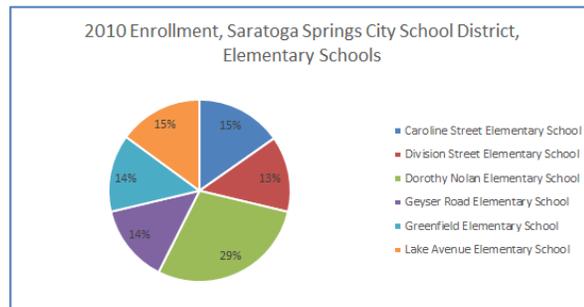# 04 – Charts

## 1. Chart Types and Dimensions

Types

Pie – view what part data is when compared to the whole



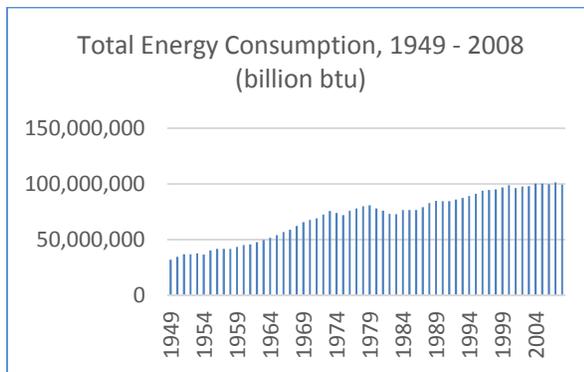Bar or Column – view data over a series (usually time)



Chart Dimensions

You can alter a chart's dimensions using the same techniques that we used with images in the Formatting topic (Topic 2). You can move and resize them, drag the corner points (to resize and maintain the aspect ratio), drag the mid points (to resize and distort the aspect ratio)

Example Data and Corresponding Charts

*Data set examples – what is the appropriate chart type?*

Superbowl score difference over years

Student score distribution

Oil price changes
Racial breakdown – City of Saratoga Springs

## 2. Creating a Chart

2.1 Create a Pie Chart – use the *saratoga_schools.xlsx* Excel file

(1) Select the data that will be the subject of the chart



(2a) On the Insert Tab/Charts group – choose one of the pie charts

(2b) Or choose Pie from the Charts tab of the Quick Analysis tool.
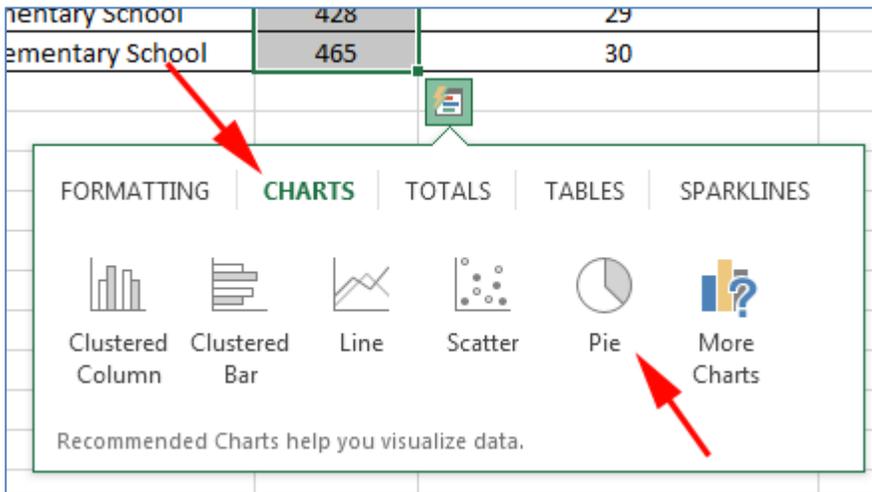


2.2 Create a Column Chart - use the *energy_consumption.xlsx* Excel file

Make a Total column to use for the data for the chart

(1) Select the data that will be the subject of the chart and click on the Quick Analysis button. (Or, on the Insert Tab/Charts group – choose one of the column charts.)

| | F | G | H | I | J | K | L | |
|---|---|---|---|---|---|---|---|---|
| on | Total | | | | | | | |
| | 31,981,668 | | | | | | | |
| | 34,615,747 | | | | | | | |
| | 36,973,843 | | | | | | | |
| | 36,747,743 | | | | | | | |
| | 37,664,506 | | | | | | | |
| | 36,639,291 | | | | | | | |
| | 40,207,941 | | | | | | | |
| | 41,754,427 | | | | | | | |
| | 41,787,314 | | | | | | | |
| | 41,645,017 | | | | | | | |
| | 43,465,783 | | | | | | | |
| | 45,086,864 | | | | | | | |
| | 45,739,122 | | | | | | | |
| | 47,827,747 | | | | | | | |
| | 49,646,037 | | | | | | | |
| | 51,817,318 | | | | | | | |
| | 54,017,100 | | | | | | | |
| | 57,016,747 | | Quick Analysis (Ctrl+Q) | | | | | |
| | 58,908,441 | | | | | | | |
| | 62,419,153 | | Use the Quick Analysis tool to | | | | | |
| | 65,621,137 | | quickly and easily analyze your data | | | | | |
| | 67,844,040 | | with some of Excel's most useful | | | | | |
| | 69,289,272 | | tools, such as charts, color-coding, | | | | | |
| | 72,704,343 | | and formulas. | | | | | |
| | 75,701,029 | | | | | | | |
| | 73,983,778 | | | | | | | |
| | 71,998,551 | | | | | | | |
| | 76,004,760 | | | | | | | |
| | 77,992,135 | | | | | | | |

