

Excel Next Steps 2



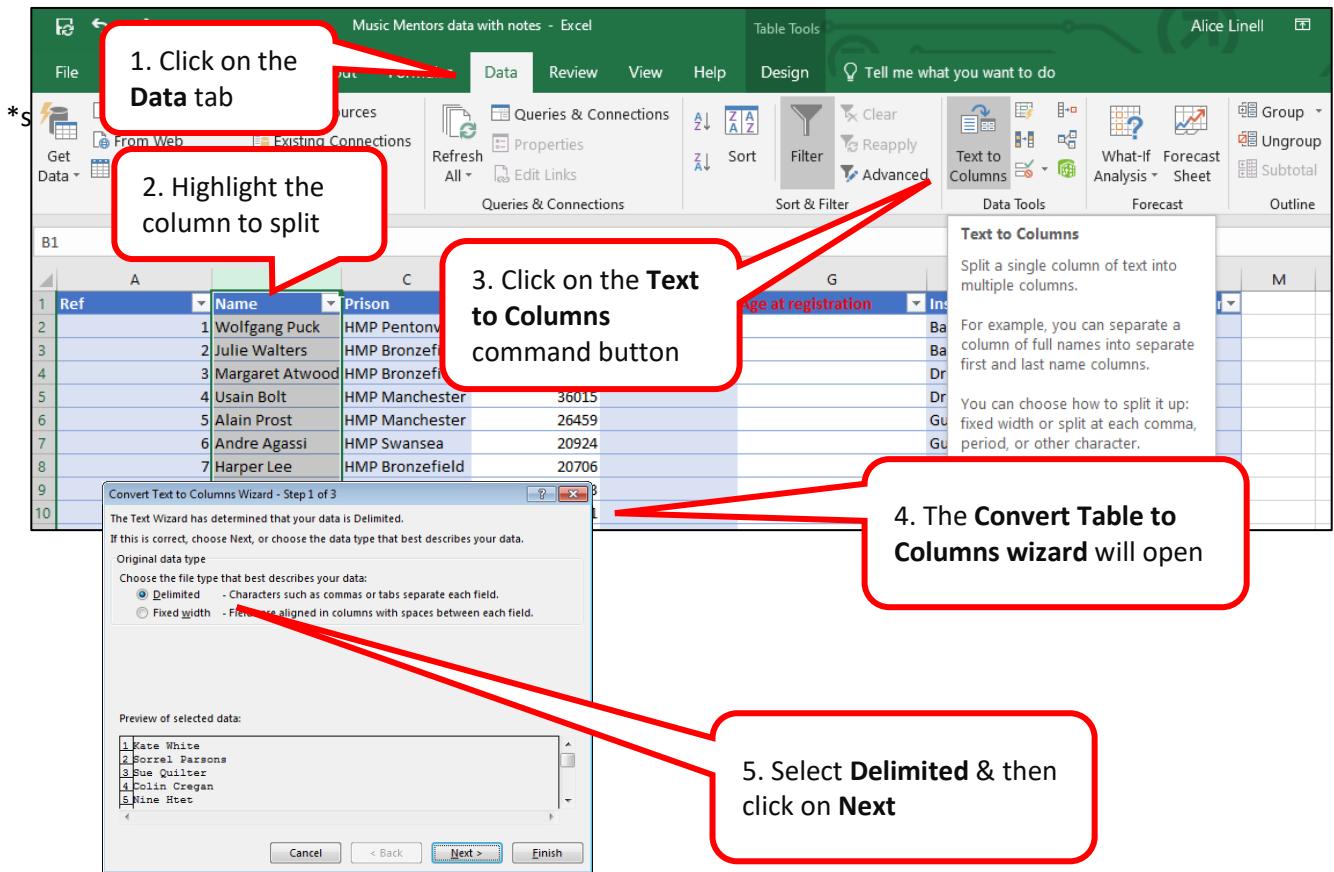
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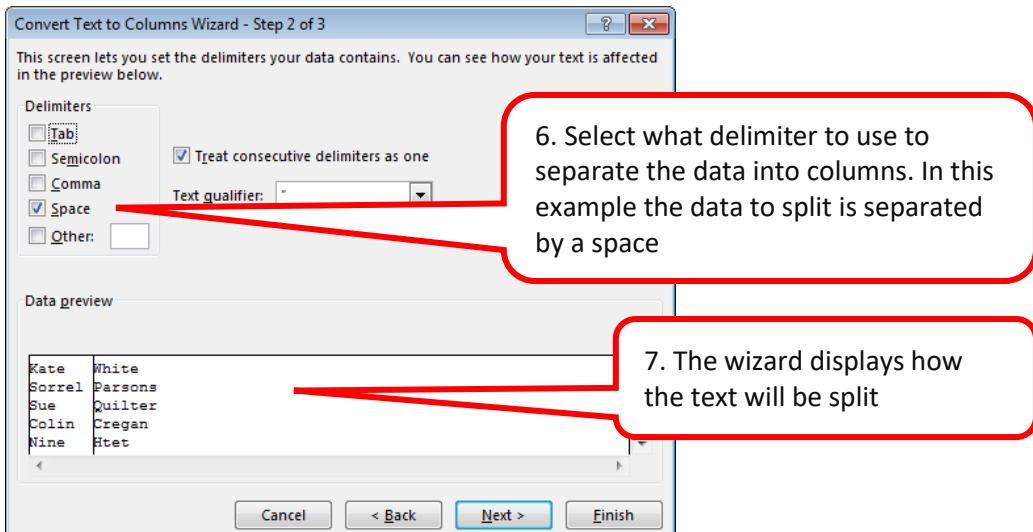
Splitting columns

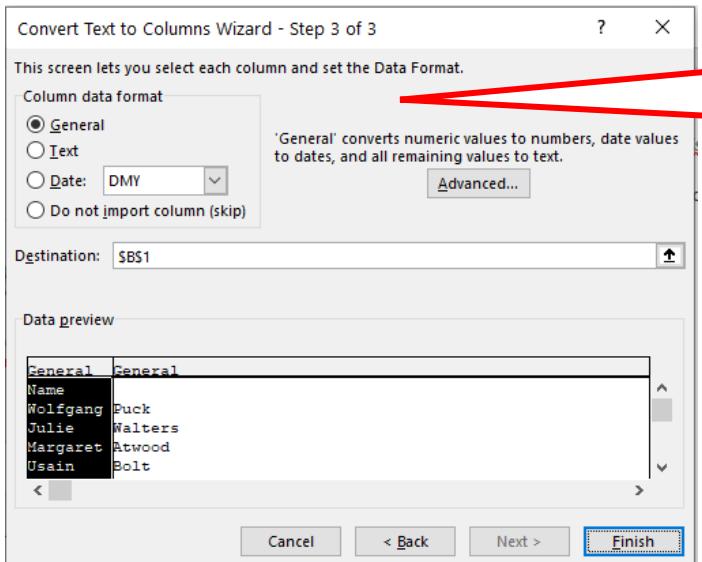
Often there is a need to break down data to make it easier to work with. For example, if you want to sort people in alphabetical order using their surname you will need to make sure their name is split into first name & surname columns.

