step 1: Find the total frequency.

Total frequency : $25 + 100 + 15 + 10 = 150$

Step 2: Use $Angle = \frac{Section\ Frequency}{Total\ Frequency} \times 360°$ to calculate the angle that represents each animal.

Cows = $\frac{25}{150} \times 360° = 60°$

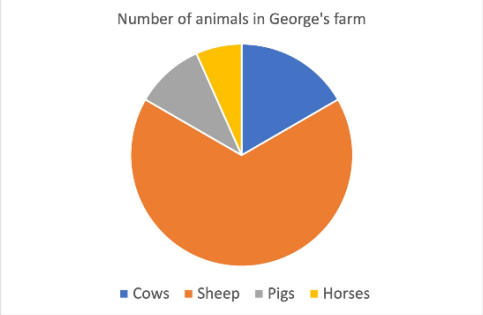
Pigs : $\frac{15}{150} \times 360° = 36°$

Sheep = $\frac{100}{150} \times 360° = 240°$

Horses : $\frac{10}{150} \times 360° = 24°$

Step 3: Draw a pie chart using a compass and protractor. Label each section using a key.

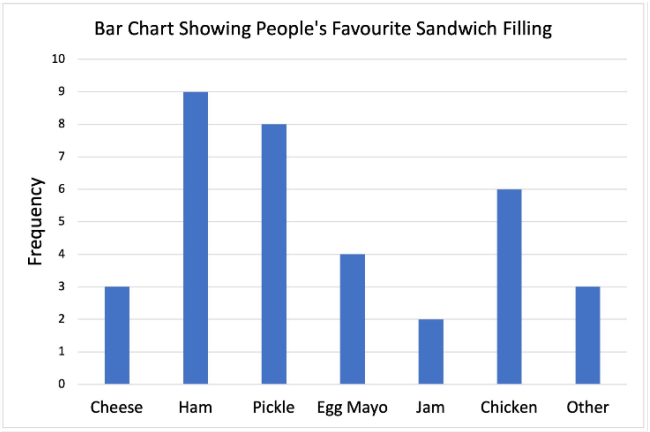
use a protractor to measure the degrees of each section while drawing



Now it's your turn!
If you get stuck, look back at the worked and guided examples.

3. People were asked what their favourite sandwich filling was. Create a bar chart from the data displayed below.

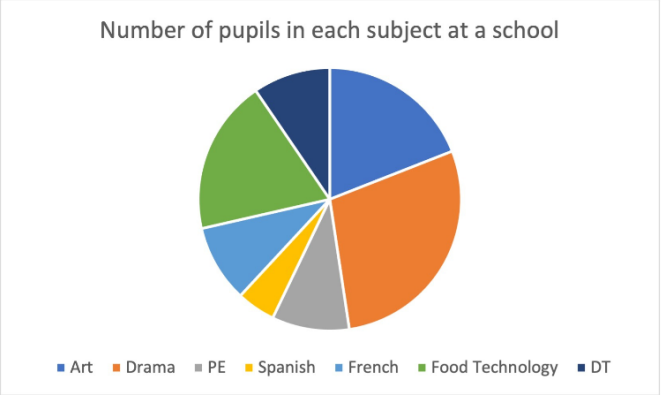
Filling (x)	Frequency (f)
Cheese	3
Ham	9
Pickle	8
Egg Mayo	4
Jam	2
Chicken	6
Other	3



↳ use the frequency as the y-axis.

4. Create a pie chart from the data shown below about how many pupils do each of the following subjects at a school.

Subject (x)	Frequency (f)
Art	20
Drama	30
PE	10
Spanish	5
French	10
Food Technology	20
DT	10



Total frequency: $20+30+10+5+10+20+10 = 105$

Art $= \frac{20}{105} \times 360° = 68.6° \approx 69°$

Drama $= \frac{30}{105} \times 360° = 102.9° \approx 103°$

PE: $\frac{10}{105} \times 360° = 34°$

Spanish: $\frac{5}{105} \times 360° = 17°$

French: $\frac{10}{105} \times 360° = 34°$

Food technology: $\frac{20}{105} \times 360° = 69°$

DT: $\frac{10}{105} \times 360° = 34°$

Section C

Worked Example

The number of times students visited the canteen each week was surveyed. Display the data in the table below in a vertical line graph.

