Microsoft Excel 2016: VLOOKUP
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The Practice files for this lesson are located on the subject guide under Practice Files:

Introduction
VLOOKUP helps you to search large sets of data for specific information. For instance, search an inventory list for a product number, and VLOOKUP will give you the Product Name, Price, or Amount On Order -- based on what you tell it to do. In this class, we’ll learn how to write the VLOOKUP formula to give you the exact information that you want.

How to write a VLOOKUP function
The format for the VLookup function is:

=VLOOKUP(lookup_value,table_array,col_index_num,range_lookup)

- **lookup_value**: the cell containing the search term. This is the value you want to know more about. If you are searching by Part Number, then the lookup_value is the cell that contains Part Number.
- **table_array**: the columns you are searching. It can be a set of columns, a Named Range, or a Table.
- **col_index_num**: the column number of the data you are looking for. The first column is column 1, the second is column 2, and so on.
- **range_lookup**: the word False for an Exact Match or True for an Approximate Match. Approximate Matches are useful for working with ranges, like tax brackets. All other matches are Exact Matches, including the example below.
Example
You have a large product inventory. Instead of scrolling through the data, you want to type in a product number and easily access the product name. The VLOOKUP formula for this example is

=VLOOKUP(B2,A14:F18,2,FALSE)

Review
Relative v. Absolute References
- Relative references change when a formula is copied to another cell. Absolute references remain constant. To make an Absolute Reference, insert dollar signs into the cell name (so A1 becomes $A$1)
  - Shortcut: Press F4 after you enter the cell name

Named Ranges
1. Highlight the data you are searching in your Vlookup.
   - Shortcut: click on a cell with data and press CTRL+A
2. Click on the Name Box (to left of the formula bar) and type your desired range name. Press the Enter key.
3. The range is now a named range which you can in formulas.

Tables
1. Highlight the data you are searching in your Vlookup.
   - Shortcut: click on a cell with data and press CTRL+A
2. Go to the Insert Tab and Click Table.
3. Click OK
4. To name your table, click inside of it and go to the Design Tab. Enter your name into the Table Name box.
Additional Resources

- **Lynda.com** offers over 100,000 courses at all skill levels covering everything from computer programming languages to design software. Courses are taught by experienced and knowledgeable industry professionals through videos. Patrons have access to class files and transcripts of the lesson so they can follow along. Access Lynda.com with your library card number by visiting [www.vapld.info](http://www.vapld.info) -> Research -> Premium Resources -> Lynda.com.

- **Excel training books** are available for checkout under the following call number: 005.3692/EXCEL

- **Book an individual help session** for 45 minutes with a librarian by calling (847) 634-3650.

Works Consulted

This handout and class was adapted from and contains excerpts from the following resources.

- People’s Resource Center: Tech Tuesday Excel VLOOKUP: [https://goo.gl/KEfNFZ](https://goo.gl/KEfNFZ)
- People’s Resource Center: Using the VLookup Function in Excel: [http://goo.gl/geCdDj](http://goo.gl/geCdDj)
Activity Sheet | MS Excel 2016 | VLookups

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Activity #1: Using Absolute Cell References

1. Select the red Cell References tab at the bottom of the page.
2. Calculate the discount for each flight using absolute references.

Activity #2: Creating a Named Range

1. Select the red Named Range tab.
2. Create a Named Range and name it Flights. Include all the data on the page. Double-check your work by typing “Flights” into the name box.

Activity #3: Creating a Table

1. Select the red Table Creation tab.
2. Create a table and name it FlightTable. Include all the data on the page. Double-check your work by typing “FlightTable” into the name box.

Activity #4: Using VLookups with an Exact Match

1. Select the green VLookups-Exact Match tab.
2. Use VLOOKUP to retrieve the Name, Phone Number, and Town of Residence for both of the patrons in the blue box.

Activity #5: Using VLookups with an Approximate Match

1. Select the VLookups-Approximate Match tab.
2. Use VLOOKUP to calculate the Bonus Awarded for each Employee, based on which range they fall into.

