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Search Site:
Search

Home
Basic Excel
Built-In Excel Functions
Excel 2013 New Functions
Excel Vlookup Tutorial
Pivot Table Tutorial
Excel Formulas
Array Formulas
Tips & Tricks
Common Excel Errors
Excel Templates
Excel Macros
Excel VBA Tutorial
Excel 2003 vs 2007
Recommended Books

Home » Excel-Built-In-Functions » Excel-Lookup-And-Reference-Functions » Excel-Hlookup-Function

The Excel HLOOKUP Function

Related Functions:

LOOKUP Function
VLOOKUP Function

Basic Description

The Excel Hlookup function 'looks up' a given value in the top row of a data array (or table), and returns the corresponding value from another row of the array.

The syntax of the function is:

HLOOKUP(lookup_value, table_array, row_index_num, [range_lookup])

Where the function arguments are as follows:

lookup_value	-	The value that you want to look for, in the first row of the supplied data array
table_array	-	The data array or table, containing the data to be searched and the return values.
row_index_num	-	The row number, within the supplied array, that you want the corresponding value to be returned from
[range_lookup]	-	An optional logical argument, which can be set to TRUE or FALSE, meaning:

TRUE - if the function cannot find an exact match to the supplied lookup_value, it should use the closest match below the supplied value.
Note: If [range_lookup] is set to TRUE, the top row of the table_array must be in ascending order).

FALSE - if the function cannot find an exact match to the supplied lookup_value, it should return an error

Wildcards

In text-related Hlookups, the lookup_value can contain the following wildcard characters:

? - matches any single character
* - matches any sequence of characters

Hlookup Function Examples

Hlookup Example 1

Cells A2-F6 of the spreadsheet below, show the exam scores for 5 students in 4 different subjects. If you want to look up a specific score (eg. Biology) for one of the students (eg. Ed), this can be done using the Hlookup function, as shown in cell B10 of the spreadsheet.

Formulas:

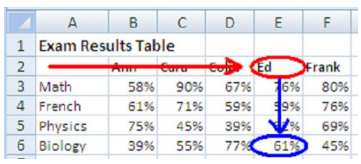
	A	B	C	D	E	F
1	Exam Results Table					
2		Ann	Cara	Colin	Ed	Frank
3	Math	58%	90%	67%	76%	80%
4	French	61%	71%	59%	59%	76%
5	Physics	75%	45%	39%	52%	69%
6	Biology	39%	55%	77%	61%	45%
7						
8	Individual Student Score					
9	Student :	Biology Score :				
10	Ed	=HLOOKUP(A10, A2:F6, 5, FALSE)				

Results:

	A	B	C	D	E	F
1	Exam Results Table					
2		Ann	Cara	Colin	Ed	Frank
3	Math	58%	90%	67%	76%	80%
4	French	61%	71%	59%	59%	76%
5	Physics	75%	45%	39%	52%	69%
6	Biology	39%	55%	77%	61%	45%
7						
8	Individual Student Score					
9	Student :	Biology Score :				
10	Ed	61%				

In the above example, the Hlookup function searches through the top row of the table_array (the range A2-F2), to find a match for the lookup_value (the name "Ed"). When the the name 'Ed' is found, the function returns the corresponding value from the 5th row of the lookup_table.

This is illustrated in the spreadsheet on the right. The function finds the name 'Ed' in the top row of the table_array and then returns the value from the 5th row of the table_array.



	A	B	C	D	E	F
1	Exam Results Table					
2		Ann	Cara	Colin	Ed	Frank
3	Math	58%	90%	67%	76%	80%
4	French	61%	71%	59%	59%	76%
5	Physics	75%	45%	39%	52%	69%
6	Biology	39%	55%	77%	61%	45%

If we change the name in cell A10 of the spreadsheet from 'Ed' to 'Cara', the Hlookup functions would automatically recalculate the function to display the exam results for Cara.

Hlookup Example 2

Cells A1-F3 of the spreadsheet below, show body types relating to body mass index (BMI), for the ranges 0 - 18.4, 18.5 - 24.9, 25.0 - 29.9 and over 30.

Cell C6 shows the user's current BMI, which is 23.5, and cell C7 shows the Hlookup function that is used to look up the body type that relates to this BMI.