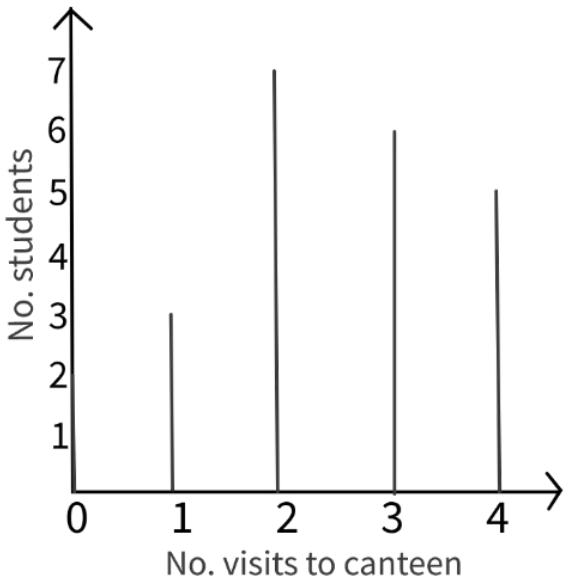
Visits to Canteen	Students
0	2
1	3
2	7
3	6
4	5

Step 1: Label the axis with headings from the table.

The frequency is shown on the vertical y-axis. The quantitate values are shown on the horizontal x-axis. Each data point along the axis must also be labelled.

Step 2: Input the data.

Draw in the lines for the frequency of each category. Make sure they are straight and evenly-spaced on the diagram.



