

# Maths Take-Away Menu

## Statistics

### Questionnaire

Explain why this question is not suitable to use in a questionnaire and how it should be amended.

“ Intelligent people read broadsheet newspapers. What type of paper do you read?”

### Calculating the Mean

The table shows the number of absent pupils from each class on a particular day.

No. of pupils Absent	No of Classes
0	1
1	4
2	3
3	9
4	2
5	1

The attendance officer uses the information to estimate the mean number of pupils absent from each class. She writes  $50 \div 6 = 8.3$ . What mistake has she made?

### Negative Correlation

Give an example of two variables that have a negative correlation and sketch their graph.

### Working with the Mean

The mean amount of money spent on a meal when 5 friends ate out was £16.40. Explain how you know that the total amount spent by the friends was £82.

### The Mode

“ The mode is 9”

Use the information in the table to explain why Joe is incorrect.

No. of siblings	Frequency
0	4
1	9
2	6
3	3
4	1

£2

### Drinks

These mixed questions will make a great accompaniment to your meal.



£2

### Rajs Earnings

Raj earns £1440 a month. The table shows how he spends his income. Draw a pie chart to show this information.

Rent	£540
Bills	£360
Food	£180
Leisure	£270
Savings	£90

£3

### Questions

The Head Chef at Heath High School is considering opening the cafeteria in the mornings to serve breakfast to the pupils. Write three questions she could include in her questionnaire.

£3

### Finding Data

There are five numbered cards placed in ascending order.



They have mean=7, median=6, mode=6 and range=9. Find the numbers on the other cards.

£2

### Find the Median

The table shows the ages of the 100 students that attend GymZone junior gymnastics class. Find the median age of the junior gymnasts.

£2

Age	6	7	8	9	10
Frequency	23	24	20	19	14

£2

£2

### Scatter Graph

The table shows the ages of 10 pupils and the amount of time in hours spent on homework a week.

£3

Age	12	7	16	9	10	15	11	14	6	15
Time	3	1.5	8	2	5	5	2	7	0.5	6

£2

Draw a scatter graph for this information, choosing an appropriate scale, and by eye draw a line of best fit.

### Time Series

The table shows the average monthly temperatures at Bristol airport from Apr - Sep. Draw a time series graph to display this information.

£2

Month	Apr	May	Jun	Jul	Aug	Sep
Temp °C	12	14	18	16	19	21



## Using this Take-Away Menu

For each sitting you will need to choose a Starter, Main Course, Dessert & Drink.

The prices vary for each course.



This symbol indicates that a calculator may be used when answering the question.

Remember to ensure that you show your workings clearly.

If you have any questions don't forget to ask your waiter (that's your teacher).

Enjoy your meal!

## Starters

These are quick questions designed to warm you up and get your appetite for maths going!



## The Median

Find the median of the following numbers: 6, 0, 2, 8, 9, 2, 3, 4, 8, 10

## Frequency Table

These are the heights, in cm, of the 24 students in 11B.

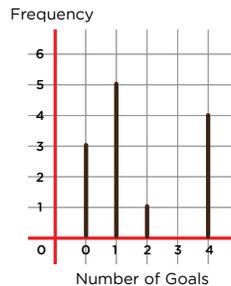
164 173 165 159 166 169  
156 160 175 168 161 155  
167 157 172 169 158 171  
159 164 168 170 169 172

Copy and complete the frequency table for this data.

Height (h) in cm	Tally	Frequency
$155 \leq h < 160$		

## Line Graph

The line graph shows the number of goals scored by a Hockey team. How many games were played by the team?



## The Mode

A spinner is spun 50 times. The results are shown in the table above. Find the mode.

Score	1	2	3	4	5
Frequency	15	9	14	7	5

## Pictogram

Draw a pictogram to show the number of sunny days in each month. Let ☀ represent 4 days.

Month	May	June	Jul	Aug
No. of days	16	8	11	18

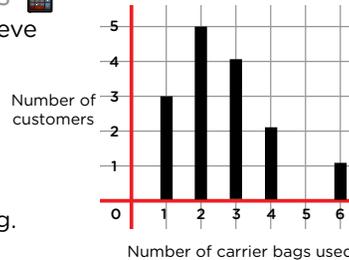
## Main Course

Your main dish is statistics based and is served with 'portions' from other areas of Maths or real life applications. These problem solving questions may take a bit more time to digest.



## Shopping Bags

A supermarket believe there has been a reduction in the number of carrier bags being used since introducing a 5p charge per bag. Last year a



sample showed the mean number of bags used per customers was 4. Use the graph to find the mean number of carrier bags used in a recent sample and compare this with the mean from the previous year. What percentage reduction in carrier bag usage has there been? How accurate are the findings? Are there any suggestions for improvement?

## Two Way Table

36 children were stopped and asked if they could tie their shoe laces. Use the following information to complete the two way table. The ratio of children surveyed under 7 to children aged 7 and over was 2:1. 75% of children under 7 could not tie their shoe laces and accounted for 90% of the children who could not tie their laces.

£1

	Can Tie Laces	Cannot Tie Laces
Under 7		
Over 7		

£2

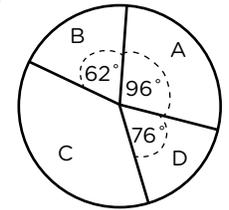
## Average Wage

5 friends have 5 different jobs with different weekly wages. Jen's wage is double Ben's wage. Len earns £20 less than Jen. Ken earns £20 more than Ben and Tom earns three times more than Ben. Their mean wage is £108. Use the information to find each persons weekly wage and find the range of their wages.

£4

## Selling Houses

The pie chart shows the commission made in a week by an estate agent selling 4 houses. A) If he made £1550 from the sale of House B find the total commission made. B) Knowing he is paid 1.5% of the sale find the selling price of House



£4

## The Bing Family

The mean age for members of the Bing family is 26. The median age is 18.5 and the range is 45. In 10 years time what will be the mean, median and range of the family's ages. Give reasons for your answers.

£3

## Dessert

"The proof of the pudding is in the eating". These questions are designed to test your understanding of key statistics concepts.



£4

## Conducting a Survey

A supermarket wants to carry out a customer service survey. The manager interviews 50 female customers between 9am and 11am on a Monday morning. Give two reasons why he may get biased results.

£2