AVERAGE: 71,371,217    COUNT: 60    SUM: 4,282,273

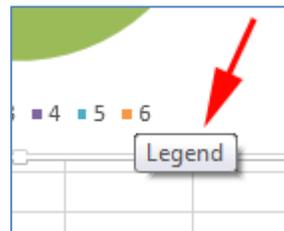(2) Choose Clustered Column from the Charts tab of the Quick Analysis tool
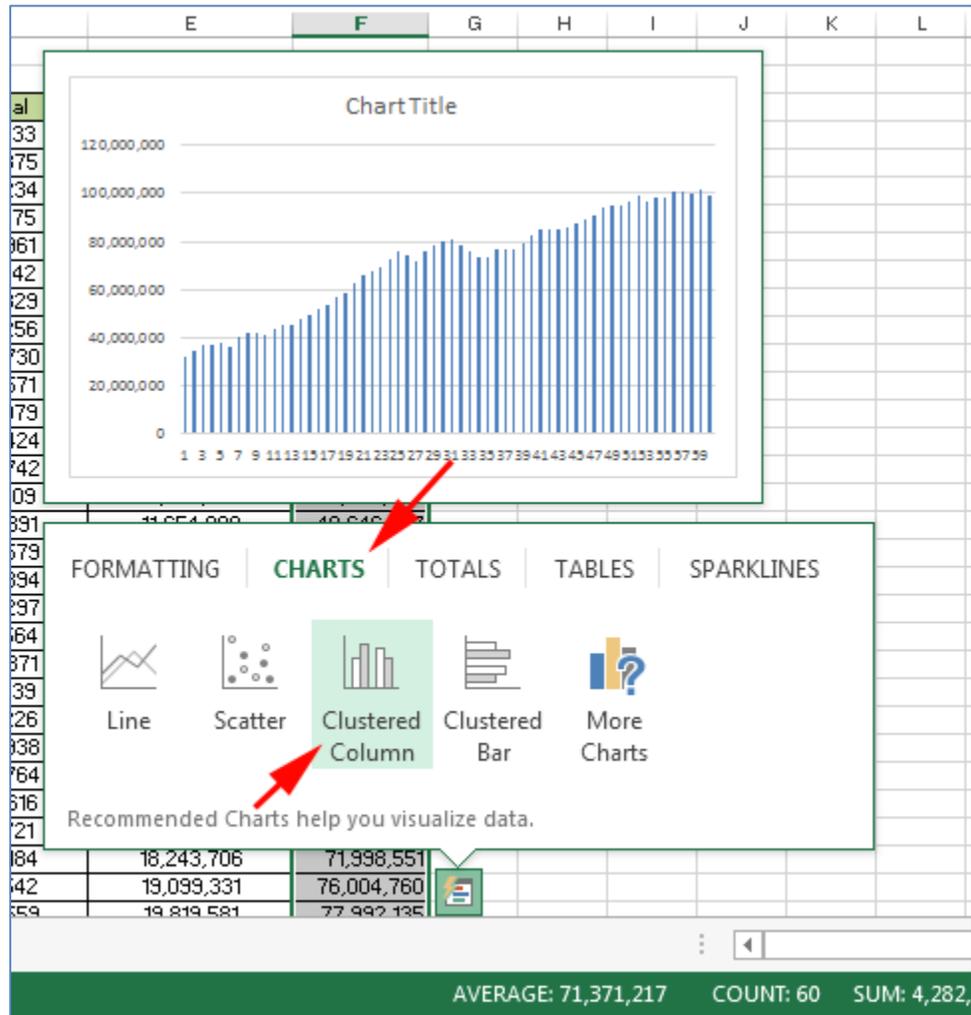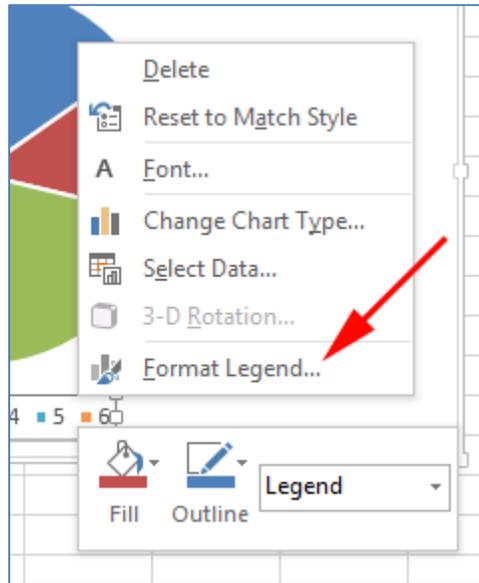


## 3. Chart Parts

3.1 Identifying and Modifying Chart Parts

Rest mouse over a chart part to see that chart part's name

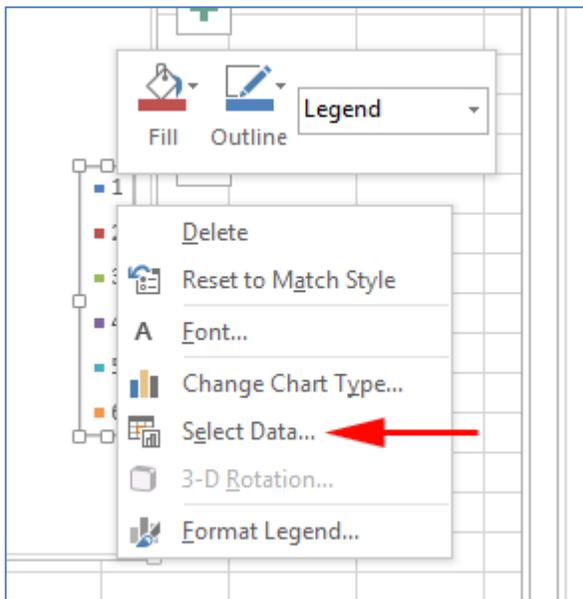Right click a chart part to modify it

Choose Format *(chart part)* to show
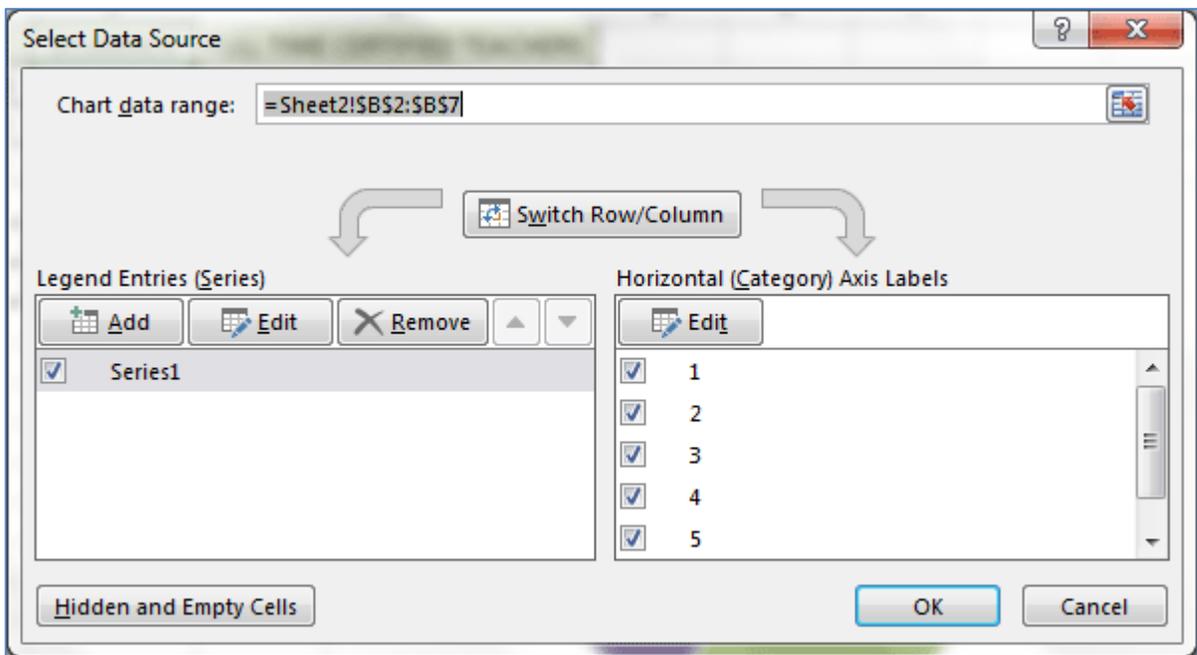formatting options
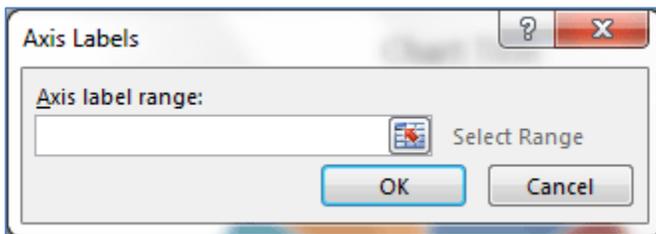