	A	B	C	D	E	F
1	BMI :	min	0	18.5	25	30
2		max	18.4	24.9	29.9	
3	Body Type:		Underweight	Normal Weight	Overweight	Obese
4						
5						
6	My Current BMI:		23.5			
7	My Body Type:		=HLOOKUP(C6, C1:F3, 3, TRUE)			

The Hlookup function in the above spreadsheet returns the result "Normal Weight", which is the correct body type for a BMI of 23.5.

Note that, in this example, the [range_lookup] argument is set to TRUE, to tell that function that, if it cannot find an exact match to the supplied lookup_value, it should use the closest match below this value. Therefore, for all BMIs up to and including 18.4 the function would return "Underweight", for all BMIs between 18.5 and 24.9, the function would return "Normal Weight", etc.

Further Hlookup Examples

For a practical example of the HLOOKUP function being used to create a variable drop-down list, see the Variable Drop-Down List page.

Also, there are further examples on the Microsoft Office website.

Hlookup Function Common Errors

If you get an error from the Excel Hlookup function this is likely to be one of the following:

Common Errors

#N/A - Occurs if the Hlookup function fails to find a match to the supplied lookup_value
The cause of this will generally depend on the supplied [range_lookup]:

- if [range_lookup] = TRUE (or is omitted) - the #N/A error is likely to be because the smallest value in the lookup row is greater than the supplied lookup_value.
- if [range_lookup] = FALSE - the #N/A error is likely to be because an exact match to the lookup_value is not found in the lookup row.

  This error is described in more detail in the Common Hlookup Problem section below.

#VALUE! - Occurs if either:

- The supplied row_index_num argument is < 1 or is not recognised as a numeric value;
- The supplied [range_lookup] argument is not recognised as TRUE or FALSE

#REF! - Occurs if the supplied row_index_num argument is greater than the number of rows in the supplied table_array.

Also, the following problem is encountered by some users:

Common Hlookup Problem

You are using the Hlookup function to perform an exact lookup (i.e. with [range_lookup] set to FALSE) and you know that the value that you want to look up is present in your table_array. However, your Excel HLOOKUP function is returning the #N/A error.

Why can't the Hlookup function 'see' the lookup_value in the table_array?

Step No. 1

Investigate this problem by checking for equality between the cells that you believe should match.

In Example 1 above, we expect the text "Ed" in cell A10 to be matched with the text "Ed" in cell E2 of the spreadsheet. Therefore, we need to test if Excel considers the contents of these two cells to be truly equal. We can do this by typing the following formula into any free Excel cell:

=A10=E2

This formula will evaluate to TRUE if Excel considers the contents of cells A10 and E2 to be truly equal. If the formula evaluates to FALSE, however, this tells you that the cause of your Hlookup error is that the contents of cells A10 and E2 are not truly equal.

Step No. 2

If Excel tells you that the cells that you expect to be matched are not truly equal, you need to find out why this is. The reason is likely to be one of the following:

Possible Reason No. 1

You may have unseen characters, such as spaces, at the start or end of either the value you are looking up, or in the cells of your table_array. These characters cause your lookup_value cell and the 'matching' cell in your table_array to have slightly different content.

Solution:

In this case, you need to click into each cells and remove any additional characters.

Possible Reason No. 2

The contents of the cells that are being compared may have different data types. For example, the cell containing your lookup_value may be stored as a number by Excel, whereas the values in your table_array may be stored as text (even though they may look like numbers).

Solution:

Force both sets of data to have the same type. For example, if you want both sets of values to be stored as text, convert both sets of data to text, using Excel's **Text To Columns** tool:

1. Use the mouse to select the cells you want to convert to text (this must be done one column at a time)
2. From the **Data** tab at the top of your Excel workbook, select the **Text to Columns ...** option
3. Make sure the **Delimited** option is selected and click **next**
4. Make sure all the delimiter options are unselected and then click **next** again
5. You should now be offered a selection of Column Data Formats. Select **Text** and click the **Finish** button

The data in your selected cells should now be stored as text within Excel and so the Excel Hlookup function should be able to 'look up' the matching value.

Note that you could also have chosen to convert the contents of your cells to Excel's 'general' type, by simply selecting the column data format **General** in the **Text To Columns** tool.

Return to the **Excel Lookup & Reference Functions** Page

Return to the **List of All Built-In Excel Functions**