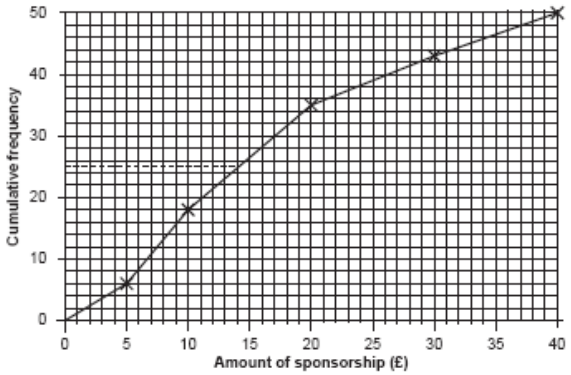
Worksheet 4.8A

1. **a)** LQ = 7 UQ = 12 IQR = 5 Range = 10
   b) LQ = 5 UQ = 8 IQR = 3 Range = 6
2. **a)** 42 − 21 = 21 minutes **b)** 24 minutes
   c) 30 minutes **d)** 30 − 24 = 6 minutes
3. **a)** 46 − 3 = 43 minutes
   b) **i)** 11 minutes **ii)** 31 minutes
   c) 31 − 11 = 20 minutes
4. **a)** 10 − 0 = 10 **b)** **i)** 3 **ii)** 5
   c) 5 − 3 = 2

Worksheet 4.3B

1. **a)** 3810 kg **b)** 3810 ÷ 40 = 95.3 kg
   c) $\frac{20 - 19}{17} \times 10 + 95 = 95.6$ kg (or 95.9 kg using 20.5^{th} value)
2. **a)** 120 **b)** 3204 ÷ 120 = 26.7 years
   c) $\frac{60 - 24}{49} \times 6 + 22 = 26.4$ years (or 26.5 years using 60.5^{th} value)
   d) The data are grouped, so using mid-points.
3. **a)** 600 ÷ 30 = 20 minutes
   b) $\frac{15 - 7}{11} \times 10 + 10 = 17.3$ minutes (or 17.7 minutes using 15.5^{th} value)
   c) The median is better (because data are skewed).
4. **a)** 805 ÷ 50 = £16.10
   b)



Median ≈ £14

Worksheet 1.6B

1. Random sampling is when every possible sample of the correct size has an equal chance of being chosen. In non random sampling every member does not have an equal chance of being chosen.
2. **a)** Quota sampling
   b) Clear instructions are given about the amount of each section of the population that is to be used. The population is divided up into sections often by age, gender etc. This is not random sampling and does not require a sampling frame.
3. Cluster sampling
4. **a)** It would take too long and would produce a lot of data to handle.
   b) There are 1400 students altogether. She will pick $\frac{100}{1400} = \frac{1}{14}$ of each of the 14 groups.

	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13
Girls	8.9	7.1	8.6	7.1	7.1	5.4	4.3
Boys	7.5	8.6	7.9	8.2	8.6	5.7	5.0

   But we cannot have parts of students so rounding is needed. If we round correctly we find we get a total of 101 as Year 7 boys would be 8. We only need 100 so we look for the most suitable number to reduce by one. This will be the Year 7 boys as 7.5 is the lowest figure that rounds up. We could alternatively decided to use a sample of 101.

	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13
Girls	9	7	9	7	7	5	4
Boys	7 (8)	9	8	8	9	6	5

   This is the number that would be chosen randor
   each group. She will number each group of stuc
   For each group she will use a random number g
   to choose appropriate numbers. She we take a
   sample from each group.
5. A sampling frame is an ordered list so all the plants
   greenhouse are numbered to form a list of plants.
6. **a)** The population to be sampled is split up into gr
   clusters. Certain clusters are chosen randomly
   the sample.
   b) It may not be representative of the whole popul
7. **a)** A list of all the members of the health club.
   b) Stratified sampling
8. **a)** A sampling frame of a list of the office staff is ne
   (1 to 75)
   $\frac{75}{15} = 5$, so you need to take every fifth member
   office staff.
   The starting point is worked out randomly. Use
   number generator to find a random number bet
   and 5. Start at the person with that number on t
   and then take every fifth person.
   b) Only the starting point is random.