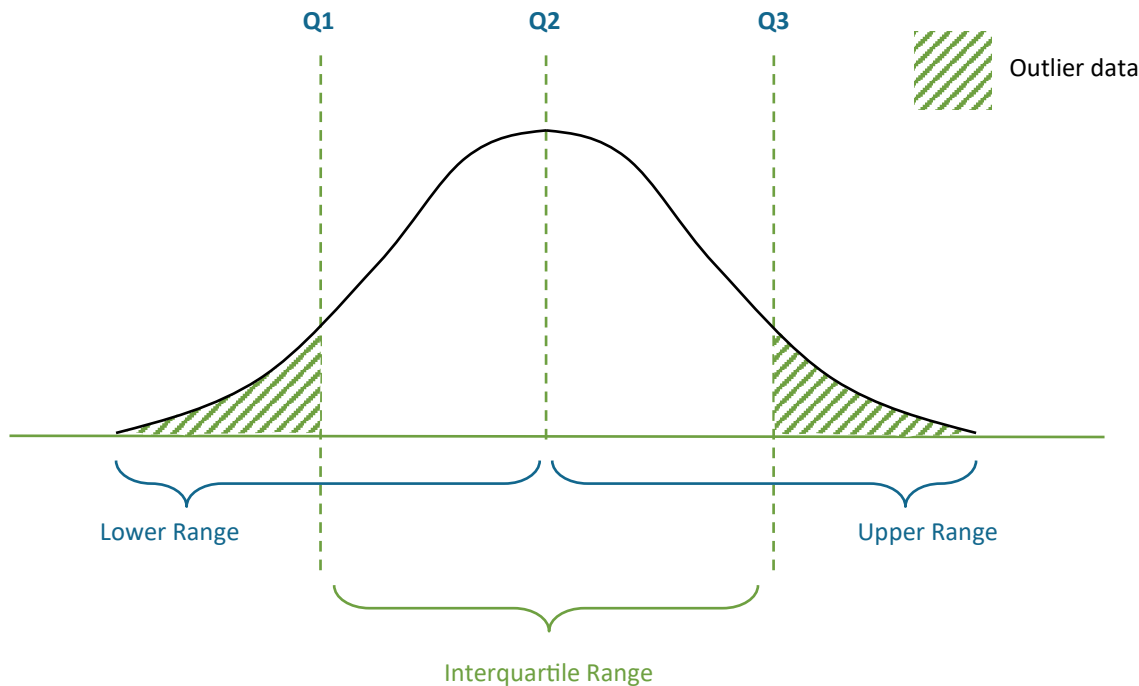


Interquartile Ranges

The **Interquartile Range** is a measure of the spread or **dispersion** of data. As this range removes **outliers** from the observed range of data, the interquartile range is viewed as a truer representation of the spread of data.



Q2 is the median in the range of data (the middle value when data is placed in numerical order).

Q1 (or lower quartile) is the median value of the lower range of data.

Q3 (or upper quartile) is the median value of the upper range of data.

Worked example:

A geographer is measuring the size of beach sediment in two areas of a shingle beach; Area A and Area B. They wish to find out the relative spread of the data for each site to compare the sites using their interquartile ranges.

The following data was collected:

Area A (Size of sediment in mm)			Area B (Size of sediment in mm)		
15	17	25	5	3	21
27	31	8	4	7	12
11	21	32	11	7	7
39	10	44	9	10	8
6	50	52	16	8	23

The data was placed in numerical order and the median (Q2) identified:

Area A: 6 8 10 11 15 17 21 25 27 31 32 39 44 50 52

Area B: 3 4 5 7 7 7 8 8 9 10 11 12 16 21 23

The Q1 of each area is then calculated:

Area A: 6 8 10 11 15 17 21

Area B: 3 4 5 7 7 7 8

Followed by the Q3:

Area A: 27 31 32 39 44 50 52

Area B: 9 10 11 12 16 21 23

The interquartile range for each area is then calculated by subtracting Q1 from Q3

$$IQR^A = 39 - 11$$

$$IQR^A = 28$$

$$IQR^B = 12 - 7$$

$$IQR^B = 5$$

Therefore in this example, we can see that the range of beach sediment sizes in Area A is far greater (or wider) than in Area B.