Creating Run Charts in MS Excel

1. **Create Time Series Using Column A**

- Ensure that you leave Cell A1 blank.
- Populate Time Series (1,2,3 etc) in Column A from Cell A2 onwards (see example demo)

	A
1	
2	1
3	2
4	3
5	4
6	5
7	6
8	7
9	8
10	9
11	10
12	11
13	12
14	13
15	14
16	15
17	16
18	17
19	18

2. **Measurement Data will be recorded in Column B**

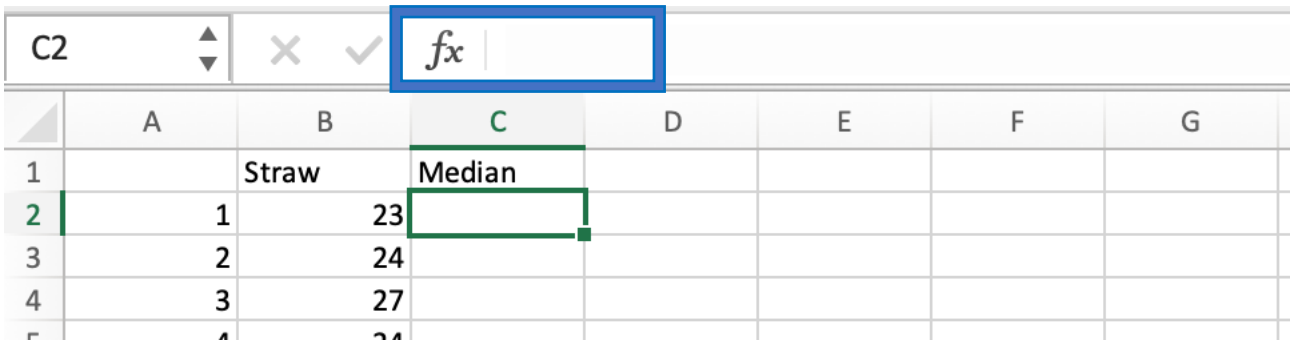
- Column B: Insert the title of the Measure in Cell B1 – in the case of the Straws Exercise, this can be named '**Straw**'.
- Sequential data can then be recorded alongside the time series in Cell B2 onwards.

	A	B
1		Straw
2	1	23
3	2	24
4	3	27
5	4	24
6	5	25
7	6	27
8	7	23
9	8	21
10	9	19
11	10	26
12	11	28
13	12	26
14	13	25
15	14	23
16	15	24
17	16	22
18	17	20
19	18	21

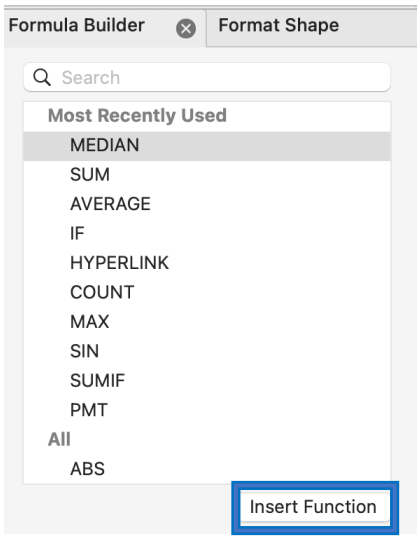
3. **Median Line will be generated using Column C**

- Type ‘Median’ into Cell C1, this will then appear in the legend in the Run Chart when generated.

