

Data handling diagnostic test

D grade:

1. What fraction of the children eat 2 packets of crisps a week?
2. What is the modal amount of packets?
3. What is the median no. of crisps eaten?
4. What percentage of children eat 4 packets of crisps?
5. If you were to pick a child at random, from this sample, what is the probability that they eat less than 3 packets of crisps a week?
6. Draw a pie chart to show this data.

No. packets of crisps eaten in a week	No. of children
1	6
2	4
3	2
4	9
5	4

C grade:

7. In a group of students the following data was collected:
 - a) Explain why the probabilities do not add up to 1.
 - b) What is the probability of choosing a student who is right handed?
 - c) If the data was collected from 50 students how many of them had long hair?

characteristic	probability
female	0.6
Left-handed	0.4
Long hair	0.2
Liked science	0.7

8. Draw a frequency polygon to show the speed of cars on the motorway.

Speeds of cars on a motorway	
speed	No. of cars
$40 \leq \text{speed} < 50$	10
$50 \leq \text{speed} < 60$	47
$60 \leq \text{speed} < 70$	103
$70 \leq \text{speed} < 80$	40

9. Which class interval contains the median mark?

10. Draw possible scatter diagrams to show
 - a) length of hair compared to ability in maths,
 - b) the age of a teenager and their weight
 - c) the speed of a car on a motorway and the time taken to travel 50 miles on that motorway.

11. This data gives the ages of the males and females in a cinema.

Put these numbers into a stem and leaf diagram:

Males: 23, 34, 69, 70, 35, 25, 26, 54, 34, 6, 53, 25, 55, 37, 25, 64, 63, 27, 35, 33, 27, 65, 35

Females: 35, 55, 43, 23, 9, 37, 54, 33, 65, 37, 43, 55, 64, 37, 47, 44, 65, 44, 53, 41, 33.

Write a sentence comparing the two sets of data.

12. The table below shows the no of visitors to a seaside town in thousands. Plot the data on graph paper, and plot a 4 point moving average alongside it. Describe the trend.

year	1999	1999	1999	2000	2000	2000	2000	2001	2001
quarter	2	3	4	1	2	3	4	1	2
visitors	10	15	6	2	12	20	16	8	10

B grade:

Data handling diagnostic test/int and higher

13. Find the mean speed of the cars on the motorway (using the previous chart).

14. A 5 sided spinner labelled 0 – 4 was spun 100 times with these results:

Score	0	1	2	3	4
frequency	3	15	49	17	16

- Give the relative frequency, to 2dp, of the spinner giving a score of 3.
- Do you think the spinner is biased? Why?
- The spinner was spun another 75 times...predict the number of times it scores 4.
- Is this an accurate prediction? Why?

15. Would you use theoretical probability or relative frequency to find the probability of dropped toast landing jam side down?

16. This table shows how many hours a year 11 group spent in revision the week prior to their GCSEs.

- Make a cumulative frequency table for the data.
- Draw the cf graph
- Estimate the mean amount of time spent
- Estimate the inter-quartile range.
- Estimate how many students spend more than 35 hours revising?
- Draw a box plot for the data

No of hours	No of students
$0 < h \leq 10$	1
$10 < h \leq 20$	7
$20 < h \leq 30$	11
$30 < h \leq 40$	10
$40 < h \leq 50$	3

A Grade

17. This table shows the distribution of heights of trees in a wood.

- Draw a histogram for the data
- Use the histogram to estimate the no of trees whose heights are between 10 and 20m.

Height, metres	frequency
$0 < h \leq 5$	8
$5 < h \leq 7.5$	12
$7.5 < h \leq 10$	18
$10 < h \leq 15$	7
$15 < h \leq 25$	6