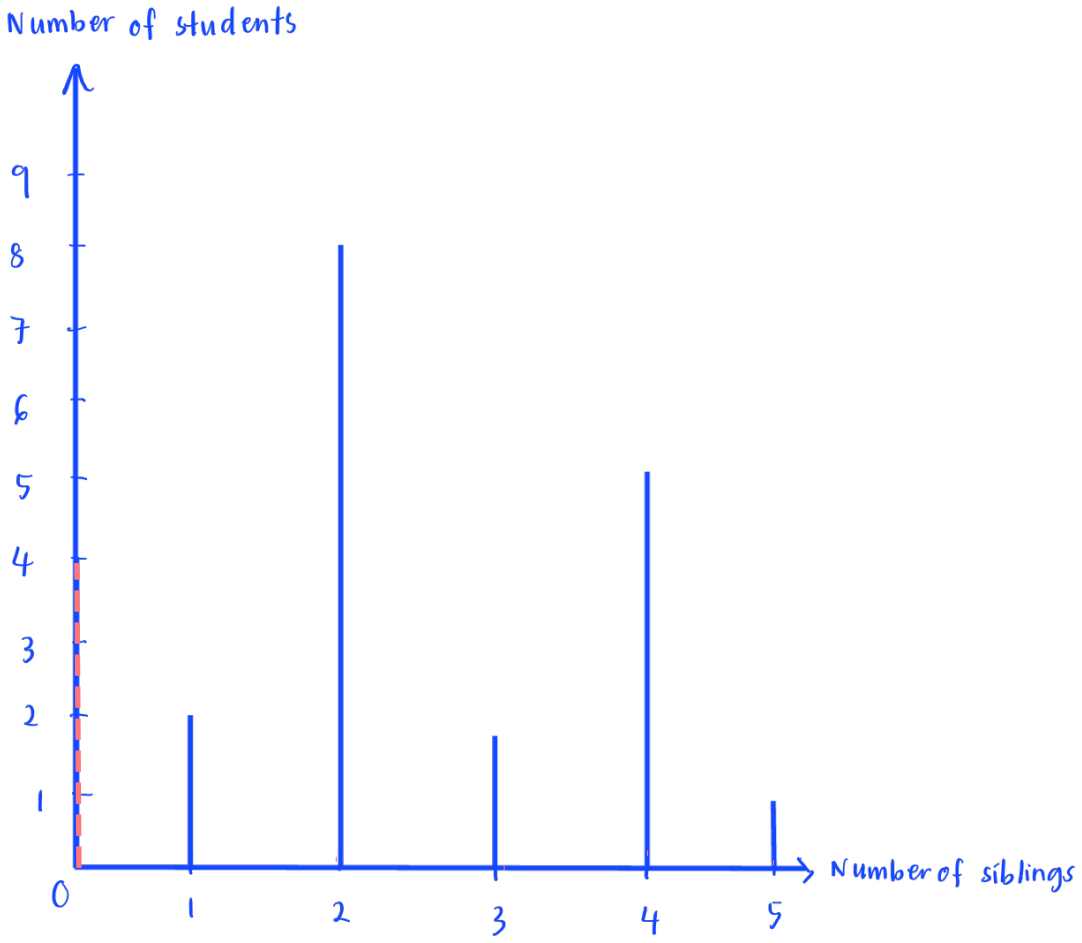
Guided Example

The number of siblings each student in a class has was recorded. Display the data shown below in a vertical line graph.

Number of Siblings	Students
0	4
1	2
2	8
3	2
4	5
5	1

Step 1: Label the x and y axis using the titles in the table above.

Step 2: Input the data in the table to start plotting the graph.



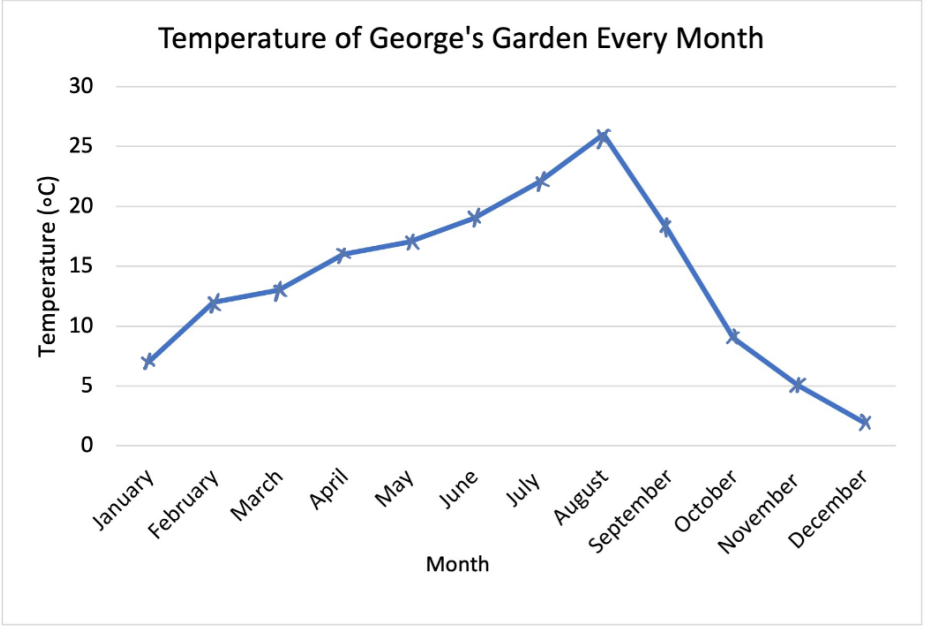
Now it's your turn!
If you get stuck, look back at the worked and guided examples.

5. George decided to record the temperature of his garden every month for a year. His results are shown below. Display the data by drawing a line graph.

x-axis

use to plot the y-axis

Month	Temperature (°C)
January	7
February	12
March	13
April	16
May	17
June	19
July	22
August	26
September	18
October	9
November	5
December	2



6. The number of DVDs sold by a shop over the course of a week was recorded.

   Display the data shown in the table below as a line graph.

Day of the Week	Number of DVDs Sold
Monday	12
Tuesday	15
Wednesday	10
Thursday	9
Friday	31
Saturday	34
Sunday	16