- To Calculate the Median: Select Cell C2 and select ‘***fx***’ from the Toolbar

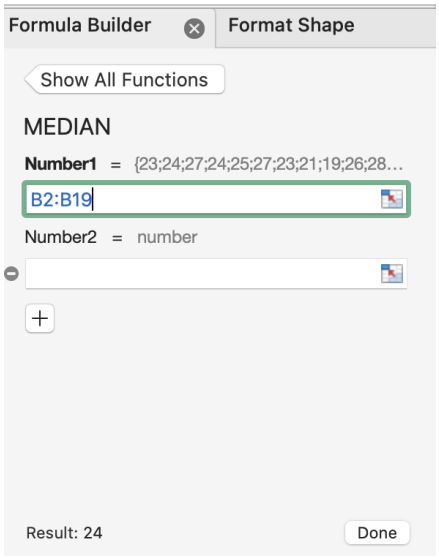


- The ‘**Formula Builder**’ (Mac) or **‘Insert Function’** (PC) menu will appear. Select ‘**Median**’ from the menu and select ‘**Insert Function**’ (Mac) or ‘**OK**’ (PC) (if median does not appear you can search for it using the search bar in the menu).



- In the next menu under the ‘Number 1’ section enter the Cell reference by highlighting all the cells in Column B that have data recorded.

- This will automatically populate the cell (eg. B2:B19) referring to the first and last cell in the highlighted selection.



- Select '**Done**' (Mac) or **'OK'** (PC).

- The **Median Value** for the data set will now appear in Cell C2.

- Type this value into Cell C3 (NB. Do not 'Copy' as this will also copy the formula, but the reference cells will be displaced from the original calculation and thus generate a different value for the Median in subsequent cells).

- Select Cell C3 and point to the bottom right-hand side of the border of that cell, dragging it down into the cells you want to copy into. This will create your Median Line and thus should match your data entered in Column B.

- All the values should now be the same in Column C2 onwards (C1 is the title 'Median')

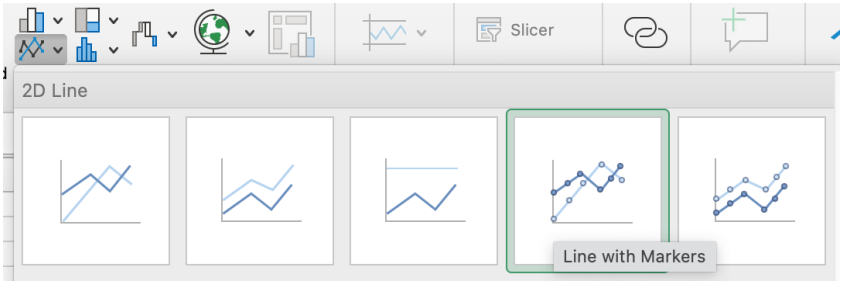
	A	B	C
1		Straw	Median
2	1	23	24
3	2	24	24
4	3	27	24
5	4	24	24
6	5	25	24
7	6	27	24
8	7	23	24
9	8	21	24
10	9	19	24
11	10	26	24
12	11	28	24
13	12	26	24
14	13	25	24
15	14	23	24
16	15	24	24
17	16	22	24
18	17	20	24
19	18	21	24

4. Create the Run Chart

- Highlight all the data in Columns B and C that you wish to generate the Run Chart, Including the titles in B1 and C1.

- Select '**Insert**' form the top of the Toolbar.

- Select the '**Line Chart**' icon.



- From the drop-down menu select '**Line with Markers**', it is usually the 4th option.

- The Run Chart will now appear!

5. Refining the Run Chart

- To remove the data points or '**markers**' from the Median Line: Double click on the Median Line so that the Line and its markers are highlighted.

- The **Format Data Series** menu will open on the right-hand side.

- Select the **Fill and Line Icon** (looks like a tipping bucket!)

- Select **Marker** then **Marker Options** from the menu, then select **None**.

- Close the Format Data Series menu and the Markers should disappear to leave a flat Median Line. *If for some reason some of the markers remain – select the remaining markers and repeat the above to remove*.

- Format the Y axis by selecting and adjusting the Min and Max values in the menu, so that the data occupies the middle third of the chart.

- Remind the attendees that once they are happy with the chart, it can be copied into Powerpoint for annotation, such as PDSA etc.