3.2 Modifying the Legend on a Pie Chart

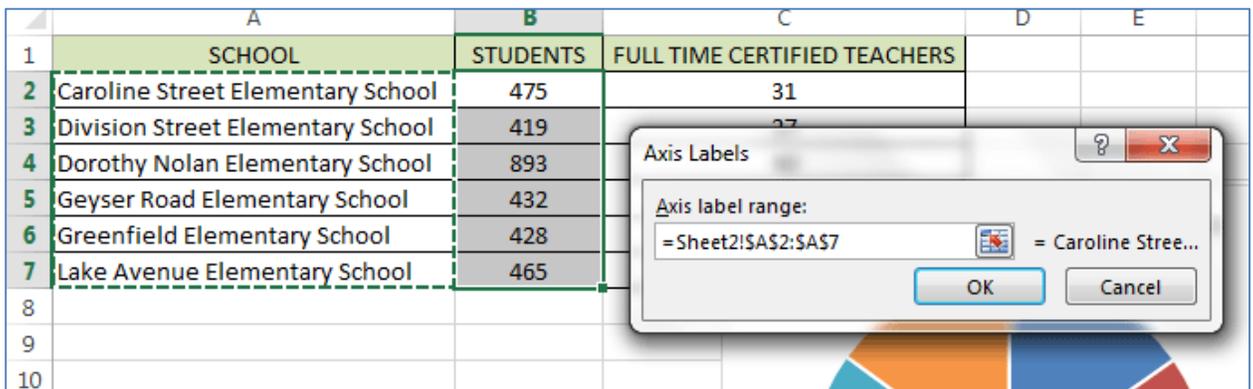(1) Right click on the Legend, choose Select Data…

(2) This shows the Select Data Source dialog box.  Click the Edit button over the Horizontal (Category) Axis Labels list box.
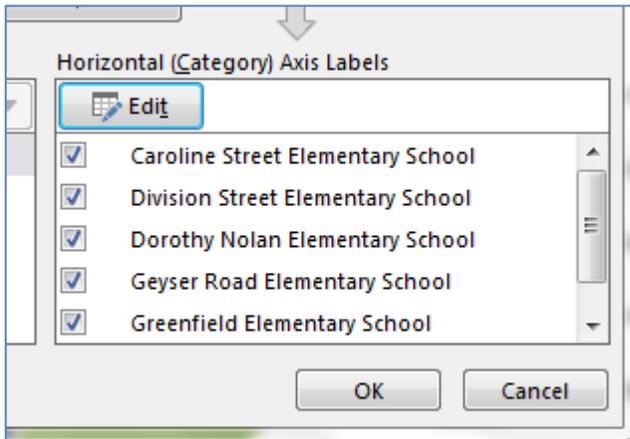


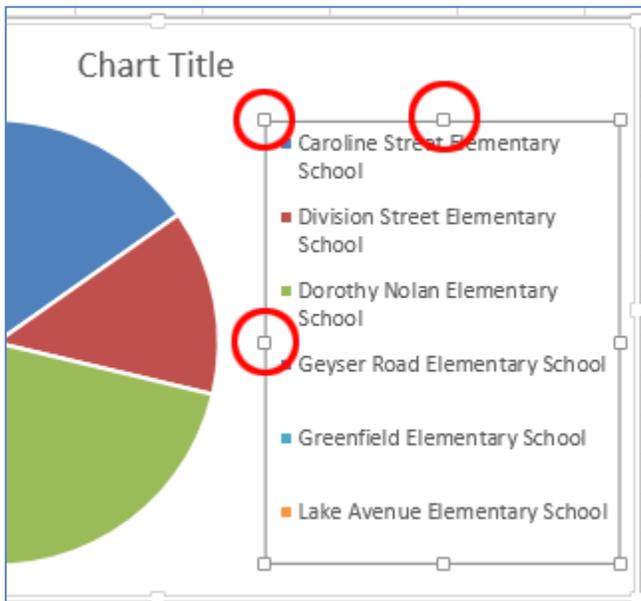(3) This shows the Axis Labels dialog box.

(4) Use this to select the range of cells that have the desired contents for the legend and click the OK button.
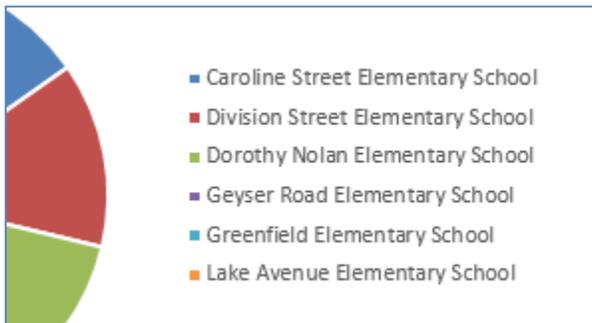


(5) The new legend contents show in the Horizontal (Category) Axis Labels list box.

(6) You can resize chart parts the same way you resize images – by using the corner and/or mid-point drag handles
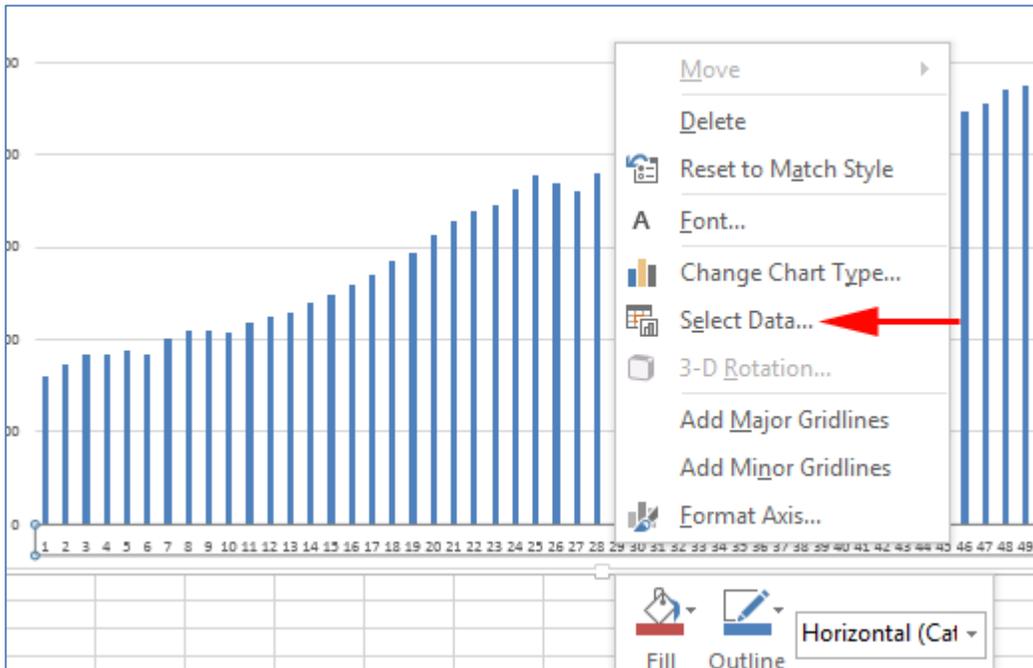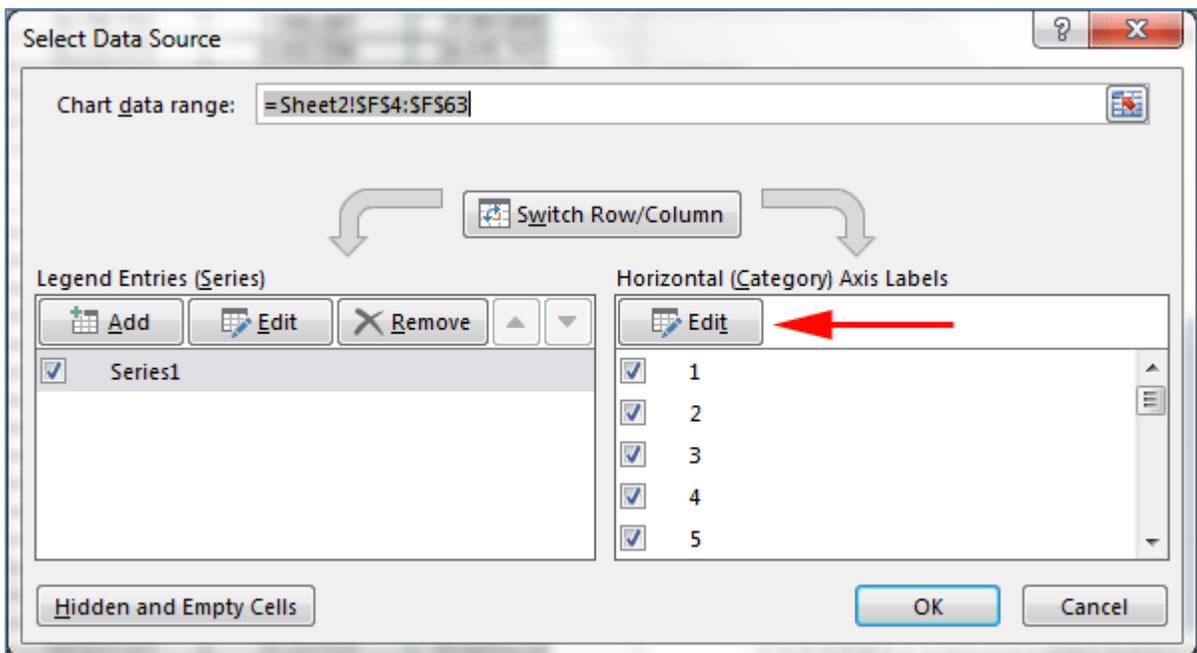