Tip: Create a column to the right of the column you wish to split for the results.



A **Delimiter** is a blank space, comma, or other character or symbol that indicates the beginning or end of a character string, word, or data item





8. Select the data format for each column. **General** automatically converts the column to the most appropriate format. You can override that now or later after the split

Merging columns together (CONCAT)

Excel has a built in function to merge text strings together. For example, if you have a first name column and a last name column but you want a Full name column where first and last name are joined together.

The function, when using a table, is as follows:

=CONCAT(Table1[@[tablecolumnname1]:[tablecolumnname2]])

But Excel can build the formula for you:

1. Add an extra column in your table to the right of the two columns you are merging
2. Enter the = sign and start typing CONCAT
3. Select the CONCAT function suggested by Excel
4. Select the first cell in the 2 columns you want to join together.

If you want to add a space between the text you will need to use a slightly different technique:

5. Add an extra column in your table to the right of the two columns you are merging
6. Enter the = sign and start typing CONCAT
7. Select the CONCAT function suggested by Excel

8. Select the first cell you want to join, then add to the formula, “ “, and then select the next cell you want to join together. See the screen print below.

=CONCAT([@tablecolumnname1], " ", [@ tablecolumnname2])

The screenshot shows a Microsoft Excel spreadsheet titled "TEST ATTENDEE data Excel Bitesize 2 - Creating a workable data set (1)". The Data tab is selected. In the formula bar, the formula =CONCAT([@Postcode], " ",[@ Postcode2]) is entered. The table below has columns: Column1, Name, Prison, Postcode, Postcode2, Postcode3, Category, Welfare session, and Pri. The data includes entries like Prince Charming at HMP Belmarsh with Postcode SE28, and Robin Hood at HMP Brixton with Postcode SW2.

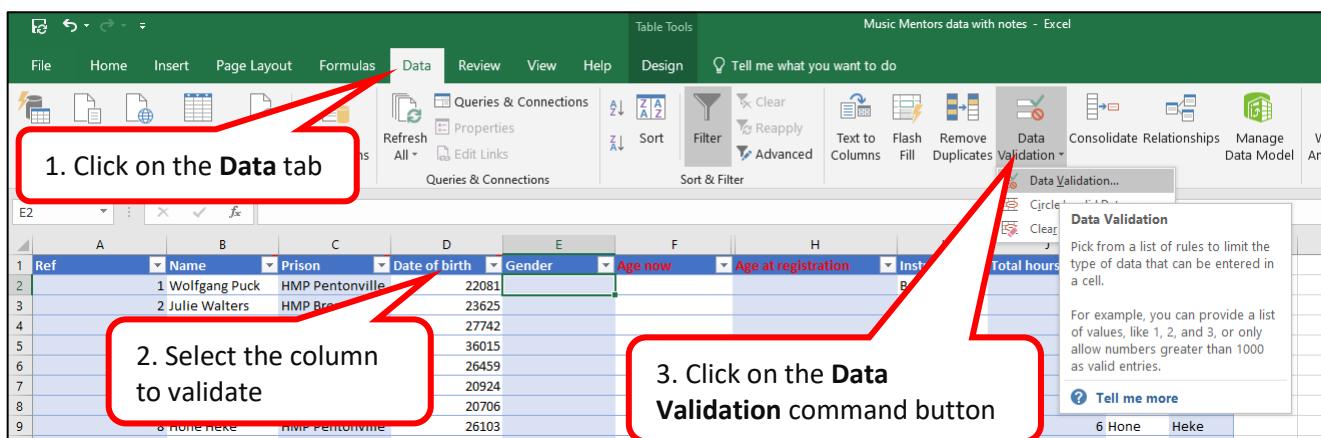
Column1	Name	Prison	Postcode	Postcode2	Postcode3	Category	Welfare session	Pri
1	Prince Charming	HMP Belmarsh	SE28	OEB	[@Postcode2]]	A	Y	HMP
2	Boy George	HMP Belmarsh	SE28	OEB	SE280EB	A	Y	HMP
3	Road Runner	HMP Belmarsh	SE28	OEB	SE280EB	A	Y	HMP
4	Donald Duck	HMP Belmarsh	SE28	OEB	SE280EB	A	Y	HMP
5	Mickey Mouse	HMP Belmarsh	SE28	OEB	SE280EB	A	Y	HMP
6	Ali Baba	HMP Brixton	SW2	5XF	SW25XF	A	Y	HMP
7	Wiley Coyote	HMP Brixton	SW2	5XF	SW25XF	A	Y	HMP
8	Butch Cassidy	HMP Brixton	SW2	5XF	SW25XF	A	Y	HMP
9	Robin Hood	HMP Brixton	SW2	5XF	SW25XF	A	Y	HMP

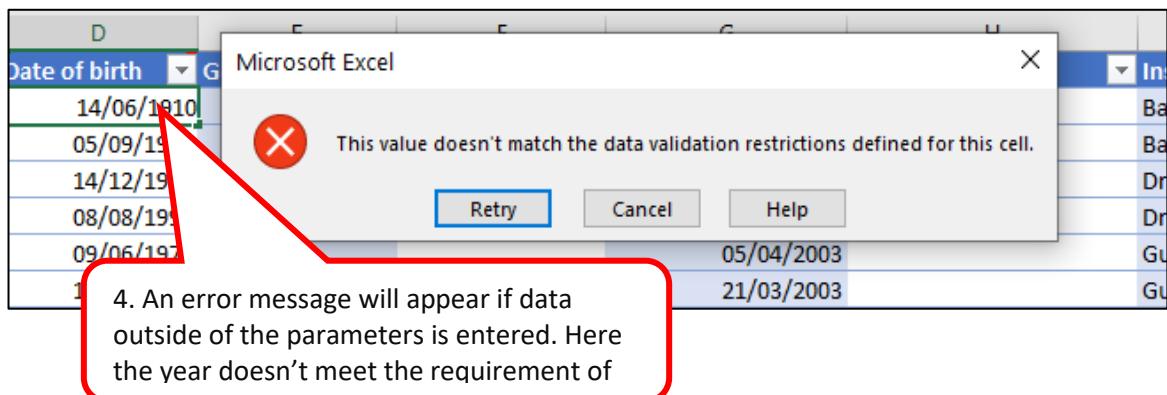
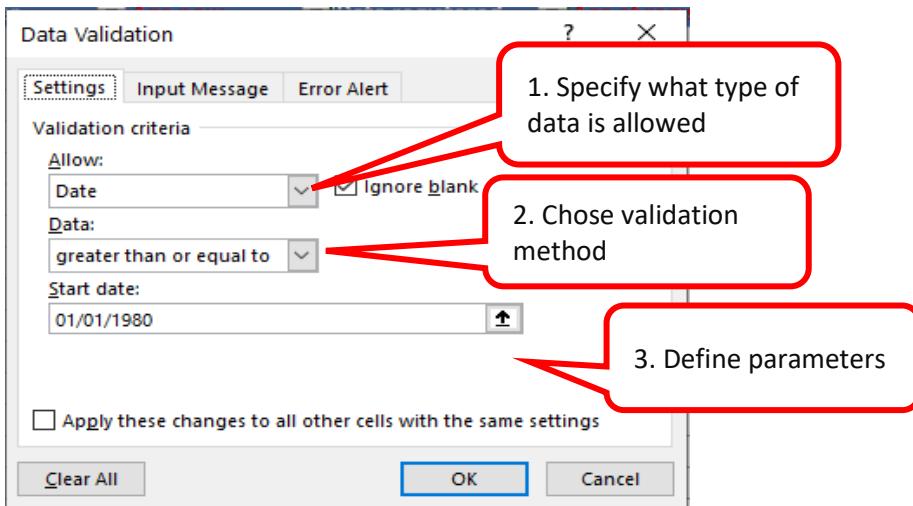
Data Validation

