Excel #13: VLookup

You have a table of data along with a specific item. You want to look up the item in the table and retrieve a value corresponding to that item.

For example, the table might consist of item categories and a corresponding discount percentage.

A	B
Category	Discount
Books	10%
Clothing	25%
Electronics	15%
Tools	5%

Notice that the table is sorted by the Category column—which will be the lookup entry. It is possible to use lookups without sorting the data, but it requires caution, and lookups on sorted data are substantially faster. You can use the Sort option to sort the table after the data is entered. The first column is always the one that will be searched. The data returned is in another column. Because there can be many columns in a table, the chosen value is specified as a column number.

You have a list of items with an Item number, Category and List Price:

Item	Category	ListPrice
111	Books	14.95
235	Tools	59.95
132	Books	17.99
431	Clothing	34.99
441	Clothing	52.95
371	Electronics	125.99

You need to use the item Category to look up the matching discount, then compute the sale price as (1-Discount)*ListPrice.

Notice that the original Category/Discount table lists data by rows. Consequently, you need to use the VLookup function. If the table were transposed, so that each category is a separate column, you would use the HLookup function. The process is similar.

To verify that the lookup is working correctly, the value will be displayed in the table:

E	F	G	H	I
Item	Category	ListPrice	Discount	SalePrice
111	Books	14.95	=VLOOKUP(F2,$A$2:$B$5,2)	

Enter the VLookup function in the first row for the Discount column.

The parameters are
VLookup(lookup_value, table_array, col_index_num, [range_lookup])

lookup_value	The cell (or simple value) that you wish to find.
table_array	The range of the table. Use absolute references.
col_index_num	The number of the column containing the value to return, starting with 1
range_lookup	optional: TRUE=find closest value/FALSE=find exact match. Default is TRUE and requires table to be sorted by the lookup column.

Copy the formula to get:

Category	Discount		Item	Category	ListPrice	Discount	SalePrice
Books	10%		111	Books	14.95	0.1	13.46
Clothing	25%		235	Tools	59.95	0.05	56.95
Electronics	15%		132	Books	17.99	0.1	16.19
Tools	5%		431	Clothing	34.99	0.25	26.24
			441	Clothing	52.95	0.25	39.71
			371	Electronics	125.99	0.15	107.09

Note that the lookup function is dynamic.
Change one of the values in the discount table, and the corresponding values in the table applied to the items will automatically update. For example, change the Books entry from 10% to 7% and verify that the applied Discount and SalePrice change for items 111 and 132.