Example of a resized legend

3.3 Modifying the Horizontal Axis Labels on a Bar Chart

(1) Right click on the Legend, choose Select Data...



(2) This shows the Select Data Source dialog box. Click the Edit button over the Horizontal (Category) Axis Labels list box.

(3) This shows the Axis Labels dialog box.

(4) Use this to select the range of cells that have the desired contents for the legend and click the OK button.



(5) The new legend contents show in the Horizontal (Category) Axis Labels list box.

(6) Now the year labels display in the horizontal axis of the bar chart
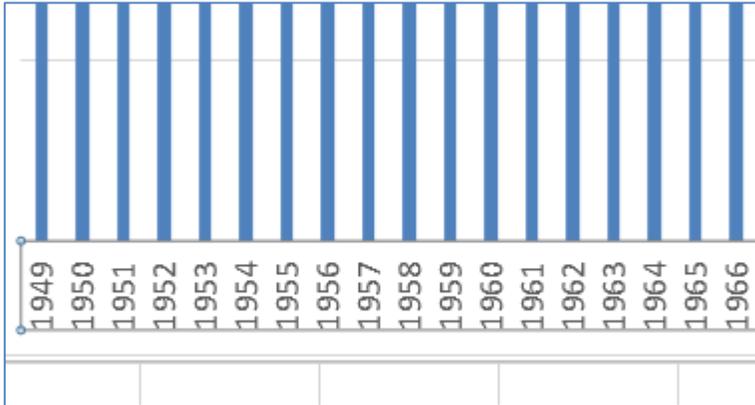


(7) You can make additional modifications to the axis labels – right click on the axis labels and choose Format Axis…
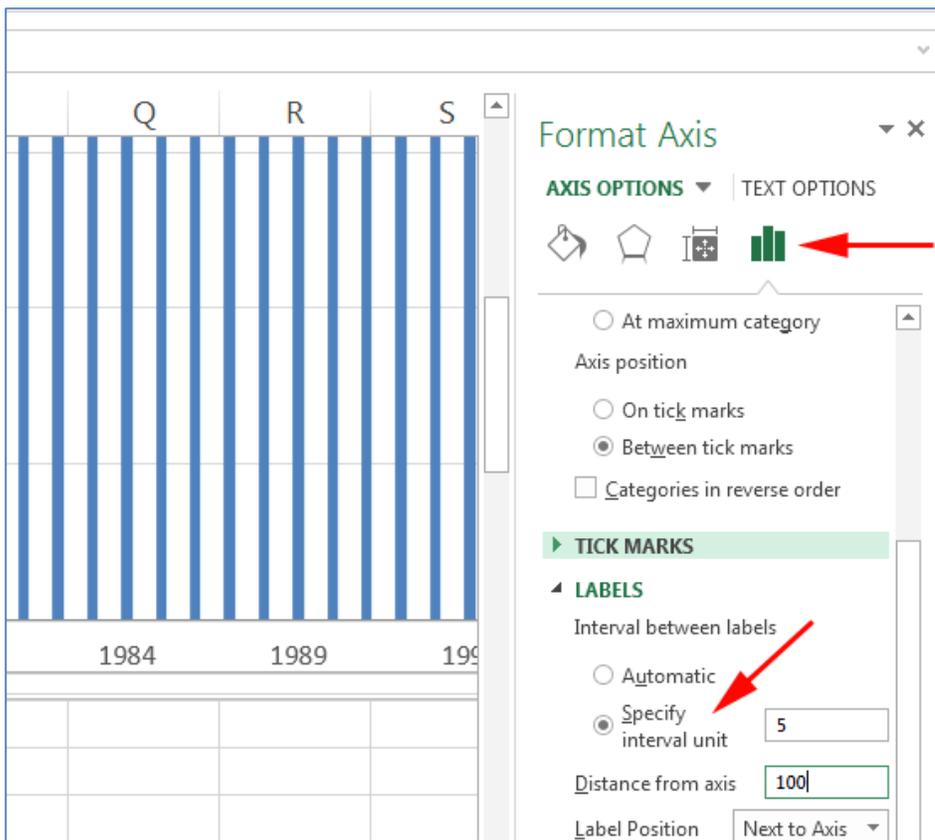


For example – you can set the interval between labels - Click on the axis options button (top red arrow in the above image) and specify the interval unit in the Labels group of the format axis tools.

3.4 Some Other Chart Parts

Chart Area - You can modify the background fill color
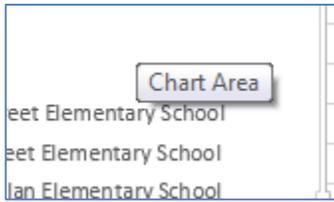


Plot Area - You can modify the background fill color



Chart Title



Axes – Horizontal and Vertical
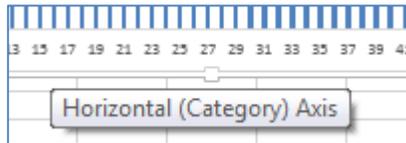
Axis Title
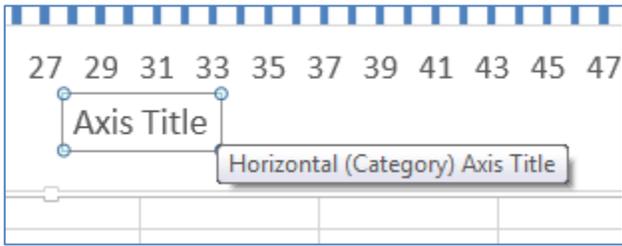


Data Labels
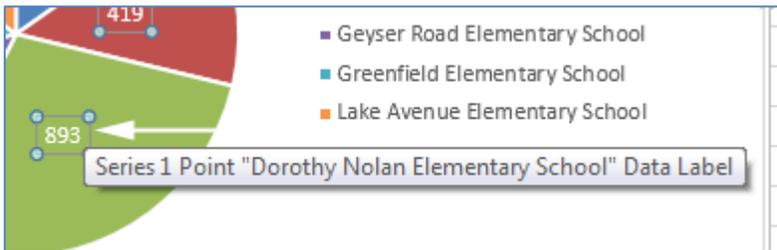


Gridlines
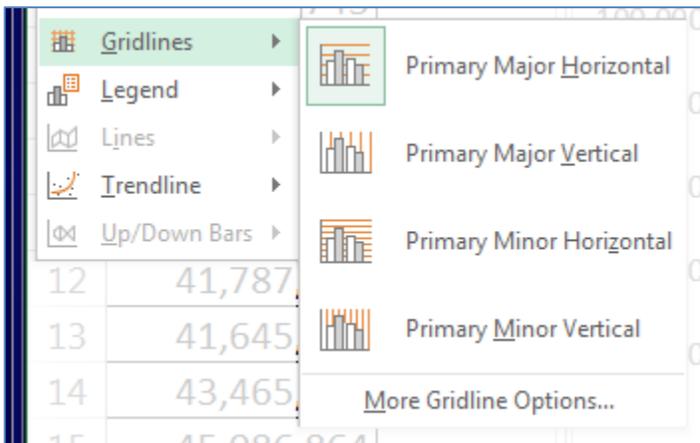


3.5 Adding Other Chart Parts

If they are not displayed on the chart, you can add additional chart parts. Click on the chart to select it, then click on the Design tab of the Chart Tools part of the ribbon.

