

Pivot Tables – Easier Than You Think

Pivot Tables in Excel are one of the most powerful tools, and once you understand how they work, they're actually quite easy to insert and modify.

In this example we're going to work with a small amount of data for illustration purposes, but Pivot Tables are in their element with huge amounts of data laid out in a columnar format.

Forget Filters and Subtotal, Pivot Tables can do both of these and more in a few seconds.

Taking the data below for example...

	A	B	C	D
1	Program	Region	Period	Viewers
2	Bat Man	North	Q1	91
3	Bat Man	South	Q1	87
4	Bat Man	West	Q1	99
5	Bat Man	East	Q1	102
6	Ben Ten	South	Q1	125
7	Ben Ten	West	Q1	140
8	Ben Ten	East	Q1	107
9	Ben Ten	North	Q1	133
10	Bob The Builder	West	Q1	79
11	Bob The Builder	South	Q1	85
12	Bob The Builder	East	Q1	91
13	Bob The Builder	North	Q1	73
14	Mr Maker	East	Q1	49
15	Mr Maker	North	Q1	50
16	Mr Maker	West	Q1	51
17	Mr Maker	South	Q1	59

Let's say we wanted to SUM the number of viewers by program, going down the rows, then by Region going across the columns and only show Q1 (you can't see it here but there is data in this table for Q1 through to Q4). The easiest solution is to insert a Pivot Table like this:

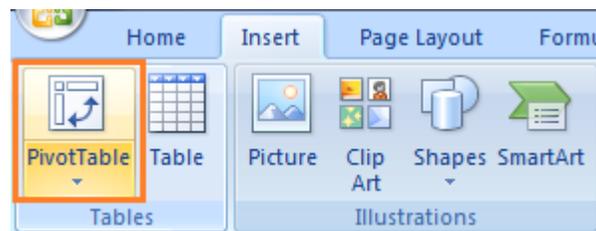
Period	Q1				
Sum of Viewers	Column Labels				
Row Labels	East	North	South	West	Grand Total
Bat Man	102	91	87	99	379
Ben Ten	107	133	125	140	505
Bob The Builder	91	73	85	79	328
Mr Maker	49	50	59	51	209
Night Garden	57	44	37	32	170
Spider Man	206	138	172	240	756
Wiggles	72	86	83	95	336
Grand Total	684	615	648	736	2683

Note: In the above example we summed the viewers, but instead of, or in addition to SUM, we can COUNT, AVERAGE, PRODUCT and more.

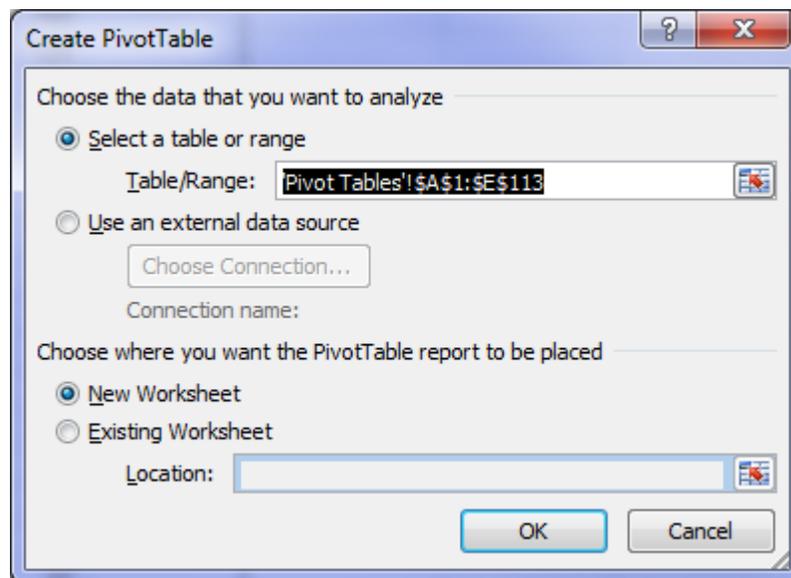
We can also change the formatting and customize the default 'Row Labels', 'Column Labels' and 'Sum of Viewer' headings to make the report more polished. We'll get to that soon.