The Data Validation feature in Microsoft Excel controls what can be input into a cell to ensure accurate and consistent data. Here we're

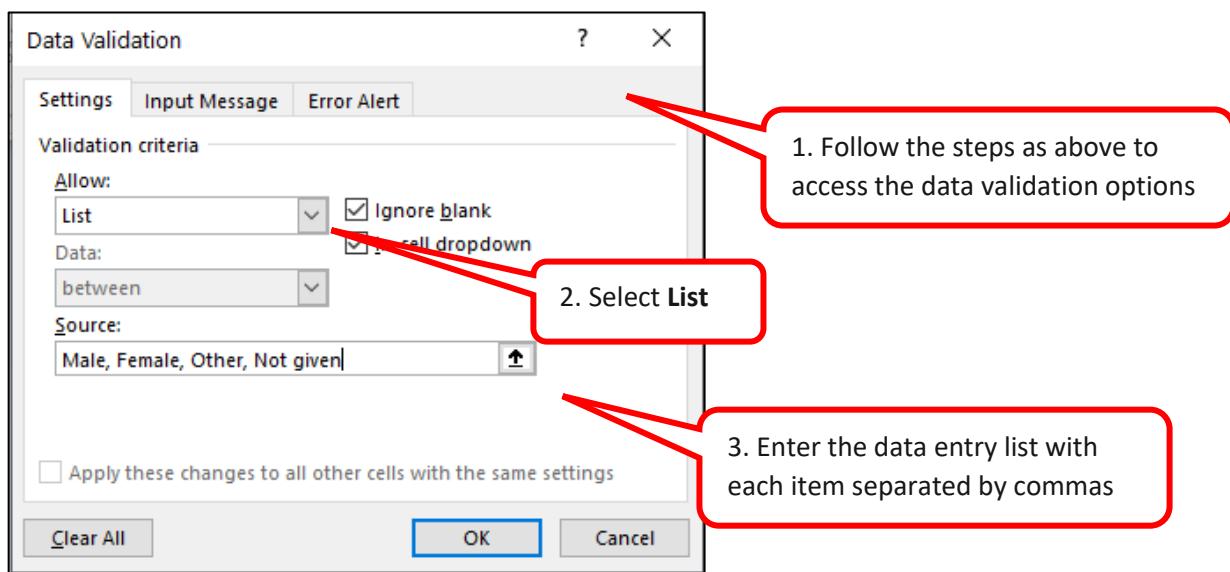
1. Ensure Correct data format
2. Limit data entry options to a list

Data Validation for data format





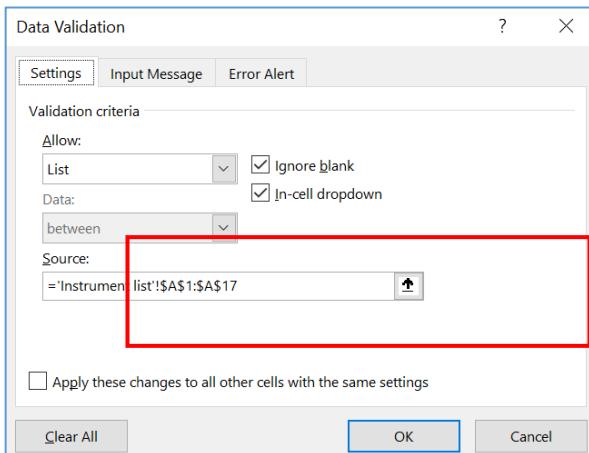
Data Validation with list options



The screenshot shows a Microsoft Excel spreadsheet with a table of data. The table has columns labeled A through I. Column E is titled 'Gender'. A red arrow points from the text '4. Click the drop down arrow and a selection list drops down for data entry' to the dropdown arrow in the 'Gender' column for row 2. The dropdown menu is open, showing four options: 'Male', 'Female', 'Other', and 'Not given'.

Ref	Name	Prison	Date of birth	Gender	Age now	Age at registration	Instrument	Total
1	Wolfgang Puck	HMP Pentonville	22081				Bass	
2	Julie Walters	HMP Bronzefield	23625	Male			Bass, guitar	
3	Margaret Atwood	HMP Bronzefield	27742	Female			Drums	
4	Usain Bolt	HMP Manchester	36015	Other			Drums	
5	Alain Prost	HMP Manchester	26459	Not given			Guitar	
6	Andre Agassi	HMP Swansea	20924				Guitar	

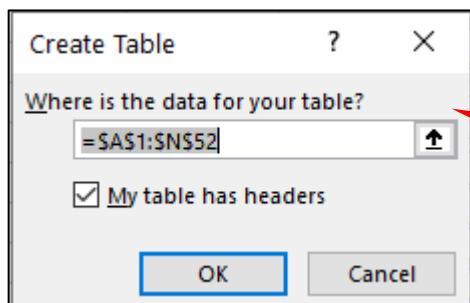
An alternative to typing the list in is to use source data you already have. For that you'll need to put the cell references of where the data is into the Source field. Where this is in another sheet – just move to this sheet and select the Column containing the list of options you want displayed.



Make your data into a table

The screenshot shows the Microsoft Excel ribbon with the 'Insert' tab selected. A red box highlights the 'Table' button in the 'Tables' group. A callout bubble points to it with the text '1. Click on the Insert tab'. Another red box highlights the 'Table' command button in the 'Tables' group, with a callout bubble pointing to it and the text '2. Click on the Table command button'. Below the ribbon, a table is displayed with columns labeled D, E, F, G. The first row contains headers: 'ge now', 'Date registered', 'Age at registration', and 'Instrument experience'. The second row contains data: '05/04/2003', '09/09/2016', and 'Guitar'. The third row contains data: '21/03/2003', 'Guitar'. The fourth row contains data: 'HMP Swansea', '14/12/1975', and 'Alain Prost'.