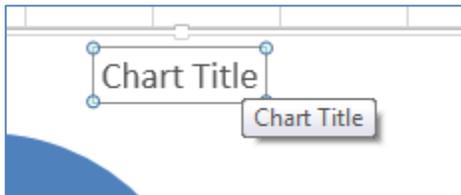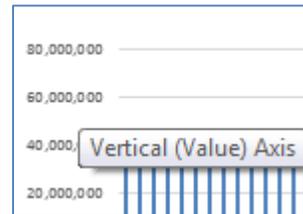Then Add Chart Element
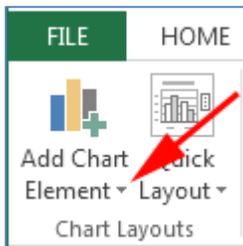


Choose the chart part to add
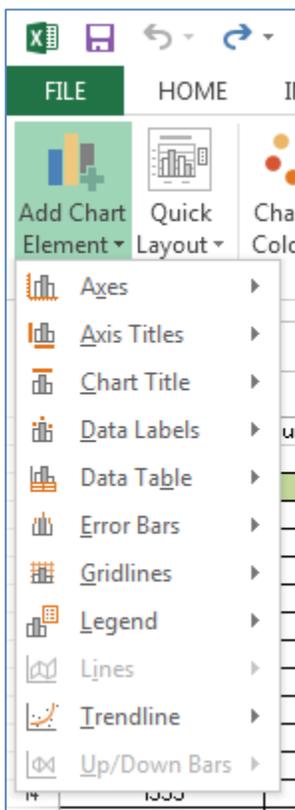


## 4. Stacked Column Chart - Combination of Pie and Column charts

A stacked column chart is a combination of a bar chart and a pie chart.  It shows the overall change over a series, and also shows the portion of each part over that series.  For example, in the data below, the total energy consumption is the sum of the residential, commercial, industrial, and transportation consumption components.  A stacked column shows the total energy consumption over the years, and also the portion of each energy consumption sector over the years.

|  | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | Table 2.1a Energy Consumption by Sector, 1949-2008 (Billion Btu) | | | | |
| 2 | | | | | |
| 3 | Year | Residential | Commercial | Industrial | Transportation |
| 4 | 1998 | 18,986,464 | 16,013,536 | 34,926,384 | 25,255,455 |
| 5 | 1999 | 19,582,928 | 16,421,544 | 34,853,627 | 25,948,049 |
| 6 | 2000 | 20,445,761 | 17,218,069 | 34,755,525 | 26,548,003 |
| 7 | 2001 | 20,064,807 | 17,179,872 | 32,802,793 | 26,274,814 |
| 8 | 2002 | 20,837,794 | 17,404,375 | 32,762,390 | 26,844,037 |
| 9 | 2003 | 21,138,904 | 17,387,615 | 32,612,018 | 26,993,593 |
| 10 | 2004 | 21,124,816 | 17,707,110 | 33,591,933 | 27,894,875 |
| 11 | 2005 | 21,659,926 | 17,905,328 | 32,527,701 | 28,351,927 |
| 12 | 2006 | 20,734,770 | 17,760,105 | 32,466,383 | 28,828,760 |
| 13 | 2007 | 21,599,692 | 18,313,720 | 32,498,949 | 29,117,985 |
| 14 | 2008 | 21,606,384 | 18,411,218 | 31,357,561 | 28,026,827 |

To create a stacked column chart –

(1) select that data for the subject of the chart

|  | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | Table 2.1a Energy Consumption by Sector, 1949-2008 (Billion Btu) | | | | |
| 2 | | | | | |
| 3 | Year | Residential | Commercial | Industrial | Transportation |
| 4 | 1998 | 18,986,464 | 16,013,536 | 34,926,384 | 25,255,455 |
| 5 | 1999 | 19,582,928 | 16,421,544 | 34,853,627 | 25,948,049 |
| 6 | 2000 | 20,445,761 | 17,218,069 | 34,755,525 | 26,548,003 |
| 7 | 2001 | 20,064,807 | 17,179,872 | 32,802,793 | 26,274,814 |
| 8 | 2002 | 20,837,794 | 17,404,375 | 32,762,390 | 26,844,037 |
| 9 | 2003 | 21,138,904 | 17,387,615 | 32,612,018 | 26,993,593 |
| 10 | 2004 | 21,124,816 | 17,707,110 | 33,591,933 | 27,894,875 |
| 11 | 2005 | 21,659,926 | 17,905,328 | 32,527,701 | 28,351,927 |
| 12 | 2006 | 20,734,770 | 17,760,105 | 32,466,383 | 28,828,760 |
| 13 | 2007 | 21,599,692 | 18,313,720 | 32,498,949 | 29,117,985 |
| 14 | 2008 | 21,606,384 | 18,411,218 | 31,357,561 | 28,026,827 |