How to Insert a Pivot Table in Excel 2010

- 1) Click anywhere in your data
- 2) On the 'Insert' tab click the 'PivotTable' button and select 'PivotTable'.



- 3) The Create PivotTable dialog box will open.



- a. Excel will automatically select the range of data, but you can change this here if you need to by modifying the range in the Table/Range field. You can even choose an external source but for most people using your own data will be all you want, so we're not going to cover that here.
- b. Tell Excel if you want your Pivot Table in a New Worksheet or in the Existing Worksheet. If you choose Existing Worksheet you will need to tell Excel the top left cell that you would like

your Pivot Table to begin in. If you choose New Worksheet Excel will insert a new worksheet in your file and insert your Pivot Table there.

4) I've chosen to insert my Pivot Table in cell F2 on the sheet where my data is for this tutorial. Below is how your worksheet will look after step 3. In the right hand section of your screen the Pivot Table Field List window will open and a place holder will be entered beginning in the cell you've chosen to insert your Pivot Table, in my case F2:H19.

The screenshot shows an Excel spreadsheet with a data table and the PivotTable Field List task pane. The data table has the following columns: Program, Region, Period, and Viewers. The PivotTable Field List task pane is open on the right, showing the fields to be added to the report.

	A	B	C	D	E	F	G	H
1	Program	Region	Period	Viewers				
2	Bat Man	North	Q1	91				
3	Bat Man	South	Q1	87				
4	Bat Man	West	Q1	99				
5	Bat Man	East	Q1	102				
6	Ben Ten	South	Q1	125				
7	Ben Ten	West	Q1	140				
8	Ben Ten	East	Q1	107				
9	Ben Ten	North	Q1	133				
10	Bob The Builder	West	Q1	79				
11	Bob The Builder	South	Q1	85				
12	Bob The Builder	East	Q1	91				
13	Bob The Builder	North	Q1	73				
14	Mr Maker	East	Q1	49				
15	Mr Maker	North	Q1	50				
16	Mr Maker	West	Q1	51				
17	Mr Maker	South	Q1	59				
18	Night Garden	East	Q1	57				
19	Night Garden	West	Q1	32				
20	Night Garden	South	Q1	37				
21	Night Garden	North	Q1	44				
22	Spider Man	North	Q1	138				

The PivotTable Field List task pane is open on the right, showing the fields to be added to the report. The fields are Program, Region, Period, and Viewers. The task pane is divided into four sections: Report Filter, Column Labels, Row Labels, and Values. The Report Filter section is currently empty. The Column Labels section is currently empty. The Row Labels section is currently empty. The Values section is currently empty. The task pane also includes a 'Defer Layout Update' checkbox and an 'Update' button.

5) The first thing you need to do is choose the fields you want included in your Pivot Table Report. We do this in the Pivot Table Field List window.

This is a close-up screenshot of the PivotTable Field List task pane. The task pane is open on the right side of the Excel spreadsheet. The fields to be added to the report are Program, Region, Period, and Viewers. The task pane is divided into four sections: Report Filter, Column Labels, Row Labels, and Values. The Report Filter section is currently empty. The Column Labels section is currently empty. The Row Labels section is currently empty. The Values section is currently empty. The task pane also includes a 'Defer Layout Update' checkbox and an 'Update' button.

- a. By ticking the **Fields** from the list you can tell Excel which fields you want in your Pivot Table report.
 - b. By default it will add any labels to the '**Row Labels**' area, and any columns it detects as values will go into the '**Values**' area. To move them, simply drag and drop the fields to the area you want.
 - c. If you're inserting your Pivot Table on the existing sheet you will see it take shape as you make your selections in the PivotTable Field List.
- 6) To insert the Pivot Table shown in the above example, and below, my PivotTable Field List looks like this:

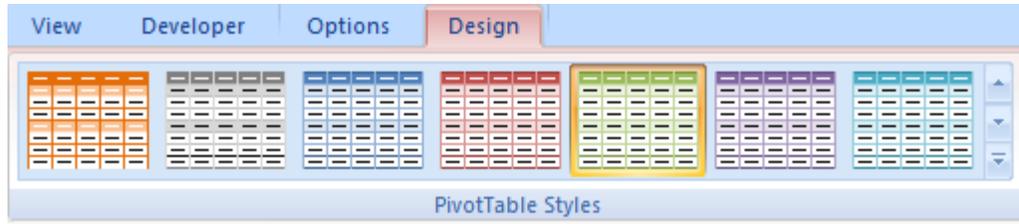
Period	Q1				
Sum of Viewers	Column Labels				
Row Labels	East	North	South	West	Grand Total
Bat Man	102	91	87	99	379
Ben Ten	107	133	125	140	505
Bob The Builder	91	73	85	79	328
Mr Maker	49	50	59	51	209
Night Garden	57	44	37	32	170
Spider Man	206	138	172	240	756
Wiggles	72	86	83	95	336
Grand Total	684	615	648	736	2683

You can see I've set the Period Q1 (cell G1) as a 'Report Filter', the programs are my Row Labels, the Regions are my column labels and the Sum of Viewers are my Values. Ok, so now you've inserted your Pivot Table, let's look at how we can customise it.

Pivot Table Styles

In Excel 2010 Pivot Table styles enable you to make your Pivot Table cool with very little effort.

You'll notice you now have two new tabs in your Ribbon. Go to the Design tab and here you can choose from a huge range of predefined styles. You can even save your own in keeping with your corporate image.



Just look at how much more professional mine looks with a few clicks of the mouse.

Period	Q1					
Sum of Viewers						
	Region					
Program	East	North	South	West	Grand Total	
Bat Man	102	91	87	99	379	
Ben Ten	107	133	125	140	505	
Bob The Builder	91	73	85	79	328	
Mr Maker	49	50	59	51	209	
Night Garden	57	44	37	32	170	
Spider Man	206	138	172	240	756	
Wiggles	72	86	83	95	336	
Grand Total	684	615	648	736	2683	

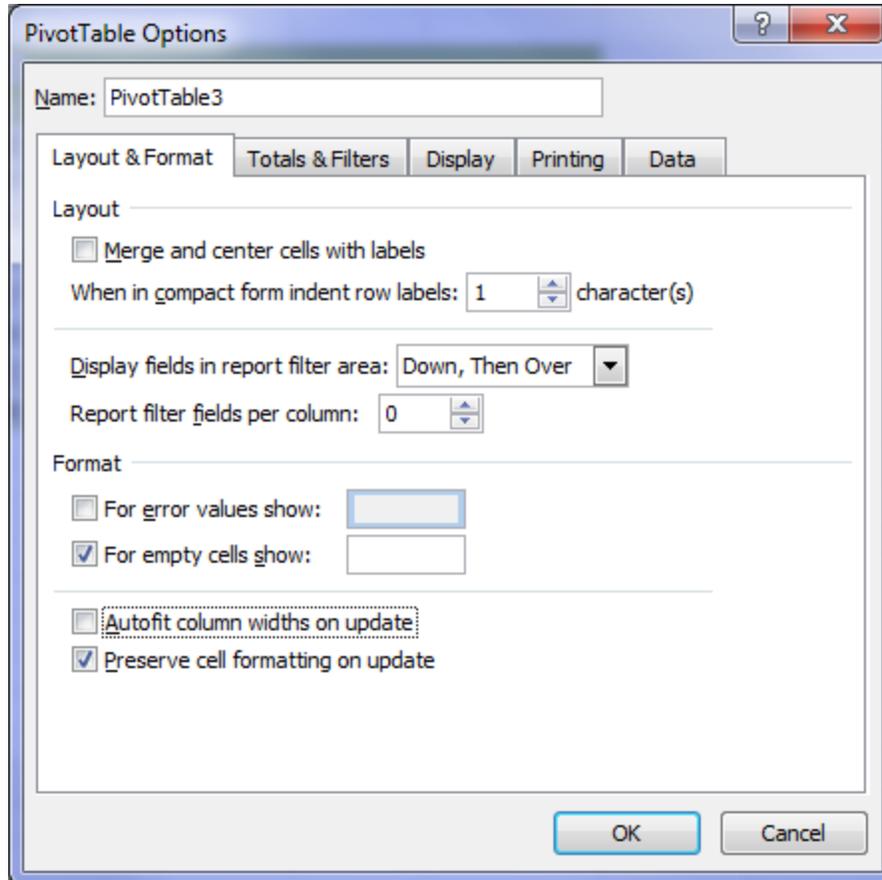
I've also changed my 'Row Labels' and 'Column Labels' headings by typing new names directly into the cell.

