Single and Back to Back Stem and Leaf Diagrams – www.m4ths.com

(1) The scores of some boys and girls exams are shown below:

Boys	8	12	13	21	14	9	16	22	13
Girls	11	16	23	21	18	19	17	15	22

(a) Represent the data using 2 separate ordered **single** stem and leaf diagrams for the Boys and the Girls.
(b) Write down the modal score for (i) The Boys (ii) The Girls (iii) Both genders combined.
(c) Find the range of scores for (i) The Boys (ii) The Girls (iii) Both genders combined.
(d) What % of students scored more than 20?
(e) Use an ordered **back to back** stem and leaf diagram to represent the data. (Remember a key)
(f) Find the median score of the boys results and the median score of the girls results.
(g) Explain what the median represents in a data set.
(h) Compare the distribution of the two sets of scores in context (focus on the median and the range).

(2) The heights of the boys and girls in Class 10Z are shown below. The heights are in cm.

Boys	147	135	153	153	152	167	147	198	136	129	138	129
Girls	121	124	131	119	121	123	131	110	117	131	140	118

(a) Write down the value of the outlier(s) in the data set. Explain why the value(s) is an outlier.
(b) Draw an ordered (i) Single stem and leaf diagram for each gender (ii) Back to back stem and leaf diagram
(c) Write down the modal height for each gender.
(d) Find the median height of the boys and the median height of the girls.
(e) Find the range of the heights for each gender.
(f) Explain why the mean wouldn't be a good average to use for the boys height.
(g) Compare the distribution for the boys and the girls. Explain how the median and range can be used here.

(3) The table below shows the ages of male and female members of a sports club

Male	18	11	23	14	16	67	43	32	84	17	18	19	31
Female	16	23	41	19	52	42	35	23	19	27	72	31	23

(a) Represent the data using an ordered (i) Single stem and leaf diagram for each gender (ii) Back to back stem and leaf diagram.
(b) Find the modal age of the members in the sports club.
(c) Find the age ranges for the male and female members of the sports club.
(d) Find the median age for the men, the women and the combined members of the sports club.
(e) Comment on the distribution of the ages.
(f) Find the mean age of the men, the women and the combined members.
(g) Explain which is the better average to use in this question, the mean or the median.

(4) The back to back stem and leaf diagram below shows the ages of some members of a family.

Male		Female
5, 2, 0	1	5, 8
5, 1	2	1, 6, 9, 9
5, 5, 5, 3, 1	3	
5, 2	4	1, 2, 6, 8
9, 8, 6, 1, 1	5	5
6, 5, 5, 0	6	0, 1
2, 1, 1, 0, 0	7	2

(a) Complete the stem and leaf diagram.
(b) Find the modal age, the median age and the age range for **both** genders.
(c) Complete the frequency table below for ALL members of the family.

Age Range	Frequency	Cumulative Frequency
0-20		
21-50		
51-80		

(d) Find the mean age of the family members.
(e) Draw a pie chart to represent the information.