(2) Insert the Stacked Column chart using the Quick Analysis button or from the Insert tab of the ribbon (as shown in the image below)
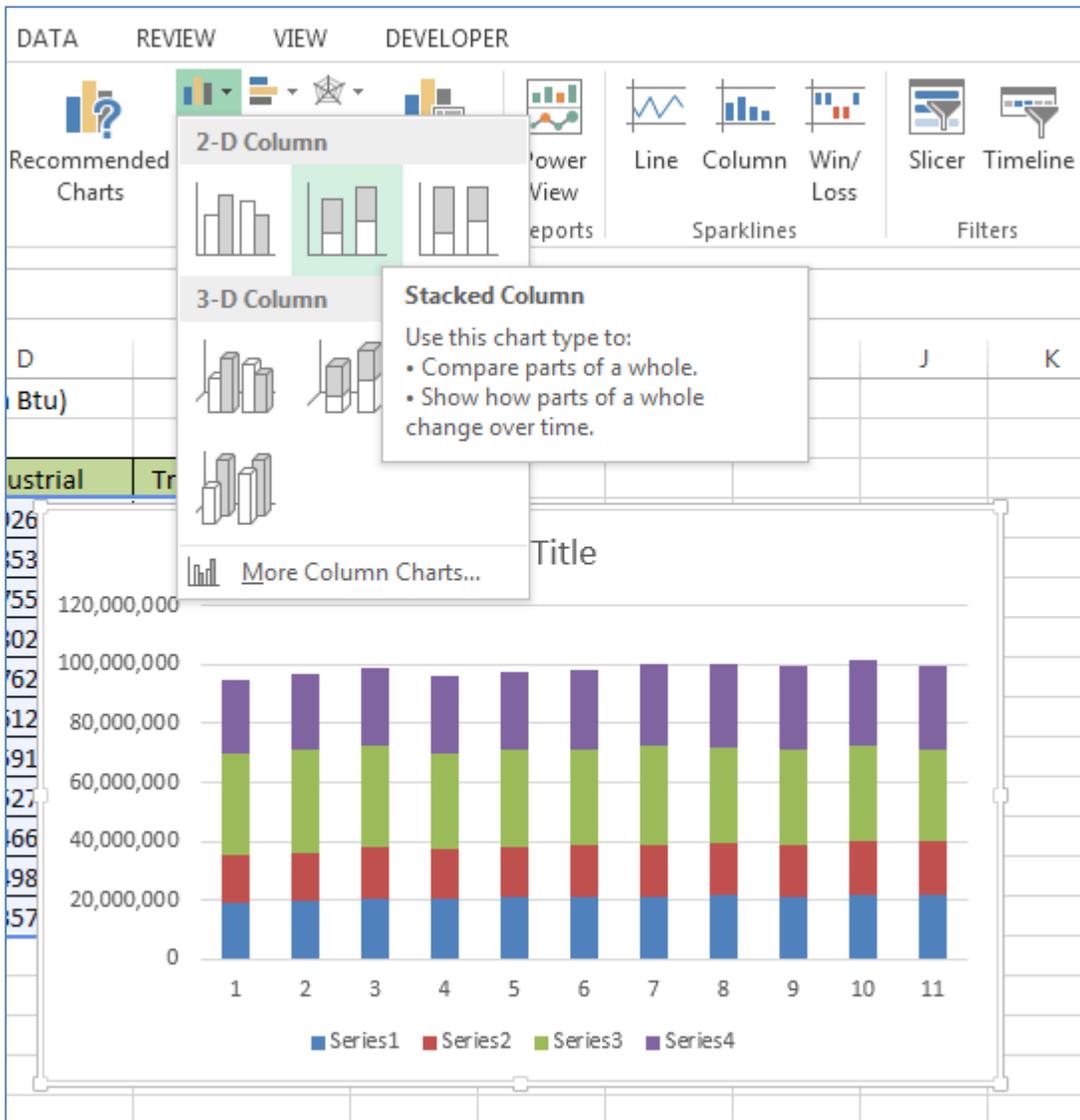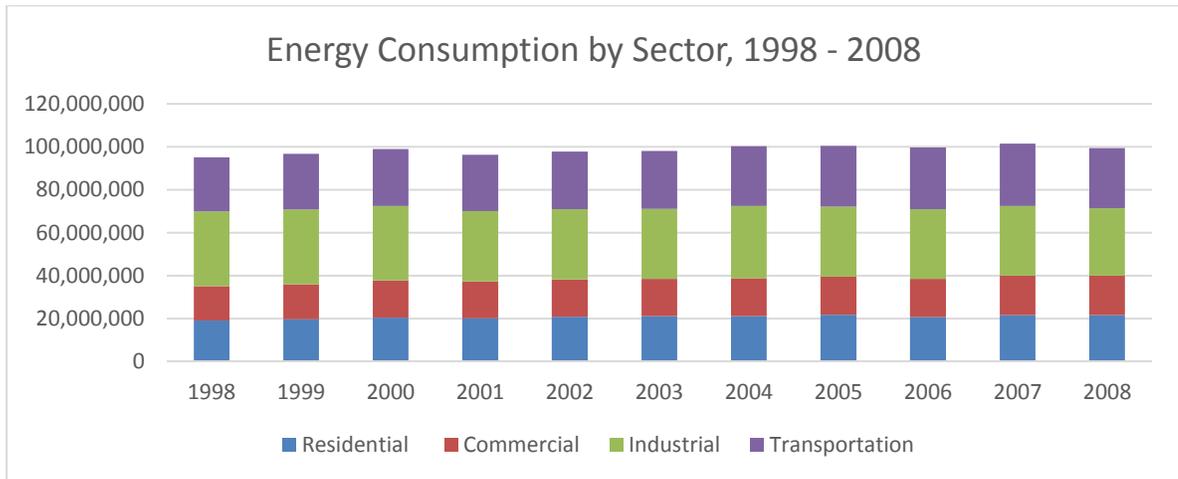
Add labels to the legend following the instructions in the (3.3 Modifying the Horizontal Axis Labels on a Bar Chart) section above.



Finished Stacked Column chart.

## 5. Using charts in other (including Office) applications

You can easily include an Excel chart to other applications – like Word or PowerPoint.

Follow these steps:

1. Select the chart in Excel and copy it to the clipboard (right click and choose copy from the pop-up menu or click on copy on the xxx tab /xxx in the xxx group on the ribbon). Make sure you have the entire chart selected (the corner and mid-point drag handles are showing) and not a just chart part.

2. Open the file that will be the destination for the copied Excel chart. This example uses a Word document.

3. Position the Insertion Point in the location that you want to paste the chart.
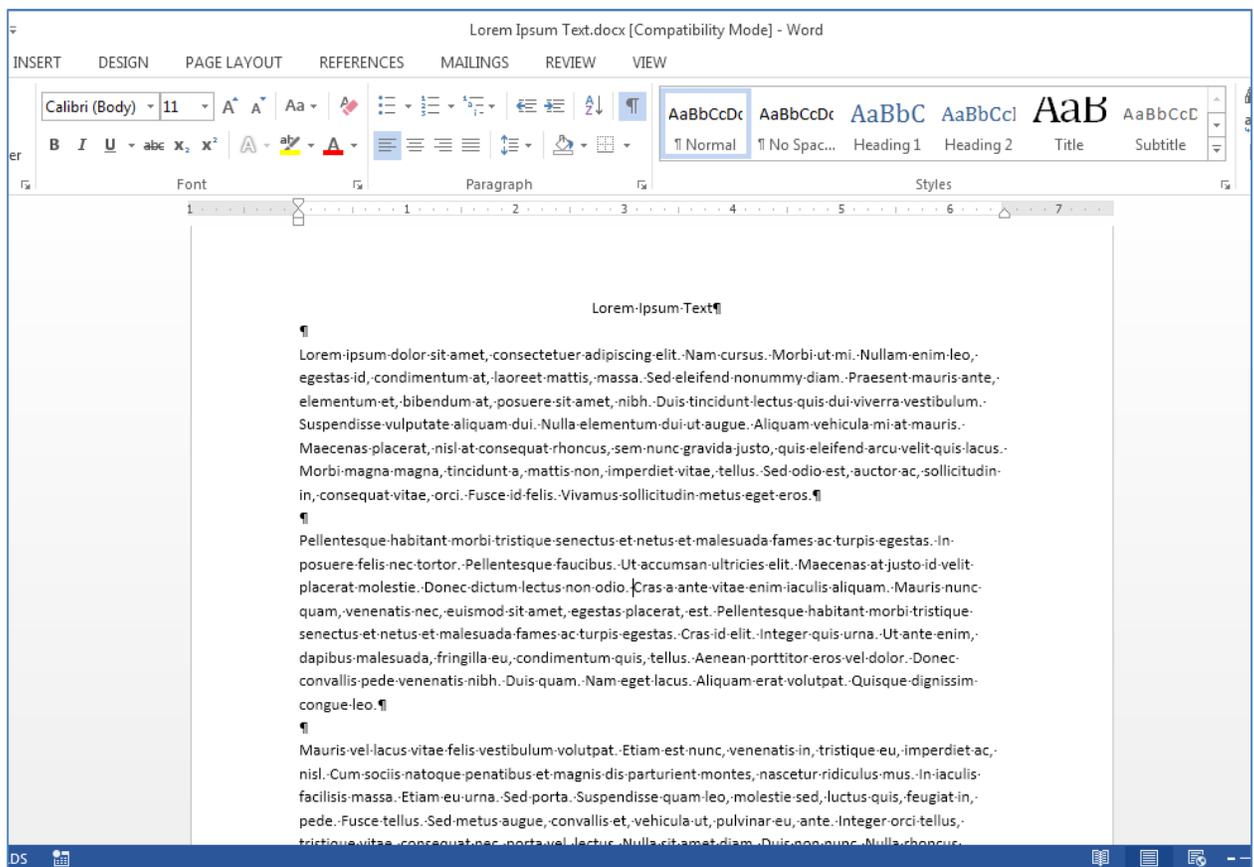
4. Paste the chart into the document (right click and choose Paste from the pop-up menu or Paste from the ribbon.
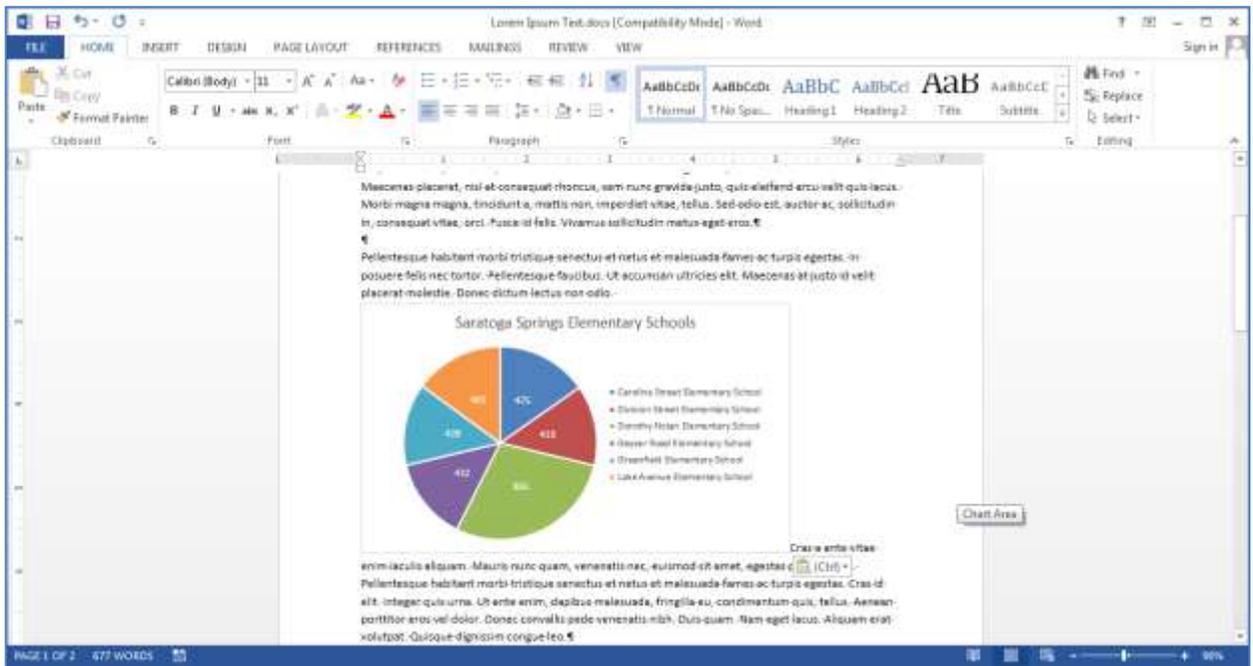