Preserve PivotTable Formatting

You can also format your Pivot Table Report manually using the Fonts etc. on the Home tab of the Ribbon, plus you can resize columns and rows.

If you do this there are a few preferences you should set so that your formats aren't lost on refresh.

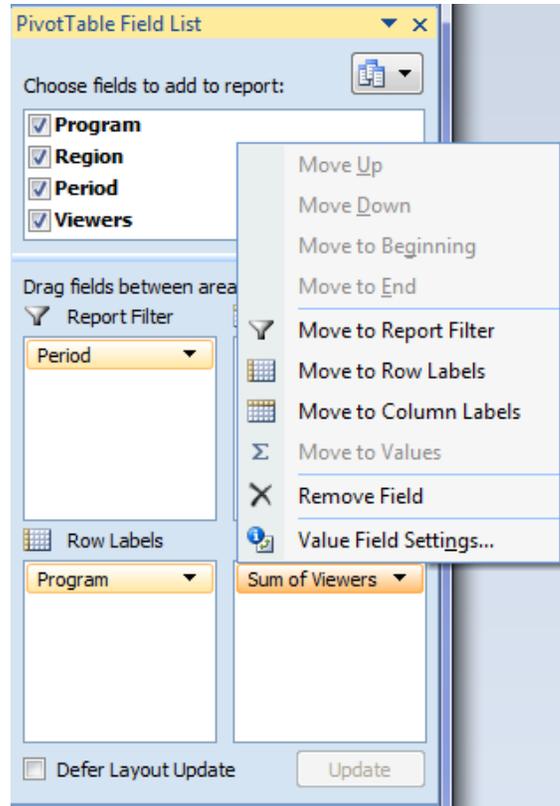
1) Right click anywhere on the Pivot Table. Select 'PivotTable Options'. The following dialog box will open. Make sure you tick the 'Preserve cell formatting on update' preference and 'Autofit column widths on update' is NOT ticked.



Change Pivot Table Value Calculation from the default SUM

Remember at the beginning I said in the Values you aren't limited to just SUM. You can also COUNT, AVERAGE, PRODUCT and a few more.

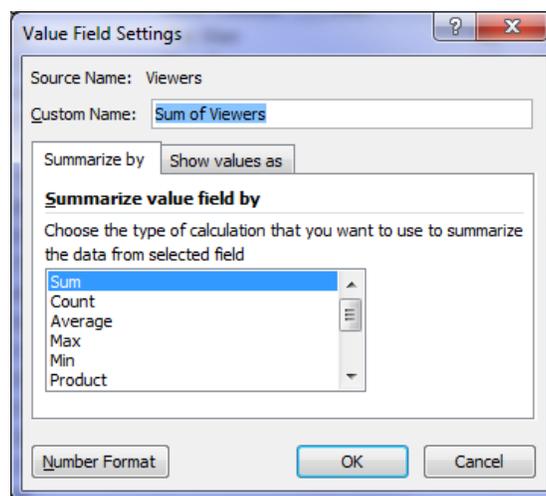
By clicking on the down arrows beside the Report Filter, Column Labels, Row Labels or Values areas you can access tools that will allow you to modify the settings. This is also where you can change whether the Values are SUM of, COUNT of, AVERAGE of and so on.