→ Alternative shortcut: Ctrl + T



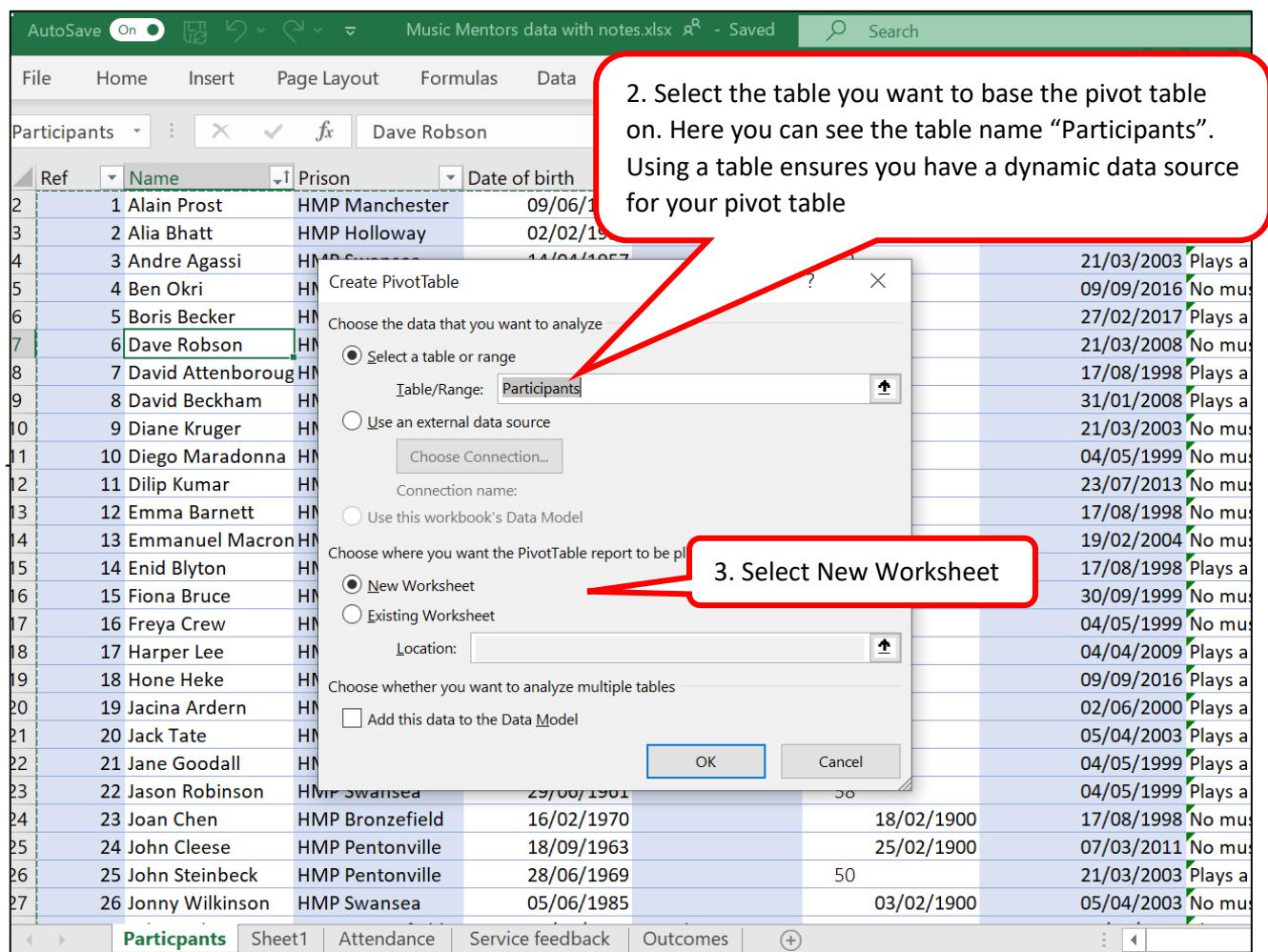
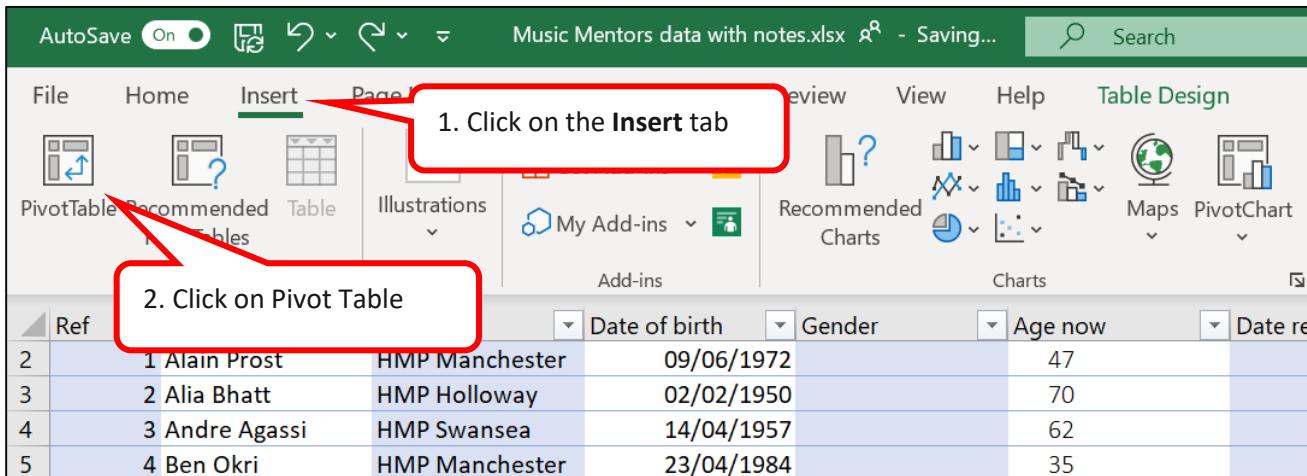
Name the table

It is good practice to name the table as it makes life much easier later when working with formulas. Naming the formula is basically giving your data set a name which will enable you to recognise which data set you need to be working with.

The screenshot shows the Microsoft Excel ribbon with the 'Design' tab selected under 'Table Tools'. A red box highlights the 'Table Name:' dropdown menu, with a callout bubble pointing to it and the text '1. Click on the table & select the Design tab'. Another red box highlights the 'Table Name:' dropdown menu, with a callout bubble pointing to it and the text '2. Rename the table. For example, "BookingData"'. Below the ribbon, a table is displayed with columns H, I, L, M, N, O, P, Q, R, S, T. The first row contains headers: 'Hours' and 'Points per hour'. The second row contains data: '10' and '3'. The third row contains data: '23' and '1'. The fourth row contains data: '29' and '2'. The fifth row contains data: 'HMP Swansea' and 'Andre Agassi'.

