

## Things are Looking Up!

Hi everybody and welcome to this week's blog.

Prompted by a client, I've decided that in this week's blog I will be concentrating on Excel's VLOOKUP function. This function is so useful in many ways but it can be a bit tricky to get the right answer sometimes unless you are fully aware of the pitfalls.

As I've said before, I hope you find the tips below useful and you will "adopt and adapt" some of the points raised in this article in order to enhance your work in Excel.

Unfortunately, for reasons of space, I'm assuming that you know how to build a formula with or without the Insert Function feature. Drop me a mail if that is a "How To" you need to know

See you next time.  
"Les is more!"

### So, what does VLOOKUP do?

Basically, VLOOKUP helps you find and return specific information in a separate look-up table that matches a value that you have in your working table. The look-up table **MUST BE** sorted in ascending order – a Golden Rule – see below for why.

When you use the function, you need to know that there are two modes for matching - exact mode or approximate mode matching. For example, if you are looking up a Product ID or Code, you will want to use an exact mode for matching in order to find other related information you need. On the other hand, if you are awarding bonuses to employees based on sales, you often need to get an approximate match for their sales figure against a sliding scale in a look-up bonus table. This bonus table would probably only have a few rows in it with thresholds indicating the start of each bonus award. In this case, VLOOKUP finds the first threshold value which is greater than the target sales figure and then slides back to the threshold value that is less than or equal to the lookup value. I'll show you what I mean in the examples that follow.

### How do you use VLOOKUP?

If you read the appropriate help from Microsoft on this, you will find that VLOOKUP requires you to supply four values or arguments to get the right result. Microsoft calls them **Lookup\_value**, **Table\_array**, **Col\_index\_num**, **Range\_lookup**. Personally, I remember these as:

<b>What?</b>	... value in the working table am I looking up?	You supply the cell reference from the working table containing the target value eg. the Product Code or Sales figure in the 2 scenarios above
<b>Where?</b>	... is the look-up table?	You supply the range reference of cells that contains the complete look-up table eg \$B\$1:\$D\$10
<b>Which?</b>	... column in the look-up table contains the matching value I need?	Use <b>1</b> if the matching value is in the 1 <sup>st</sup> column of the look-up table; use <b>2</b> if it's in the 2 <sup>nd</sup> column, and so on
<b>How?</b>	... is the look-up done? Approximate or exact?	Use <b>0</b> for an <i>exact match mode</i> ; Use <b>1</b> for an <i>approximate match mode</i> ; (If omitted Excel assumes a default of 1 - <i>approximate</i> )

### VLOOKUP Examples

Download the accompanying Excel spreadsheet to this blog. Study these formulas:

Cell	Formula	Comments about Formula and Result
J8	=VLOOKUP(I8,\$L\$8:\$M\$16,2,1)	<p><b>What?</b> <i>Look-up value</i> in cell I8 (=7100)</p> <p><b>Where?</b> <i>Look-Up table</i> in range \$L\$8:\$M\$16 (ie. cells L8:M16)</p> <p><b>Which?</b> <i>Column in the look-up table</i> = 2<sup>nd</sup></p> <p><b>How?</b> <i>Approximate match mode</i> = 1</p> <p><b>Result?</b> Sales of 7100 deserves a bonus of <b>600</b> Need to slide back to the threshold of 7000 in the bonus table to find bonus</p>
P8	=VLOOKUP(P7,\$C\$8:\$H\$19,3,0)	<p><b>What?</b> <i>Look-up value</i> in cell P7 (=GREE07)</p> <p><b>Where?</b> <i>Look-Up table</i> in range \$C\$8:\$H\$19 (ie. cells C8:H19)</p> <p><b>Which?</b> <i>Column in the look-up table</i> = 3<sup>rd</sup></p> <p><b>How?</b> <i>Exact match mode</i> = 0</p> <p><b>Result?</b> EmpID is GREE07 so should find <u>exact</u> match of <b>South</b> for the Region</p>

### Golden Rules to get correct result every time

I recommend that you keep to the following Golden Rules when using VLOOKUP

- Always use Absolute References for the Look-Up table** eg \$B\$1:\$D\$10 (eg if the ref says **B1:D10**, highlight this ref and press **F4** to convert it to **\$B\$1:\$D\$10**)
- Always sort the First column of the Look-Up table** in ascending order  
Have to sort so that *approximate matches* work properly – why not
- Never omit the Match Mode** argument to be confident of getting the right result  
Remember it is **0** for an *exact match*, **1** for an *approximate match* ranges

### Shortcuts List

<b>F4</b>	Convert Relative refs to Absolute refs: eg. G2® \$G\$23® G\$23® \$G23® G23
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