To change the VALUES from the default, select 'Value Field Settings' from the list by clicking the down arrow beside, in our case, Sum of Viewers.

The 'Value Field Settings' dialog box will open and you can choose a different calculation from the list on the 'Summarize by' tab as shown below.

You can also give the field a custom name.



Note: you can have more than one value in your Pivot Table. For example, you might want to SUM and COUNT the values.

Simply drag the field you want from the 'Choose Fields to add to report' list in the Pivot Table Field List into the Values area and alter the Value Field Settings as listed above. (See the next section for instructions on how to add another value with screen shots.)

Insert a predefined calculated field to your Pivot Table

You can enhance your Pivot Table by inserting a calculated field. Excel has a list of predefined calculations you can select from.

Note: You can also insert a custom calculated field, but we're not going to cover that here as I think these are better added to your source data and brought into your Pivot Table as a field. It's less prone to error with this approach.

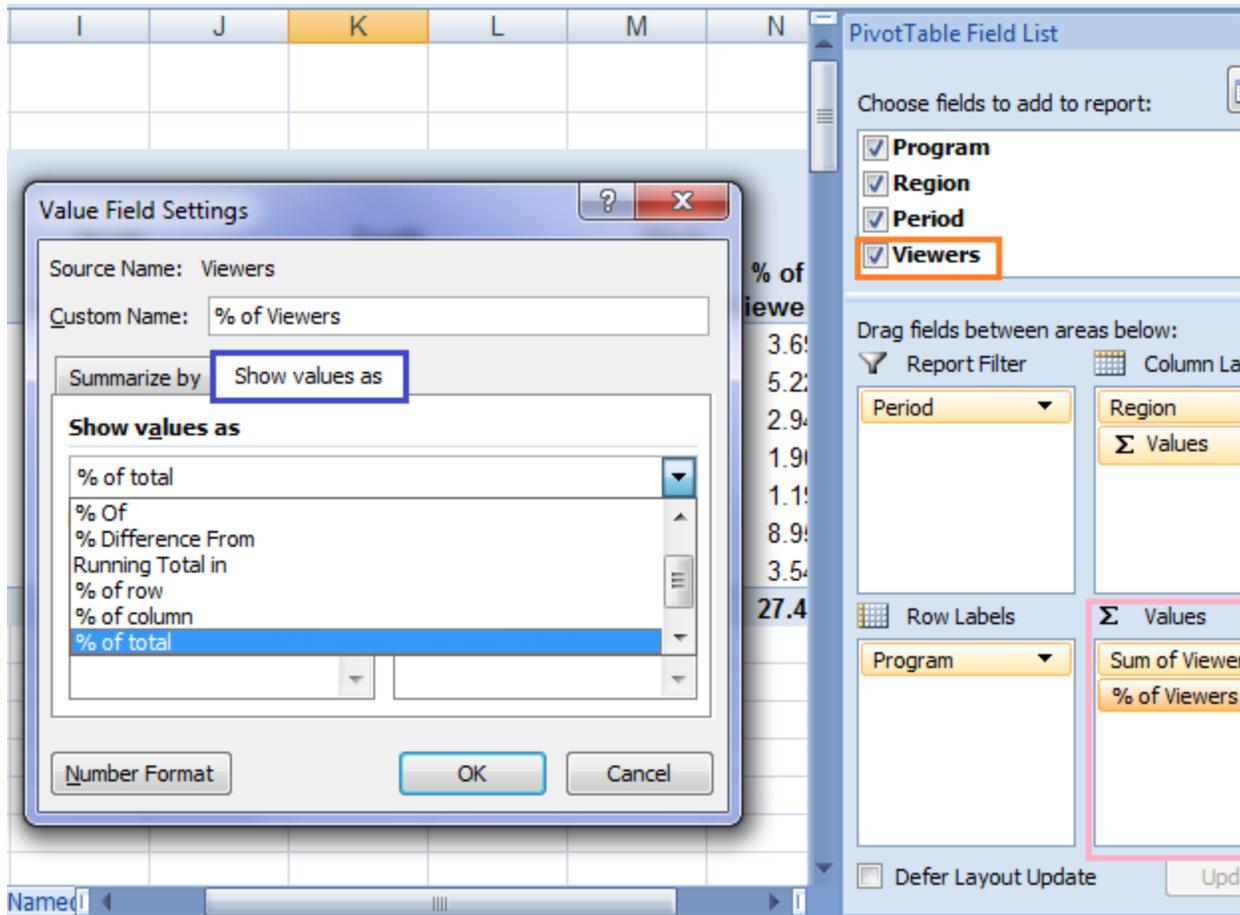
To insert a calculated field from the predefined list available:

1) First you have to add another Value field to your Pivot Table by dragging, in our case, 'Viewers' from the 'Choose fields to add to report' section down to the 'Values' area.

You'll notice that Excel will put a Values field in the 'Column Labels' area as well as the Values areas. This is because it's performing the calculation for each column of data. You can change it to calculate for each row by dragging it to the 'Row Labels' area.

2) Open the 'Value Field Settings' dialog box (click the down arrow and select it from the list) and select the 'Show values as' tab.

3) From the drop down list you can choose the type of calculation you want. 4) Give your calculation a custom name before clicking OK.

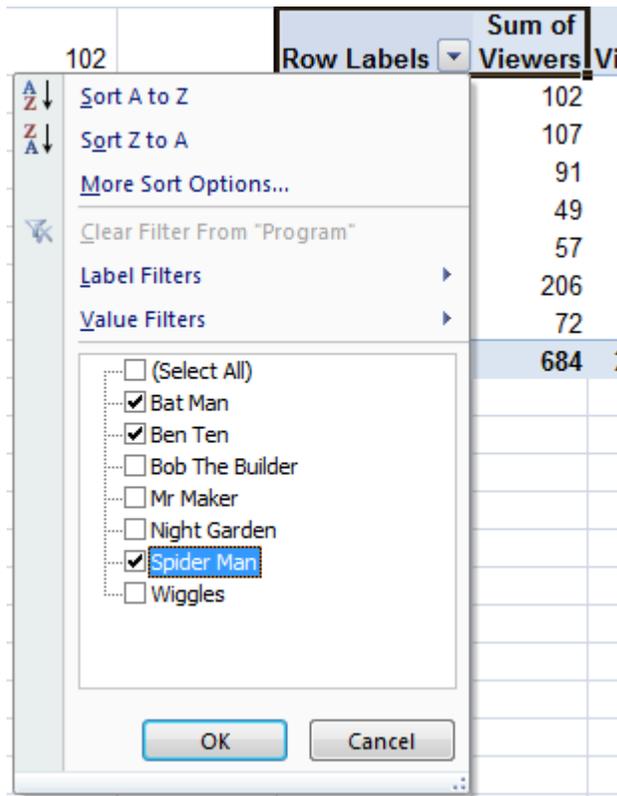


In my example below I inserted a '% of total' field and gave it the custom name '% of Viewers'.

Period	Column Labels								Total Sum of Viewers
Q1	East		North		South		West		
	Sum of Viewers	% of Viewers							
Bat Man	102	3.80%	91	3.39%	87	3.24%	99	3.69%	369
Ben Ten	107	3.99%	133	4.96%	125	4.66%	140	5.22%	505
Bob The Builder	91	3.39%	73	2.72%	85	3.17%	79	2.94%	328
Mr Maker	49	1.83%	50	1.86%	59	2.20%	51	1.90%	209
Night Garden	57	2.12%	44	1.64%	37	1.38%	32	1.19%	170
Spider Man	206	7.68%	138	5.14%	172	6.41%	240	8.95%	756
Wiggles	72	2.68%	86	3.21%	83	3.09%	95	3.54%	336
Grand Total	684	25.49%	615	22.92%	648	24.15%	736	27.43%	2683

Filter Pivot Table Data

What say we wanted to only show data for a few of our programs? We can filter our row labels by clicking on the down arrow beside 'Row Labels' in our Pivot Table. And just like regular filters we can instruct Excel to only display the values we choose.