Pivot Tables

Creating a pivot table



The screenshot shows the Microsoft Excel interface with the ribbon menu open. A red callout box points to the 'PivotTable Fields' pane on the right, which displays a list of fields: Ref, Name, Prison, Date of birth, Gender, Age now, Date registered, Musical experience, and Instrument experience. Below this, under 'Rows', the 'Prison' field is selected. Under 'Values', the 'Count of Name' field is selected. The main worksheet area shows a table with columns A through E and rows 1 through 29. Row 3 is highlighted in blue and contains the text 'PivotTable2'. The status bar at the bottom right indicates 'Activate Windows'.

4. An empty pivot table is created

The screenshot shows the Microsoft Excel interface with the ribbon menu open. A red callout box points to the main worksheet area, which now displays a PivotTable. The table has two columns: 'Row Labels' (containing 'Prison') and 'Count of Name' (containing the values 5, 9, 9, 9, 8, 7, and 47). The status bar at the bottom right indicates 'Activate Windows'.

Row Labels	Count of Name
HMP Bristol	5
HMP Bronzefield	9
HMP Holloway	9
HMP Manchester	9
HMP Pentonville	8
HMP Swansea	7
Grand Total	47

6. To create a simple pivot table that shows the number of prisoners attending sessions from each prison drag and drop the **Prison** field into the Rows box and the **Name** field into **Values**

7. The pivot table now displays how many prisoners attended the music sessions from each prison

8. As the name field is text the pivot table assumes you want to **Count** the number of records in the Name

9. Add complexity to your Pivot table. To show how many of the attendees from each prison already had musical experience, add the field Musical experience to the Columns field

Field values

1. Highlight the fields you want to display as a percentage.

2. Select Show Values As and then % of Grand Total

The screenshot shows a Microsoft Excel window with a PivotTable Fields pane open on the right. A red callout box points to a cell in the PivotTable containing '19.1489361702128%' with the text '3. Percentages replace the original numbers'. Another red callout box points to the 'Decrease decimal place' button in the ribbon toolbar with the text '4. Use the Decrease decimal place command button to round numbers.'

Prisons	Count of Name
HMP Bristol	10.6%
HMP Bronzefield	19.1%
HMP Holloway	19.1%
HMP Manchester	19.1%
HMP Pentonville	17.0%
HMP Swansea	14.9%
(blank)	0.0%
Grand Total	100.00%

Sorting & Filtering a pivot table

Simple sorting and filtering work exactly the same as elsewhere in Excel.

The screenshot shows a Microsoft Excel window with the PivotTable Analyze tab selected in the ribbon. A red callout box points to the sorting and filtering options in the ribbon with the text 'Click next to the row or column heading for sorting and filtering options'.

Count of Name	Column Labels
Prisons	No musical experience Not recorded Plays a musical instrument Grand Total
Sort A to Z	1 4 5
Srt Z to A	3 5 9
More Sort Options...	6 3 9
Clear Filter From "Prison"	1 4 9
Label Filters	5 8
Value Filters	3 7
Search	24 47

Add a Slicer to a pivot table

1. Click on Insert Slicer

A screenshot of Microsoft Excel showing a pivot table in the foreground and the 'PivotTable Analyze' tab selected in the ribbon. A red callout box points to the 'Insert Slicer' button in the ribbon's toolbar.

Count of Name	Column Labels				
Prisons	-	No musical experience	Not recorded	Plays a musical instrument	Grand Total
HMP Bristol			1	4	5
HMP Bronzefield			3	5	9
HMP Holloway			6	3	9
HMP Manchester			4	1	5
HMP Pentonville			3	5	8
HMP Swansea			3	1	3
Grand Total			20	3	24
					47

PivotTable Fields

Choose fields to add to report:

Search

Ref

Name

Prison

Date of birth

Gender

Age now

Date registered

Formatting a pivot table

Like Tables, Pivot Tables can be formatted.

1. Click on the pivot table and then on the **Design** tab

2. Add and remove specific headers or banding for rows & columns

3. Change the format (colours, banding, outline etc)

A screenshot of Microsoft Excel showing a pivot table in the foreground and the 'Design' tab selected in the ribbon. Three red callout boxes point to different features: 1. The 'Design' tab itself, 2. The 'Row Headers' and 'Column Headers' checkboxes in the 'Layout' section, and 3. The 'PivotTable Style Options' dropdown in the 'PivotTable Style' section.

Count of Name	Column Labels				
Prisons	-	No musical experience	Not recorded	Plays a musical instrument	Grand Total
HMP Bristol			1	4	5
HMP Bronzefield			3	5	9
HMP Holloway			6	3	9
HMP Manchester			4	1	5
HMP Pentonville			3	5	8
HMP Swansea			3	1	3
Grand Total			20	3	24
					47

PivotTable Fields

Choose fields to add to report:

Search

Ref

Name

Prison

Date of birth

Gender

Age now

Date registered

Drag fields between areas below:

Filters

Columns

Musical experience

Rows

Prison

Values

Count of Name

Activate Windows

Defer Layout Update to Settings to activate Windows. Update

Refreshing data in a Pivot table

If you make changes to the data set being used to the pivot table, you might need to refresh the chart so that the changes are immediately reflected in the chart.

The screenshot shows a Microsoft Excel spreadsheet titled "Music Mentors data with notes". The ribbon is visible with the "PivotTable Analyze" tab selected. In the Data section of the ribbon, there is a "Refresh" button, which is highlighted with a red box. Below the ribbon, cell B6 contains the value "19.1489361702128%". A context menu is open over this cell, with the "Refresh" option highlighted with a red box. The context menu also includes options like "Copy", "Format Cells...", "Number Format...", "Sort", "Remove 'Count of Name'", "Summarize Values By", "Show Values As", "Show Details", "Value Field Settings...", "PivotTable Options...", and "Hide Field List".

Recommended Pivot Tables

A short cut to creating pivot tables can be to use the recommended Pivot table function.

The screenshot shows the Microsoft Excel ribbon with the "Home" tab selected. In the "Insert" section, there is an icon for "PivotTable Recommended PivotTable", which is highlighted with a red box. Other icons in the "Insert" section include "Table", "Image", "Shapes", "Icons", "Online Pictures", "3D Models", "SmartArt", "Get Add-ins", "My Add-ins", "Screenshot", "Recommended Charts", "Line", "Column", "Win/Loss", "3D Map", "Slicer", "Timeline", "Link", "Text", and "Symbol".

