

Averages

1. Work out the mean, mode, median and range of 1, 2, 2, 3, 8, 3, 2.
2. What number can I add to question 1 so the mean stays the same?
a) 1 b) 2 c) 3 d) 4
3. In question 1 the number 1 should have been 8, how does this affect each of the averages?
4. For question 1 I want to add another number and increase the mean by 1, what does the number need to be?
5. Gary works for a small company who are looking to hire a new employee, when advertising for the job which average should be used and why?

Here are the current salaries:

£10,000 £10,000 £10,000 £20,000 £100,000

Which average represents the data best?

Theoretical Probability

1. There are 3 red, 2 blue, 1 green and 4 white marbles. What is the decimal probability of each colour?
2. Probability cards - sort them into True, False and unsure.
3. Which of the following is an outcome?
 - a) Rolling a pair of dice.
 - b) Landing on red.
 - c) Choosing 2 marbles from a jar.
 - d) None of the above
4. What is the probability of choosing a vowel from the alphabet?
5. How could I add more marbles so the probability stays the same?
Explain.

Collecting Data

1. What is Primary and Secondary data?
2. Create a question and tally chart to collect data about pupils eye colour.

3. Cameron records the heights of 30 of his classmates. His results are shown below:

144 150 143 170 161 171 134 140 155 162

144 165 157 147 177 155 156 149 168 159

149 133 170 156 156 161 168 151 172 155

Using $130 < h \leq 140$ as an example group create a tally chart.

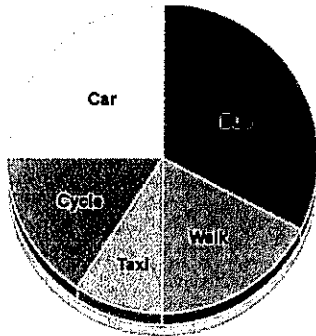
4. What is qualitative and quantitative data?
5. Have a look at the following questions. Can you spot any problems with them?
 - You support Arsenal, don't you?
 - Are you a criminal?
 - Do you think maths is:
 - a) A very interesting subject
 - b) Quite an interesting subject?

Pie charts

1. Draw a pie chart to show this data

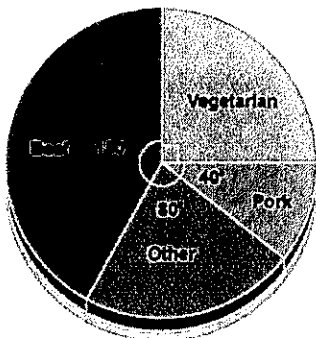
Sport	Football	Tennis	Rugby	Other
Total	40	25	10	15

2. This pie chart shows the results of a survey to find out how students travel to school.



- a) What is the most common method of travel?
b) What fraction of the students travel to school by car?
c) If 6 students travel by car, how many people took part in the survey?

3. A supermarket chain sold 3600 packets of sausages last month. The pie chart shows the different flavours.



- How many packets of vegetarian sausages were sold?
4. For the pie chart above how many packets of beef sausages were sold?
5. If there were a total of 1800 people in a review, what degrees would be needed to draw a pie chart to represent 400 of them? Explain.

Stem and Leaf Diagrams

1. Complete a stem-and-leaf plot for the following list of grades on a recent test:

73, 42, 67, 78, 99, 84, 91, 82, 86, 94, 84

2. **Show** using the stem and leaf diagram what the median, range and mode is.

3. Spot the mistakes in each of the answers about this stem and leaf diagram.

1		2 2 3 7 7
2		1 4 4 4 5 5 6
3		0 2 5

Key: 1 | 2 means 12 items

a) What is the mode?

Mode = most often ... 4

b) What is the range?

Highest – lowest... $7 - 0 = 7$

c) Work out the median.

0, 2, 2, 2, 3, 4, 4, 4, 5, 5, 5, 6, 7, 7 Median = 4

4. In question 3 how many values are great than 24? How many less than 24? Why might this be?

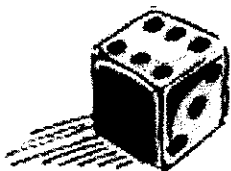
5. Why is this set of data hard to create a stem and leaf diagram for? What could we do to make it easier? Explain.

23.25, 24.13, 24.76, 24.81, 24.98, 25.31, 25.57, 25.89, 26.28,
26.34, 27.09

True or False? Explain if false.

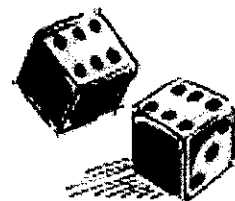
A

When you roll a fair six-sided die, it is harder to roll a six than a four.



B

Scoring a total of three with two dice is twice as likely as scoring a total of two.



C

In a lottery, the six numbers 3, 12, 26, 37, 44, 45 are more likely to come up than the six numbers 1, 2, 3, 4, 5, 6.

D

When two coins are tossed there are three possible outcomes: two heads, one head or no heads. The probability of two heads is therefore $\frac{1}{3}$.

E

There are three outcomes in a football match: win, lose or draw. The probability of winning is therefore $\frac{1}{3}$.



F

In a 'true or false?' quiz with ten questions, you are certain to get five right if you just guess.

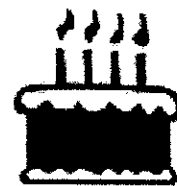


G

If you toss a fair coin five times and get five heads in a row, the next time you toss the coin it is more likely to show a tail than a head.

H

In a group of ten learners, the probability of two learners being born on the same day of the week is 1.



I

If a family has already got four boys, then the next baby is more likely to be a girl than a boy.



J

The probability of getting exactly three heads in six coin tosses is $\frac{1}{2}$.