Note: in this filter we can also sort our PivotTable row labels.

Period	Q1										
Column		East		North		South		West		Total Sum of Viewers	Total % of Viewers
Row Labels	Sum of Viewers	% of Viewers									
Bat Man	102	6.22%	91	5.55%	87	5.30%	99	6.04%	379	23.11%	
Ben Ten	107	6.52%	133	8.11%	125	7.62%	140	8.54%	505	30.79%	
Spider Man	206	12.56%	138	8.41%	172	10.49%	240	14.63%	756	46.10%	
Grand Total	415	25.30%	362	22.07%	384	23.41%	479	29.21%	1640	100.00%	

Filters can also be applied to column labels.

Changing the Orientation of your Pivot Table

You can have more than one field in each area. For example, what if we wanted to see the data grouped by region down the rows? Our Pivot Table would look like this:

Period	Q1	
Values		
Row Labels	Sum of Viewers	% of Viewers
East	684	25.49%
Bat Man	102	3.80%
Ben Ten	107	3.99%
Bob The Builder	91	3.39%
Mr Maker	49	1.83%
Night Garden	57	2.12%
Spider Man	206	7.68%
Wiggles	72	2.68%
North	615	22.92%
Bat Man	91	3.39%
Ben Ten	133	4.96%
Bob The Builder	73	2.72%
Mr Maker	50	1.86%
Night Garden	44	1.64%
Spider Man	138	5.14%
Wiggles	86	3.21%
South	648	24.15%
Bat Man	87	3.24%
Ben Ten	125	4.66%
Bob The Builder	85	3.17%
Mr Maker	59	2.20%
Night Garden	37	1.38%
Spider Man	172	6.41%
Wiggles	83	3.09%
West	736	27.43%
Bat Man	99	3.69%
Ben Ten	140	5.22%
Bob The Builder	79	2.94%
Mr Maker	51	1.90%
Night Garden	32	1.19%
Spider Man	240	8.95%
Wiggles	95	3.54%
Grand Total	2683	100.00%

PivotTable Field List

Choose fields to add to report:

- Program
- Region
- Period
- Viewers

Drag fields between areas below:

Report Filter: Period

Column Labels: Σ Values

Row Labels: Region, Program

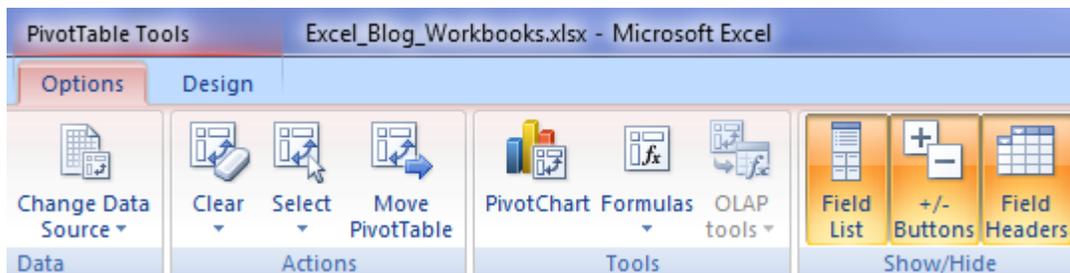
Σ Values: Sum of Viewers, % of Viewers

Defer Layout Update Update

Simply rearrange the fields in the Pivot Table Field List by dragging and dropping the fields to the area you want.

Pivot Table Tools

You will also notice you now have two new tabs in the Ribbon for Pivot Table Tools; Options and Design.



There's too much to work through all of the features here so make sure you check out the video tutorials in Excel Session 21: Pivot Tables.

(You need to be logged in to access the link above)

Pivot Table Source Data Rules

- 1) No blank rows or columns.
- 2) Each column must have a heading. This heading will be carried over to label your Pivot Table rows and columns.
- 3) Make sure your source data is formatted correctly. That is if they're dates; format them as dates and so on.
- 4) If the Pivot Table Field List disappears click anywhere on the Pivot Table and it will reappear.