Stem and leaf diagrams (7 & 8)

A *stem and leaf diagram* is a useful way of showing raw data in an ordered way. The tens digit is generally taken as the *stem* and the unit as the *leaf*.

Example. the ages of 20 people at a party are shown:

7	12	53	31	26	21	26	29	27	20
33	55	15	11	10	8	34	26	24	22

The stem and leaf diagram would look as follows:

Stem	Leaf								
0	7	8							
1	0	1	2	5					
2	0	1	2	4	6	6	6	7	9
3	1	3	4						
4									
5	3	5							

Key:
2 | 4 means 24

Notice how:

- We have a key.
- The leaves are in order.
- The leaves are in neat columns.

The diagram is useful for answering questions:

- What was the range in ages? Range $= 557 = 48$.
- What was the median age? The middle person is between the 10th and 11th so this is between 24 and 26. The median is 25 years.
- Comment on the ages: Most people at the party were in their twenties. This is supported by an average age of 25 years. However, there was a large variation in ages, shown by a range of 48. Perhaps it was a 21st birthday party with mainly friends but some family (parents, older siblings, younger nieces and nephews).

Two sets of data can be compared using a back-to-back stem and leaf diagram. The following data shows the heights of 10 men and 10 women:

Males	167	159	162	176	179	184	192	183	190	177
Females	153	159	146	161	172	165	169	155	140	152

To make a back-to-back steam and leaf diagram we put the stems in the middle, the males to the left and the females to the right:

Males			Females				
		14	0	6			
	9	15	2	3	5	9	
7	2	16	1	5	9		
9 7	6	17	2				
4	3	18					
2	0	19					

Key:
15 | 2 means 152

It is now much easier to compare the heights of these two groups. For example, we can see that men tend to be taller but have a wider range of heights.