5. (Charts in Word) Set the Text Wrapping.  Right click on the chart on choose Wrap Text from the pop-up menu.  Select the desired text wrapping style.
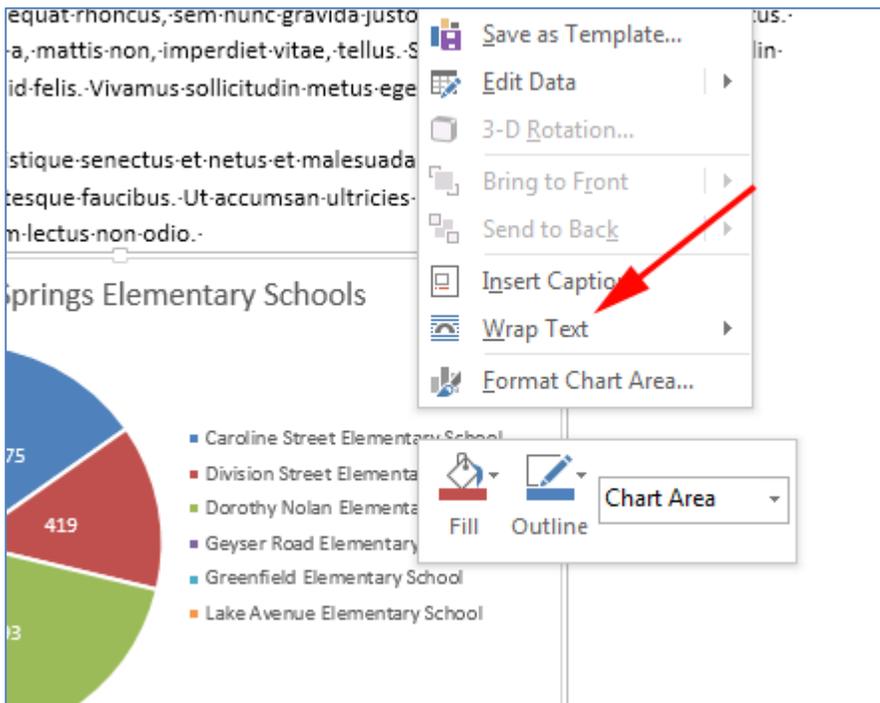
6. More Layout Options - Right click on the chart image, hover the mouse arrow over Wrap Text and select More Layout Options – you can use this dialog box to set the chart image's distance from text (see the following images).
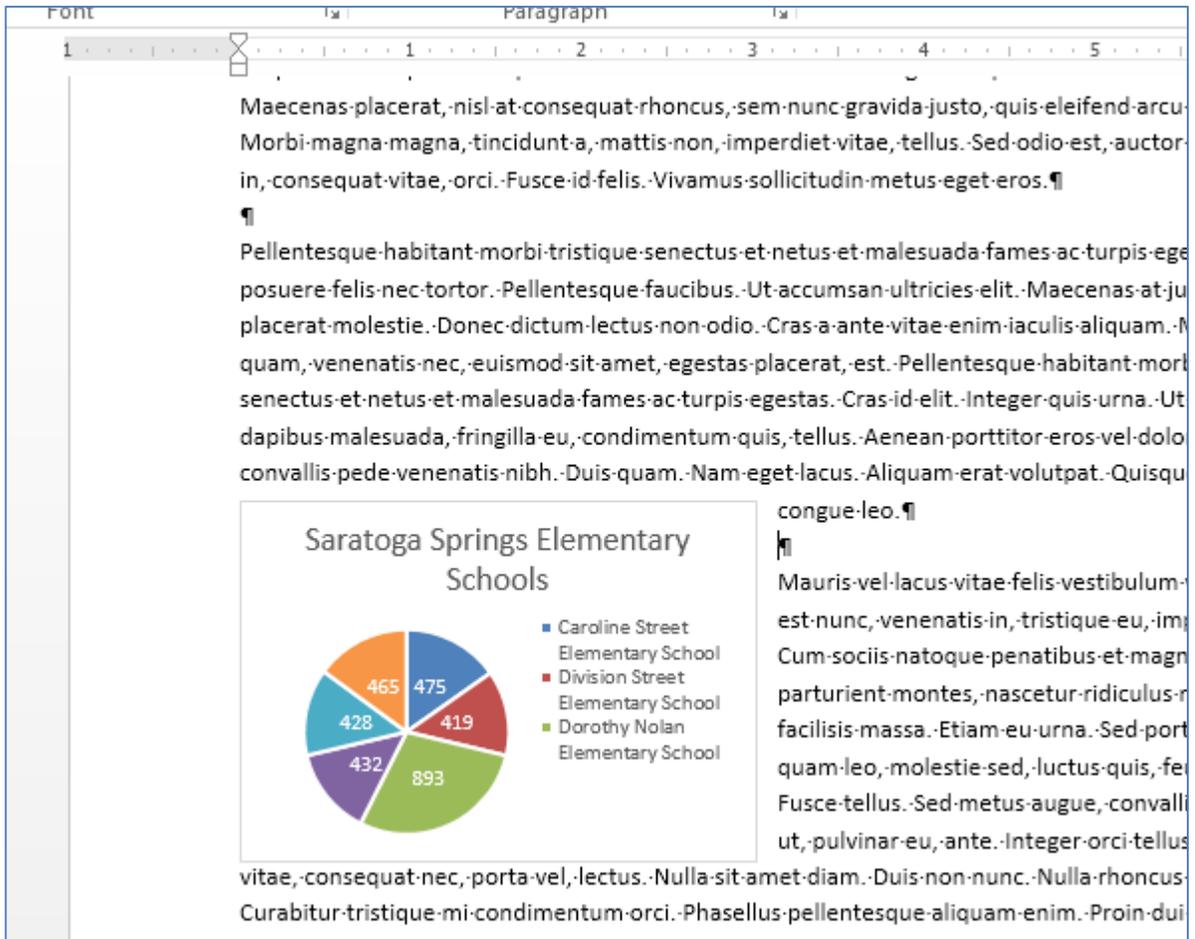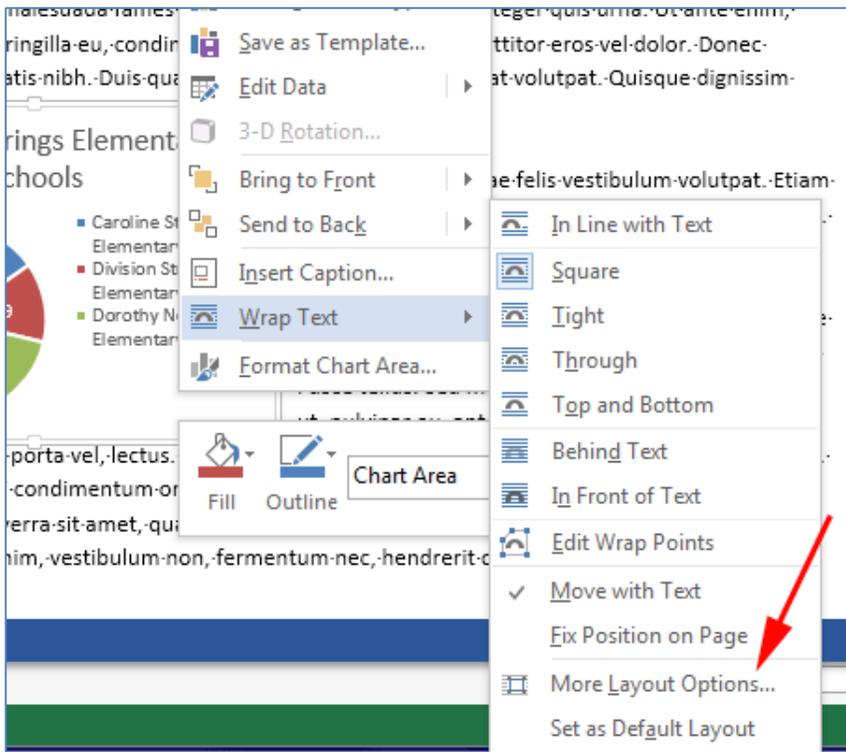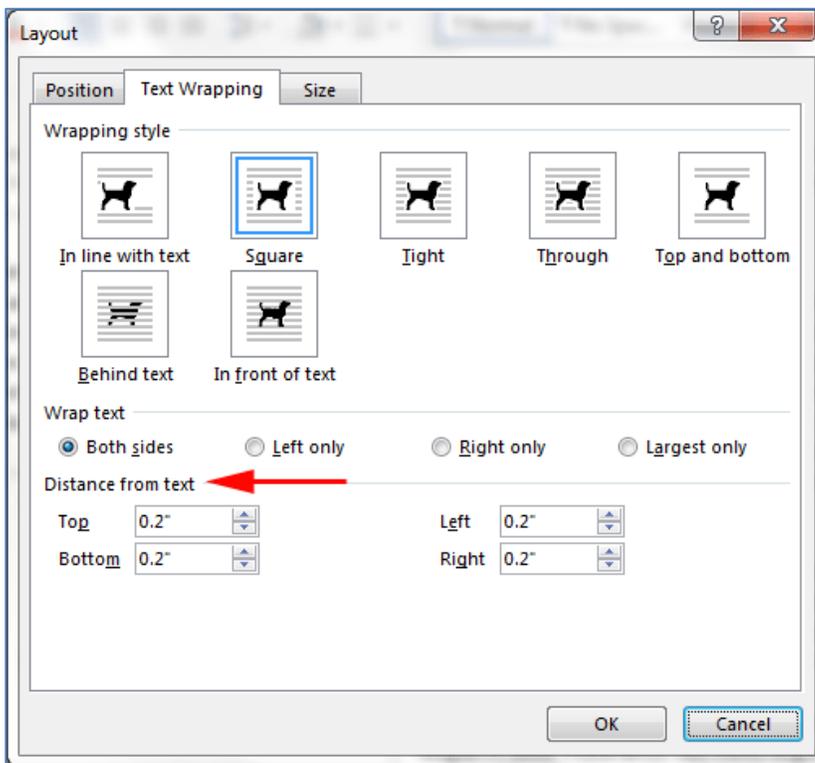


