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Quick tip: Calculating Grades using a LOOKUP

Here's a handy tip for improving the functionality of your student data, particularly when it comes to predicting grades at GCSE and A Level. The formula I will show you uses a lookup table to convert a point score to a grade – A, B, C etc. All you need to know is the grade boundaries (or estimated ones!).

This tutorial assumes only very basic excel knowledge.

1. On a **new** spreadsheet, create a table of your estimated grade boundaries. Go to the 'Insert' tab and click 'insert table'. It's important not to skip this step – it's possible to do a lookup reference by using normal cells, but it's a pain if you want to apply the lookup to a lot of input cells. Plus, you can add rows and move columns around with impunity.
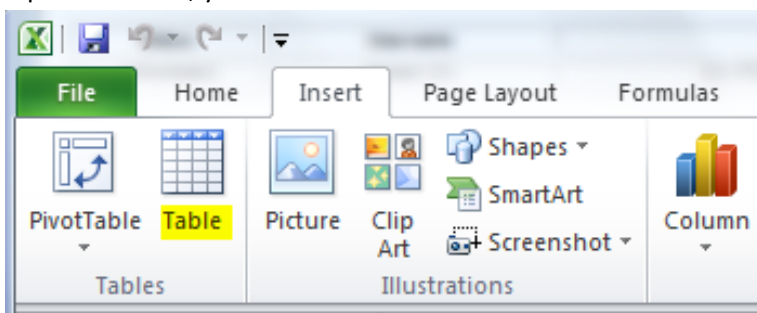
2. I would make a column for every unit, one for the total and one for the Grade levels. Don't forget to name the columns. You need as many rows as you have grades. Under the current system for GCSEs, this would be A*, A, B, C, D, E, F, G (so eight). Obviously that will change from next year but you could substitute anything. You'll need to enter the **lower grade boundaries** for each grade (I would advise heavy use of simple formulae for calculating totals where possible to avoid user error). Here's what mine looks like:

	Grade	B321	B322 (RAW)	B324	Total	UMS
1	Grade	B321	B322 (RAW)	B324	Total	UMS
2	G	27	18	27	72	90
3	F	38	25	38	101	126
4	E	49	32	49	130	162
5	D	60	39	60	159	198
6	C	71	47	71	189	236
7	B	83	53	83	219	272
8	A	95	59	95	249	308
9	A*	107	65	107	279	344
10		120	80	120	320	400

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3. Now, update your table name. This step is optional, but it will make the formula we do in a minute a lot easier to follow.
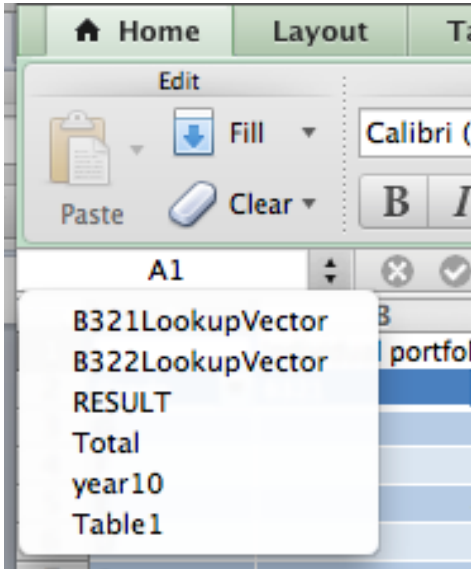
a. Click on your table, then select **Table1** (if this is your first table in the workbook) from the drop-down next to your formula bar (your menu will look different from mine depending on what other stuff you have in your excel document). **If you have selected the right table it should become highlighted automatically**.

b. Now click on the label 'Table1' and type in something sensible, like **grade_boundaries** (spaces are not allowed; use an underscore instead or just run the words together)
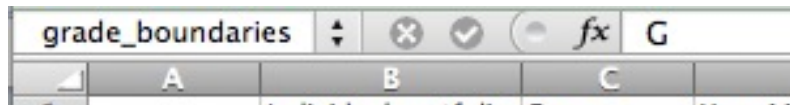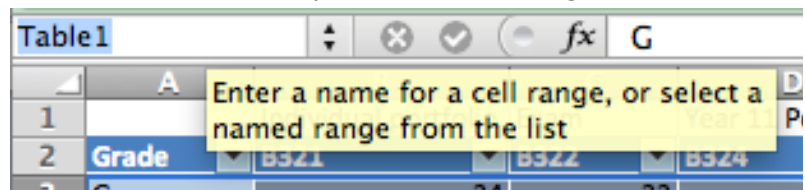
4. Ok, it's time to make the lookup. Go back to the tab that has your data on it. Here's mine.:
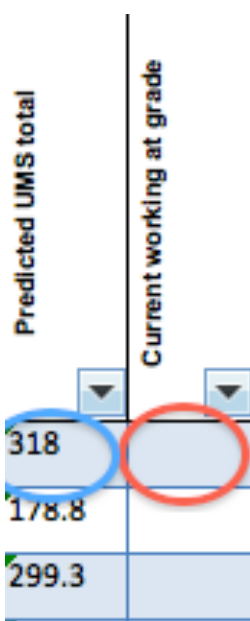
In the left hand column I have the students' predicted UMS total, but this could be anything – a grade for a specific unit or whatever else you want, as long as there is a named column in **grade_boundaries** that contains the grade boundaries for that unit. The right hand column is where I want my letter grade to appear.

So, I'm going to select the first cell in my WAG column (red oval). In the formula bar, I am going to type this:

```
=LOOKUP(AK2,grade_boundaries[UMS],
grade_boundaries[Grade])
```

Where it says 'AK2' in my formula, make sure you type the cell reference for your UMS point score (blue oval).

Make your life easier – copy and paste it! All of those parenthesis and brackets are doing a job.

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Here's a translation of that formula into English so you can make your own:

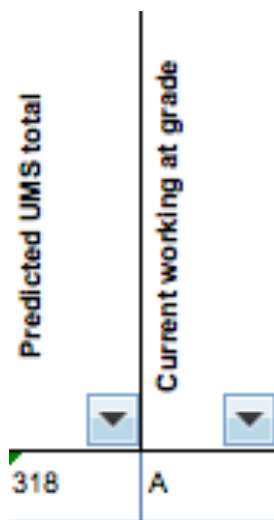'='   This tells excel that you are putting in a formula.

'LOOKUP'   This is a reference to a built-in excel function (like a shortcut to a piece of code that helps excel calculate stuff). Functions take specific parameters, and this one has space for three. Here they are:

LOOKUP(Cell you want to look up, the column you want to look it up in, the column containing the result of the lookup)

In our case, that's

```
=LOOKUP(AK2,grade_boundaries[UMS], grade_boundaries[Grade])
```

The syntax for referencing a table is pretty simple. It's just **TABLENAME[COLUMNNAME]**. That's why it's a good idea to make sure your tables and columns are named simple, memorable things.

You should end up with something like this.

Now just grab the bottom right corner of your current working at grade (where it says 'A') and drag the handle down to auto-fill your column.

Check a few of them to make sure they are correct (if you miss type the formula or your reference table isn't correctly formatted it can cause problems).

Predicted UMS total	Current working at grade
▼	▼
318	A

That's it! There are lots of applications for the LOOKUP formula in managing data for teachers which I'm sure you will discover, but this is a simple example that I use pretty regularly. I'll be posting another tutorial soon where I show you how to use this lookup to generate targets for reports and feedback forms.

Check out my blog for more tips and tutorials for improving technology integrations.

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