Changing value field settings

In pivot tables you can select different types of setting for the values portion of your Pivot table. You can:

- Give the value set a custom (display) name
- Specify how you want to summarise values
- Specify how you want to display values

1. Right mouse click on the Value eg Sum of Client ID and select the option **Value Field Settings**

The screenshot shows a Microsoft Excel spreadsheet titled "Trainer - Data Essentials training data.xlsx". A red callout box points from the text above to the "Value Field Settings" button in the "PivotTable Analyze" tab of the ribbon. The pivot table in the main area shows data for "Client ID" by "Year" (2019, 2020) with a "Grand Total". The "PivotTable Fields" pane on the right lists fields like "Client ID", "Job Title", and "Organisation".

Custom value name

Type in the name you would like to use for the value field.

The screenshot shows the "Value Field Settings" dialog box open over a pivot table. A red callout box points from the text above to the "Custom Name" input field in the dialog. The dialog also includes sections for "Source Name" (Client ID), "Summarize Values By" (Sum), and "Summarize value field by" (Sum). The pivot table below shows data for "Client ID" by "Year" (2019, 2020) with a "Grand Total". The "PivotTable Fields" pane on the right lists fields like "Client ID", "Job Title", and "Organisation".

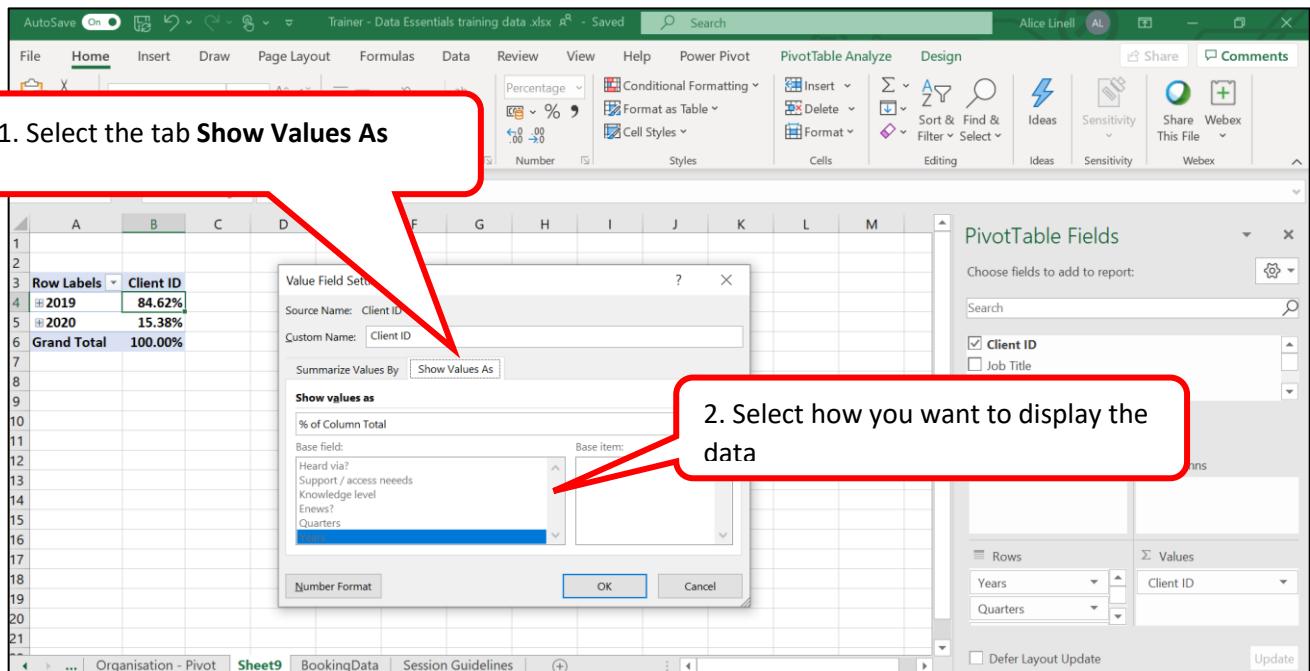
Summarise values by

The screenshot shows a Microsoft Excel window with a PivotTable on the 'Sheet9' tab. The PivotTable Fields pane on the right shows 'Years' under 'Rows' and 'Sum of Client ID' under 'Values'. A red box highlights the 'Sum of Client ID' field in the 'Values' section. A red callout points to the 'Value Field Settings' dialog box, which is open over the PivotTable. The dialog box has two tabs: 'Summarize Values By' (selected) and 'Show Values As'. Under 'Summarize value field by', 'Sum' is selected from a dropdown menu. Another red callout points to this dropdown with the text '2. Select how you want your field summarised'. The main Excel interface shows a table with data for years 2019 and 2020, and a Grand Total row.

Most common calculations used to summarise data:

Function	Summarizes
Sum	The sum of the values adds all the values in the selected data range. This is the default function for numeric values.
Count	The number of values. The Count summary function works the same as the COUNTA worksheet function. Count is the default function for values other than numbers.
Average	The average of the values. The average is the mean average of the numbers. To calculate: Excel adds up all the numbers, then divides by how many numbers there are. In other words it is the sum divided by the count.
Max	The largest value.
Min	The smallest value.
Product	The product of the values. The product is the result of multiplying the numbers eg the product of 2 and 3 is 6.

Show values As



Most common ways of displaying data:

Use this calculation	To
No calculation	Turn off custom calculation.
% of Column Total	Display all the values in each column or series as a percentage of the total for the column or series.
% of Row Total	Display the value in each row or category as a percentage of the total for the row or category.
Rank smallest to largest	Display the rank of selected values in a specific field, listing the smallest item in the field as 1, and each larger value with a higher rank value. Create a new column for Rank if you want to show the specific amounts too.
Rank largest to smallest	Display the rank of selected values in a specific field, listing the largest item in the field as 1, and each smaller value with a higher rank value. Create a new column for Rank if you want to show the specific amounts too.

Changing the sort order

The screenshot shows a Microsoft Excel window with a PivotTable titled "Count of Customer ID". The PivotTable has "Row Labels" and "Heard via?" as columns. A context menu is open over the cell "Unknown" in row 10, column B. The menu includes options like Copy, Format Cells..., Number Format..., Refresh, Sort, Remove "Count of Customer ID", Summarize Values By, Show Values As, Show Details, Value Field Settings..., PivotTable Options..., and Hide Field List. The "Sort" option is expanded, showing "Sort Smallest to Largest" (selected), "Sort Largest to Smallest", and "More Sort Options...". Red callout boxes with arrows point from the text to the corresponding elements in the interface.

