

## Lesson 4-5: Use intersection range names and the INDIRECT function

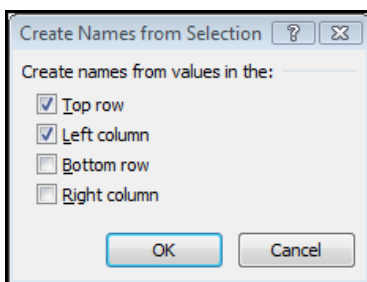
- 1 Open *Distance Chart-1* from your sample files folder.

	A	B	C	D	E	F	G	H	I
3		York	Southampton	Sheffield	Portsmouth	Oxford	Nottingham	Norwich	Newcastle
4	Aberdeen_	307	538	347	552	473	379	480	228
5	Aberystwyth_	195	198	156	218	157	156	271	259
6	Birmingham_	129	128	76	141	63	49	161	204

The chart allows you to quickly find the distance between two UK locations. For example, it is clear that the distance from Birmingham to Oxford is 63 miles.

- 2 Create automatic range names based upon the labels in column A and row 3.

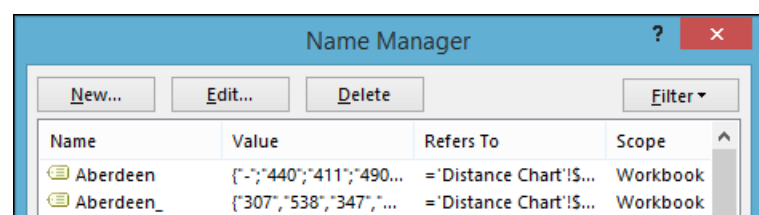
1. Select the range A3:X26.
2. Click: Formulas→Defined Names→Create from Selection.  
Excel correctly guesses that the labels are in the *Top row* and *Left column*.
3. Click the OK button.



- 3 View the range names created using the *Name Manager*.

1. Click: Formulas→Defined Names→Name Manager.

The *Name Manager* dialog appears.



It is now clear why trailing underscores were used for the labels in column A. Without them, there would have been a naming conflict as each place name appears for both a row and a column.

2. Click the *Close* button.
- 4 Type **From** into cell A30.
- 5 Type **To** into cell A31.
- 6 Type **Miles** into cell A32.
- 7 Merge cells B30:E30, B31:E31 and B32:E32 (see facing page sidebar if you are unable to do this).

### tip

You can also bring up the Name Manager using the keyboard shortcut:

<Ctrl>+<F3>

Distance Chart-1

## Note

### Merging cells

Merging cells is a basic skill covered in depth in Lesson 4-6 of the *Essential Skills* book in this series.

To merge the cells:

1. Select cells B30:E30.
2. Click:

Home → Alignment → Merge & Center → Merge Across

You can also watch this as a video lesson free of charge at:

[www.ExcelCentral.com](http://www.ExcelCentral.com)

To do this click the Excel 2013 and Essential Skills tabs and then navigate to:

*Lesson 4-6: Merge cells, wrap text and expand/collapse the formula bar.*

- 8 Add a list validation to cell B30 that will restrict the cell to the items appearing in cells A4:A26.

This was covered in: *Lesson 2-11: Add a table-based dynamic list validation.*

- 9 Add a list validation to cell B31 that will restrict the cell to the items appearing in cells B3:X3.

- 10 Click in cell B30 and choose *Birmingham\_* from the drop down list.

- 11 Click in cell B31 and choose *Oxford* from the drop down list.

Your worksheet should now look like this:

	A	B	C	D
30	From	Birmingham_		
31	To	Oxford		
32	Miles			

- 12 Use the intersection operator to create a formula in cell B32 that will show the distance from Birmingham to Oxford.

1. Click in cell B32.
2. Type the formula:

**=Birmingham\_ Oxford**

Note that there is a space between the words *Birmingham\_* and *Oxford*.

3. Press the <Enter> key.

The space is the intersection operator. The correct answer is displayed in cell B32.

- 13 Use the INDIRECT function and the intersection operator (space) to show the correct distance in cell B32 based upon the values in cells B30 and B31.

This is more difficult than it first seems.

You could be forgiven for thinking that the formula:

**=B30 B31**

...would work.

Unfortunately, you can't refer to range names in this way. Excel provides the INDIRECT function to solve this problem.

1. Type the following formula into cell B32:

**=INDIRECT(B30) INDIRECT(B31)**

Note that there is a space between *=INDIRECT(B30)* and *INDIRECT(B31)*.

2. Press the <Enter> key.

The correct mileage is now shown in cell B32 for any journey that you select in cells B30 and B31.

- 14 Save your work as Distance Chart-2.

	A	B	C	D
30	From	Derby_		
31	To	Manchester		
32	Miles			59