Activity #6: Inventory

1. Select the Inventory tab.
2. Use the VLookup function to create a working inventory. Upon completion, you should be able to enter a Product ID and retrieve the information outlined in the blue box.
Answer Key | MS Excel 2016 | VLookup

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Answer #1: Using Absolute Cell References
1. In Review – Patrons.xlsx, click inside of cell C2
2. Type the formula =B2*$F$3.
   • Shortcut: Use the F4 key to make the F3 absolute.
3. Auto Fill the formula from cell C2 into cells C3:C10

<p>| | | | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>F</td>
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<td></td>
<td></td>
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</tr>
<tr>
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<td>$ (82.50)</td>
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<td>$ (53.00)</td>
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<tr>
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<td>$ (22.75)</td>
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</tr>
<tr>
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<td>Chicago - Orlando</td>
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<td>$ (48.50)</td>
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<tr>
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<td>$ (74.75)</td>
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<td>9</td>
<td>Chicago - St. Louis</td>
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<td>$ (51.00)</td>
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<tr>
<td>10</td>
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<td>$91.00</td>
<td>$ (22.75)</td>
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</tr>
</tbody>
</table>

Answer #2: Creating a Named Range
1. In the red Named Range tab, select cells B2:C11
   a. Shortcut: Click inside the data set and hit ctrl + a
2. Type Flights into the name box. Press the Enter key.
3. To be sure that your Named Range was captured, click out of the selected cells and type Flights into the Name Box. Press the Enter Key. The Named Range should be selected.

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<table>
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<tbody>
<tr>
<td>A</td>
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<td>1</td>
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<tr>
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<td>Flights</td>
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<tr>
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<tr>
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<td>10</td>
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<tr>
<td>11</td>
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</tbody>
</table>
Answer #3: Creating a Table
1. In the blue Table Creation tab, click anywhere inside your data set.
2. From the Insert tab, click the Table button.
3. From the Create Table window, click OK.
4. Click inside the table. From the Design tab, name your table by typing FlightTable into the Table Name field.
5. Test your work by typing FlightTable into the Table Name field. Cells A1:C26 should be highlighted.

<table>
<thead>
<tr>
<th>Data to Retrieve</th>
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<tbody>
<tr>
<td>Library Card Number</td>
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Answer #4: Using VLookup with an Exact Match
1. In Exercises – Patron.xlsx, select cell B11.
2. Type the following formula: =VLOOKUP(A11, $A$4:$D$7, 2, FALSE)
3. Auto Fill this formula from cell B11 into cell B12.
4. In cell C11, type the following formula: =VLOOKUP(A11,$A$4:$D$7,3,FALSE)
5. In cell D11, type the following formula: =VLOOKUP(A11,$A$4:$D$7,4,FALSE)

<table>
<thead>
<tr>
<th>Data to Retrieve</th>
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<tbody>
<tr>
<td>Employee</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Karen Smith</td>
</tr>
<tr>
<td>Aaron Rodgers</td>
</tr>
<tr>
<td>Leslie Ming</td>
</tr>
<tr>
<td>Ashley Sykes</td>
</tr>
</tbody>
</table>

Answer #5: Using VLookup with an Approximate Match
1. Select cells A5:C14.
2. Click inside of the Name Box. Type the word Lookup. Press the Enter key.
3. Verify that you’ve created a Named Range by typing Lookup into the Name Box and pressing the Enter key. Cells A5:C14 should be highlighted.
4. Select cell C19.
5. Type the following VLookup formula: =VLOOKUP(B19, Lookup, 3, TRUE)
6. Auto Fill this formula from cell C19 into cells C20:C22.
Answer #6: Inventory

1. The formulas are as follows:
   - Product: =VLOOKUP($B$2,$A$15:$F$81,2,FALSE)
   - Price: =VLOOKUP($B$2,$A$15:$F$81,3,FALSE)
   - In Stock: =VLOOKUP($B$2,$A$15:$F$81,4,FALSE)
   - On Order: =VLOOKUP($B$2,$A$15:$F$81,5,FALSE)
   - Reorder Level: =VLOOKUP($B$2,$A$15:$F$81,6,FALSE)
   - Value of Inventory: =C5*C6
   - Value on Order: =C6*C7
   - Average Reorder Cost: =C6*5