1. Right mouse click on a value in the data set you want to sort

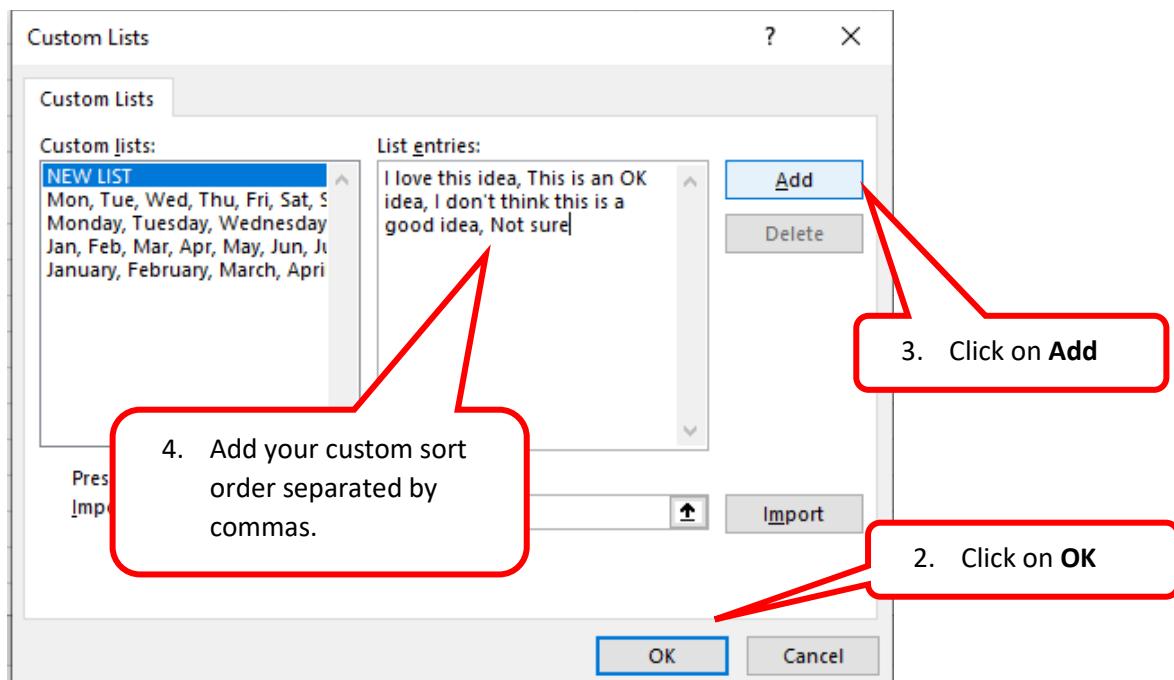
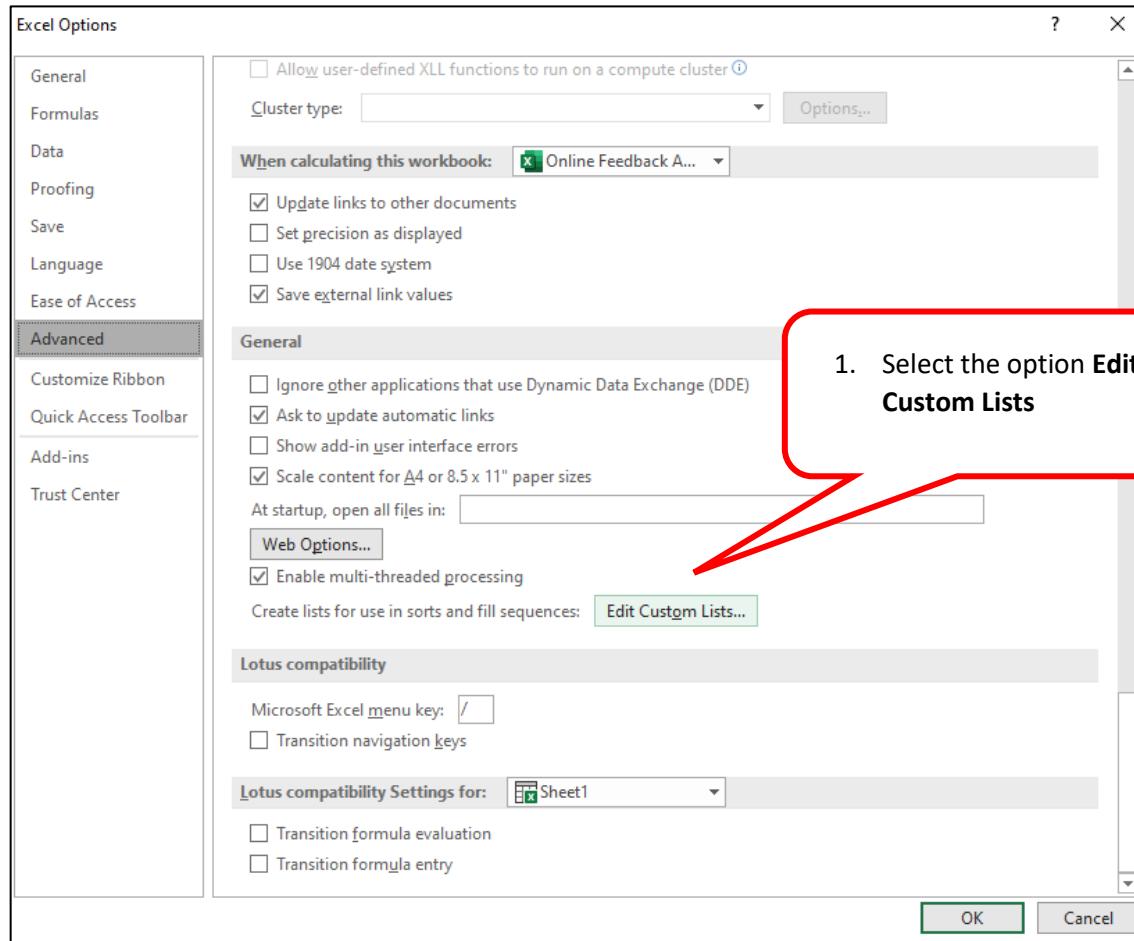
2. Select sort and the sort order you require

More sort options allows you to input a specific sort order

	Heard via?	
1		
2		
3	Row Labels	Count of Customer ID
4	Email	19
5	Internet	1
6	Internet search	
7	Newsletter	
8	Twitter	
9	Unknown	
10	Word of Mouth	42
11	Grand Total	
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		

