Statistics: Comparing Data
S1-S3, National 4

1. 20 light bulbs were tested to see how long they would last. The lifetimes of the bulbs are given below in hours.

1503	1469	1511	1494	1634	1601	1625	1492	1495	1505
1487	1493	1006	1512	1510	1599	1501	1486	1471	1598

The manufacturing company claims that the ***average*** lifetime of a light bulb is 1500 hours.

Do you agree with their claim?

The mean lifetime of the sample is 1499.6 hours a little below their claim

2. Your parents tell you that they have been thinking about the amount of pocket money that they give you. They have been asking other parents and give you a list of the amounts of pocket money your friends receive.

£9	£11	£15	£13	£9	£20	£12	£18	£10

They ask you to say whether you would like to have the mean, the median or the mode of the above figures.

Mean = £13 ←

Mode = £9

Which one would you choose and why?

Mean as it is the greatest. Median = £12

3. At the World Athletic Championships the mean time for the first semi-final of the 100 metres was 9.98 seconds.

For the second semi-final the times, in seconds, were:

10.21	10.04	9.92	9.98	10.04	9.94	9.9	9.73

Was the mean time for the second semi-final better than the mean time for the first semi-final?

Mean (2) = 9.97

Give a reason for your answer.

Yes slightly as 9.98 > 9.97

4. Colin played eight games of cricket.

The number of runs he scored in each game were:

45 88 5 79 107 43 90 15.

Calculate **(a)** the mean **(b)** the range.

a) Mean = 59
b) Range = 102

Paul also played eight games.
His mean was 65 runs and his range was 52 runs.

(c) Write two comments comparing Paul's performance with Colin's performance. On average Paul scored more runs and he was more consistent than Colin

5. Six students in class 1A sat a Maths test, and their marks were:

35 37 40 42 43 79.

Calculate **(a)** the mean **(b)** the range.

a) Mean = 46·5 b) Range = 44

Six students in class 1B sat the same Maths test.
Their mean mark was 44 and their range was 50.

(c) Write two comments comparing 1A's marks with 1B's marks.

1B's scores were higher on average but less consistent compared to 1A.

6. The weights, in kilograms, of eight people are shown below.

83	81	96	93
92	90	92	85

(a) Calculate the mean weight.
(b) Calculate the range.

a) Mean = 89
b) Range = 12

Each person then followed an exercise programme for 2 weeks.
At the end of the exercise programme they were weighed again.

After the exercise programme: the mean was 86 kilograms, and the range was 19.

(c) Write two comments comparing the results before training with the results after training.

Mean weight has decreased by 3kg but the weights were less consistent after the programme.