Lesson no. 1: Function Reference-Lookups

FUNCTION REFERENCE

LOOKUP Functions

This article describes the formula syntax and usage of the **LOOKUP** function in Microsoft Excel.

Description

The **LOOKUP** function returns a value either from a one-row or one-column range or from an array. The **LOOKUP** function has two syntax forms: the vector form and the array form.

Syntax

LOOKUP(lookup_value, lookup_vector, [result_vector])

VLOOKUP Functions

This article describes the formula syntax and usage of the **VLOOKUP** function in Microsoft Excel.

Description

You can use the **VLOOKUP** function to search the first column of a range of cells, and then return a value from any cell on the same row of the range. For example, suppose that you have a list of employees contained in the range A2:C10. The employees' ID numbers are stored in the first column of the range, as shown in the following illustration.

	A	B	C
1	**Employee ID**	**Department**	**Full Name**
2	35	Sales	Yossi Banai
3	36	Production	Nicole Bousseau
4	37	Sales	Alk Chen
5	38	Operations	Axel Delgado
6	39	Sales	Suroor Fatima
7	40	Production	Gerhard Goeschl
8	41	Sales	Andreas Hauser
9	42	Operations	Nattorn Jayanama
10	43	Production	Jim Kim

If you know the employee's ID number, you can use the **VLOOKUP** function to return either the department or the name of that employee. To obtain the name of employee number 38, you can use the formula **=VLOOKUP(38, A2:C10, 3, FALSE)**. This formula searches for the value 38 in the first column of the range A2:C10, and then returns the value that is contained in the third column of the range and on the same row as the lookup value ("Axel Delgado").

The V in **VLOOKUP** stands for vertical. Use **VLOOKUP** instead of **HLOOKUP** when your comparison values are located in a column to the left of the data that you want to find.

Syntax

VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup])

	A	B	C	D
1	**Employee ID**	**Department**	**Full Name**	**Full Name**
2	35	Sales	Yossi Banai	Tom Cruise
3	36	Production	Nicole Bousseau	Nicole Bousseau
4	37	Sales	Alk Chen	Chris Evans
5	38	Operations	Axel Delgado	Axel Delgado
6	39	Sales	Suroor Fatima	Chris Hemsworth
7	40	Production	Gerhard Goeschl	Gerhard Goeschl
8	41	Sales	Andreas Hauser	Tony Stark
9	42	Operations	Nattorn Jayanama	Nattorn Jayanama
10	43	Production	Jim Kim	Harry Potter

The VLOOKUP function syntax has the following arguments:

- **lookup_value**   Required. The value to search in the first column of the table or range. The *lookup_value* argument can be a value or a reference. If the value you supply for the l*ookup_value* argument is smaller than the smallest value in the first column of the *table_array* argument, **VLOOKUP** returns the #N/A error value.

- **table_array**   Required. The range of cells that contains the data. You can use a reference to a range (for example, **A2:D8**), or a range name. The values in the first column of *table_array* are the values searched by *lookup_value*. These values can be text, numbers, or logical values. Uppercase and lowercase text is equivalent.

- **col_index_num** Required. The column number in the *table_array* argument from which the matching value must be returned. A *col_index_num* argument of 1 returns the value in the first column in *table_array*; a *col_index_num* of 2 returns the value in the second column in *table_array*, and so on.

    If the *col_index_num* argument is:

    Less than 1, **VLOOKUP** returns the #VALUE! error value.
    Greater than the number of columns in *table_array*, **VLOOKUP** returns the #REF! error value.

- **range_lookup** Optional. A logical value that specifies whether you want **VLOOKUP** to find an exact match or an approximate match:

    If *range_lookup* is either TRUE or is omitted, an exact or approximate match is returned. If an exact match is not found, the next largest value that is less than *lookup_value* is returned.

    Important If *range_lookup* is either TRUE or is omitted, the values in the first column of *table_array* must be placed in ascending sort order; otherwise, **VLOOKUP** might not return the correct value.

    For more information, see Sort data in a range or table.

    If *range_lookup* is FALSE, the values in the first column of *table_array* do not need to be sorted.

    If the *range_lookup* argument is FALSE, **VLOOKUP** will find only an exact match. If there are two or more values in the first column of *table_array* that match the

    lookup_value, the first value found is used. If an exact match is not found, the error value #N/A is returned.

HLOOKUP Function

This article describes the formula syntax and usage of the **HLOOKUP** function in Microsoft Excel.

Description

Searches for a value in the top row of a table or an array of values, and then returns a value in the same column from a row you specify in the table or array. Use HLOOKUP when your comparison values are located in a row across the top of a table of data, and you want to look down a specified number of rows. Use VLOOKUP when your comparison values are located in a column to the left of the data you want to find.

The H in HLOOKUP stands for "Horizontal."

Syntax

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

The HLOOKUP function syntax has the following arguments:

- **Lookup_value**   Required. The value to be found in the first row of the table. Lookup_value can be a value, a reference, or a text string.

- **Table_array**   Required. A table of information in which data is looked up. Use a reference to a range or a range name.

    The values in the first row of table_array can be text, numbers, or logical values.
    If range_lookup is TRUE, the values in the first row of table_array must be placed in ascending order: ...-2, -1, 0, 1, 2,... , A-Z, FALSE, TRUE; otherwise, HLOOKUP may not give the correct value. If range_lookup is FALSE, table_array does not need to be sorted.
    Uppercase and lowercase text are equivalent.
    Sort the values in ascending order, left to right. For more information, see Sort data in a range or table.

- **Row_index_num**   Required. The row number in table_array from which the matching value will be returned. A row_index_num of 1 returns the first row value in table_array, a row_index_num of 2 returns the second row value in table_array, and so on. If row_index_num is less than 1, HLOOKUP returns the #VALUE! error value; if row_index_num is greater than the number of rows on table_array, HLOOKUP returns the #REF! error value.

- **Range_lookup**   Optional. A logical value that specifies whether you want HLOOKUP to find an exact match or an approximate match. If TRUE or omitted, an approximate match is returned. In other words, if an exact match is not found, the next largest value that is less than lookup_value is returned. If FALSE, HLOOKUP will find an exact match. If one is not found, the error value #N/A is returned.