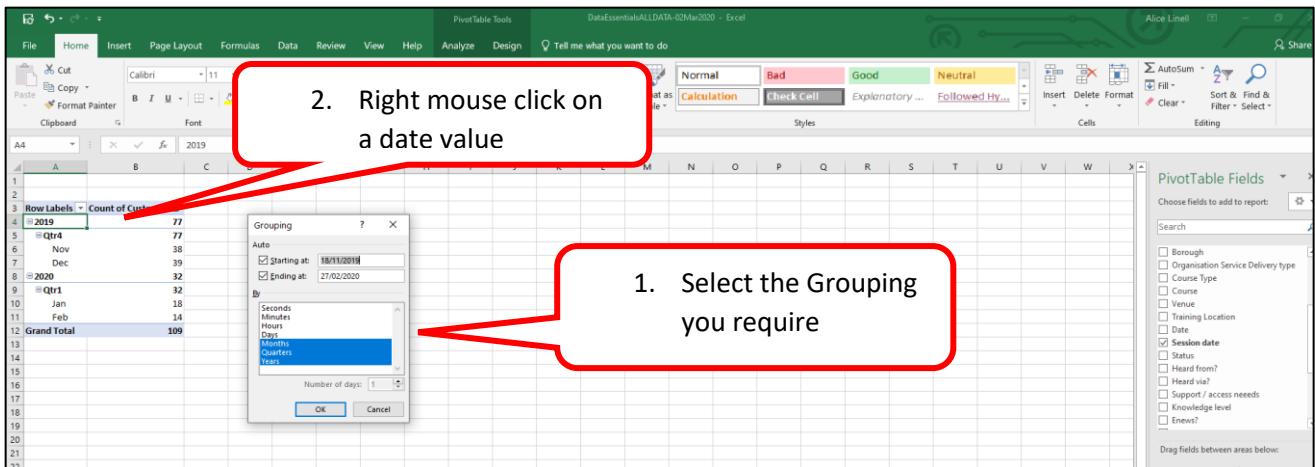
Custom sort order

Go to File > Options > Advanced

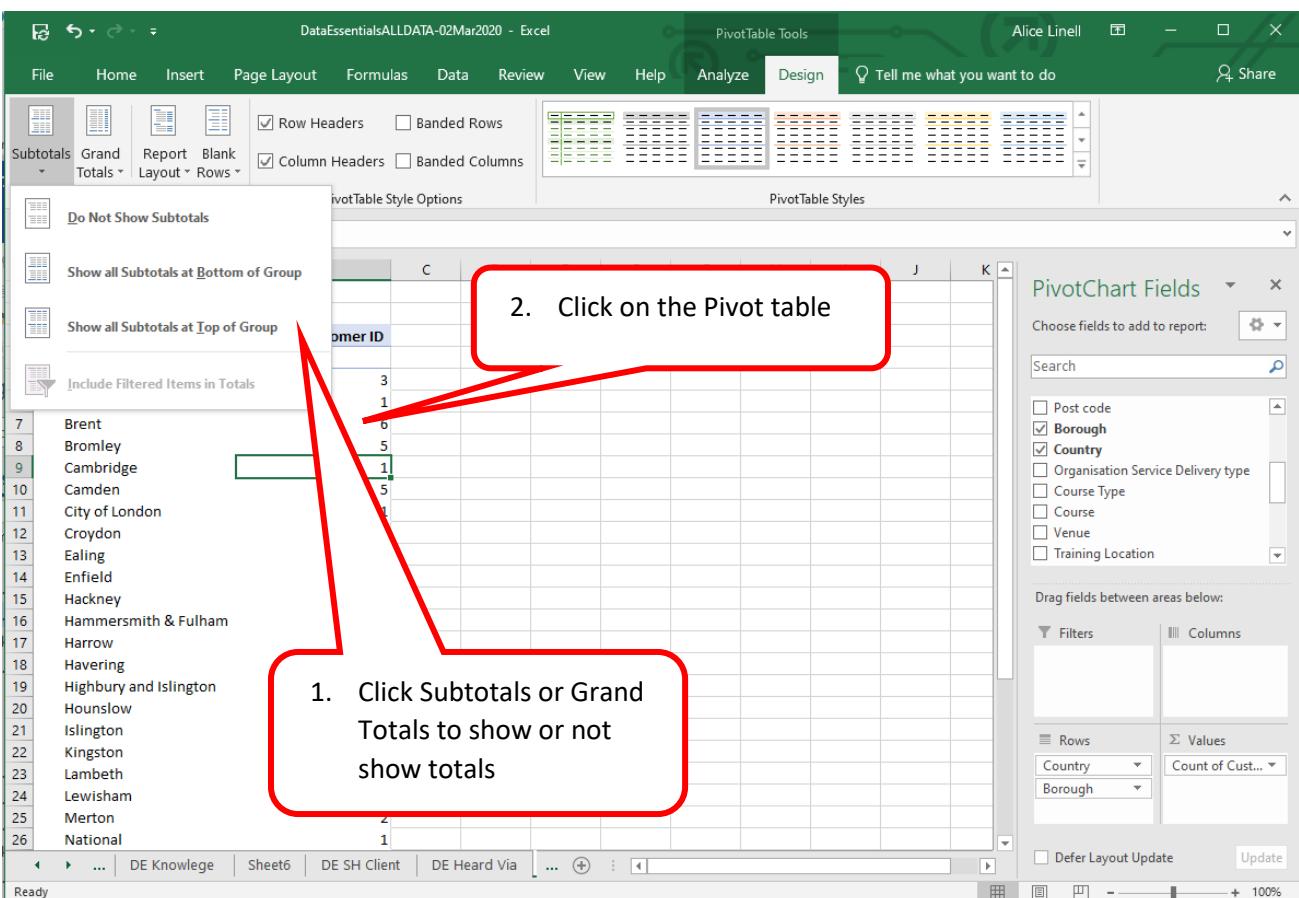


Grouping dates

In Excel 2016 and later versions, Excel automatically groups dates by months & quarters. If you are working with an Excel version prior to that or you want to change the automatic grouping you can manually group dates.



Sub totals and Grand totals



Summary sheets

In a summary sheet you can display data held in various other sheets in your workbook to see alongside each other. The data in the sheet will dynamically update if new data is added to the other sheets in question.

The screenshot shows a Microsoft Excel interface with the following details:

- Formula Bar:** Displays the formula `=Prison info!F2`.
- Sheet Tabs:** The tabs at the bottom include Guidelines, Participants, Validation lists, Survey Results, Attendance, Prison info, Summary sheet (which is the active tab), Exercise 1, and Exercise 2.
- Table Data:** A table titled "Prison Information" is displayed, showing columns for Prison Name, Postcode, Category, Gender, Supervisor, and Number of Mentors. The data includes entries for HMP Birmingham, HMP Brixton, HMP Bronzefield, HMP Eastwood Park, HMP Foston Hall, HMP Manchester, HMP Pentonville, and HMP Wormwood Scrubs.
- Red Annotations:** Three callouts highlight specific steps:
 - Step 3: Points to the formula bar with the text "In the formula bar you'll see the 'name of the sheet'! and the cell reference".
 - Step 1: Points to the cell F2 in the "Prison info" sheet with the text "Click in the cell you want to bring data into and start by entering =".
 - Step 2: Points to the "Prison info" tab with the text "Now click on the sheet holding the data, in this case Prison info, and click in the cell with the number of mentors. Now click Enter."

You can then copy down the formula as usual.