Chart Image before setting Distance from text

More Layout Options from the pop-up menu



Setting the Distance from text

placerat·molestie.·Donec·dictum·lectus·non·odio.·Cras·a·ante·vitae·enim·
quam,·venenatis·nec,·euismod·sit·amet,·egestas·placerat,·est.·Pellentesqu
senectus·et·netus·et·malesuada·fames·ac·turpis·egestas.·Cras·id·elit.·Integ
dapibus·malesuada,·fringilla·eu,·condimentum·quis,·tellus.·Aenean·porttit
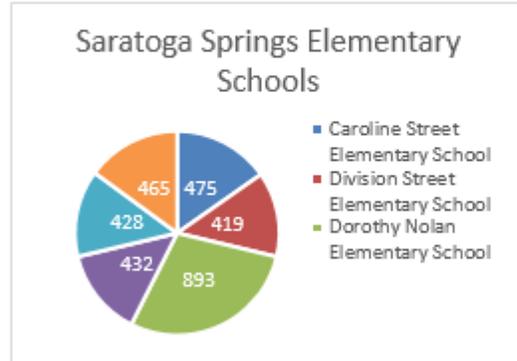
convallis·pede·venen
lacus.·Aliquam·erat·v
congue·leo.¶

¶

Mauris·vel·lacus·vitae
Etiam·est·nunc,·vener
ac,·nisl.·Cum·sociis·na
parturient·montes,·na
facilisis·massa.·Etiam·
Suspendisse·quam·le
feugiat·in,·pede.·Fuso
convallis·et,·vehicula·

**Saratoga Springs Elementary Schools**

- Caroline Street Elementary School
- Division Street Elementary School
- Dorothy Nolan Elementary School

475 465 428 432 893 419

orci·tellus,·tristique·vitae,·consequat·nec,·porta·vel,·lectus.·Nulla·sit·amet
rhoncus·dictum·metus.·Curabitur·tristique·mi·condimentum·orci.·Phasellu
Proin·dui·lectus,·cursus·eu,·mattis·laoreet,·viverra·sit·amet,·quam.·Curabit

Chart image after setting the Distance from text