ADVANCED EXCEL: LOOKUP FUNCTIONS



Excel has several Lookup and Reference functions available that are used to search through rows of data to locate specific values to display in a cell or to use in a formula. Today, we will be learning about the LOOKUP and HLOOKUP functions, but focus on the VLOOKUP function.



LOOKUP FUNCTIONS

LOOKUP vs HLOOKUP vs VLOOKUP

LOOKUP is a function used to go search through rows of data for specific values to display in a cell or to use in a formula. **LOOKUP** is for one dimensional tasks, when data being searched for is in a single row or column. There are two forms of the **LOOKUP** function: **vector** and **array**. The **vector LOOKUP** function requires three pieces of information: **LOOKUP value**, **LOOKUP vector**, and **result vector**. The **array LOOKUP** function uses an **array**, or a table of information, in the formula. **HLOOKUP** refers to "horizontal lookup" and is very similar to array LOOKUP, except that the data is laid out in a horizontal pattern. **VLOOKUP** refers to vertical lookup, with the data being laid out vertically. Microsoft recommends using HLOOKUP or VLOOKUP instead of the array function, with VLOOKUP being the most popular.

Vector LOOKUP

Open "File 01 LOOKUP" Vector vs Array." Before using the LOOKUP function, you will want to organize your data. The data you are searching or indexing, in our case the "Position," should be in ascending order. There are two ways to do this.

Option 1: Select cells **A3:A31** and right click to get a menu. From that menu, select **Sort** and chose "**Sort A to Z**."

Option 2: Select cells **A2:E31** and select "**Format as Table**" from the **Home Ribbon**. Once the cells are formatted as a table, the column titles will have drop down arrows. Click on the drop down arrow and select "**Sort A to Z**."

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3	Admin Asst.	Nell Gomez	Gomez	Nell	Admin											Filter by Color	Þ	die Potter
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6	Counselor	Lauryn Drake	Drake	Lauryn	Admin											Search	Q	ITA Frederick
7	Counselor	Trinidad Faulkner	Faulkner	Trinidad	Admin													Steele
8	Counselor	Sixta Jarvis	Jarvis	Sixta	Admin											Select All)	^	/n Drake
9	Counselor	Shayna Cantrell	Cantrell	Shayna	Admin											Admin Asst.		ad Faulkner
10	Headmaster	Deneen Richards	Richards	Deneen	Admin	-										Animation		Jania
11	Janitorial	Rubye Donaldson	Donaldson	Rubye	Admin											Asst. Headmaster		Jarvis
12	Janitorial	Fannie Buckner	Buckner	Fannie	Admin											Athletic Director		na Cantrell
13	Nurse	Luann Hull	Hull	Luann	Admin													a Penningtor
14	Secretary	Dorie Salinas	Salinas	Dorie	Admin						=====	=====				Counselor		dia Walle
15	Secretary	Gay Washington	Washington	n Gay	Admin											Fashion and Textiles		
16	Secretary	Roxie Duncan	Duncan	Roxie	Admin	Dark										Fine Art and Visual Cultur	e	n Espinoza
17	Secretary	Verda Glenn	Glenn	Verda	Admin												~	en Richards
18	Athletic Director	Abraham Hester	Hester	Abraham	Athletics													e Donaldsor
19	Coach	Kary Kaufman	Kaufman	Kary	Athletics											OK	Cancel	io Bucknor
20	Coach	Maddie Potter	Potter	Maddie	Athletics											UK	Calicel	le Ducklier
21	Coach	Kathaleen Marguez	Marguez	Kathaleen	Athletics										_			🖃n Hull
22	Coach	Samira Frederick	Frederick	Samira	Athletics	÷							_	- L	23	Photography	Ber	Anthonv
23	Trustee	Illa Sweeney	Sweeney	Illa	Board	New New	rapie style											
24	Trustee	Gil Koch	Koch	Gil	Board	New 🎼	PivotTable St	yle										
25	Trustee	Jessie Williamson	Williamson	Jessie	Board								_					
26	Trustee	Charisse Franks	Franks	Charisse	Board													



VECTOR LOOKUP

In our LOOKUP example, we will be using the **vector LOOKUP** function to find and input the name of the **Staff Member** who works **Animation**. Add the function in **G3** by typing **=LOOKUP(**. The **Equal (=)** symbol is always used to start a function. Followed by the name of the function LOOKUP. The parenthesis begins the part of the syntax values, arrays, and other information.

sı	им 🔹 : 🗙 🗸	/ fx =lookup(~
	A	В	С	D	E	F	G	H
1		2017	Faculty Mem	bers				
2	Position	🚽 Staff Member	🔽 Last Name	First Name	Department	-	Animation (Vector)	Graphic Design (Array)
3	Admin Asst.	Nell Gomez	Gomez	Nell	Admin		=lookup(
4	Animation	Marilee Richard	Richard	Marilee	Teacher		LOOKUP(lookup_value, look	up_vector, [result_vector])
5	Asst. Headmaster	Roland Hale	Hale	Roland	Admin		LOOKUP(lookup_value, array	y)
6	Athletic Director	Abraham Hester	Hester	Abraham	Athletics			
7	Coach	Kary Kaufman	Kaufman	Kary	Athletics			
8	Coach	Maddie Potter	Potter	Maddie	Athletics			
9	Coach	Kathaleen Marquez	Marquez	Kathaleen	Athletics			
40	Caaab	Comiro Frodoriale	Fradariak	Comiro	Athlatica			



Since the LOOKUP function has multiple argument lists, we want to make sure we are using the right one. Select the **FX** icon to get the **Select Arguments** menu. Choose "**lookup_value, lookup_vector, result_vector**" from the menu and click "**OK**."

Lookup_value is the value Excel will find. In this case, we want Excel to specifically find the "Animation" position. This must be typed using quotations. Next, we need to indicate which row or column the value is located. Animation is listed in the "Position" column. In Lookup_vector, select cells A3:A31 or type Table2 [Position]. Lastly, result_vector is where the information can be found. In this case, it's the "Staff Member" column. Type either B3:B31 or Table2[Staff Member]. The answer should be Marliee Richard. The formula in G3 should read =LOOKUP("Animation", Table2[Position], Table2[Staff Member]

A .	P	C	0	E	E	C		
Admin Asst	Nell Comez	Gomez	Nell	Admin	F -	LOOKUP/"Animation"	7	п
Animation	Marilee Richard	Richard	Marilee	Teacher	-	LOOKOr (Minhadon,	-2	
Asst Headmaster	Roland Hale	Hale	Roland	Admin				
Athletic Director	Abraham Hester	Hester	Abraham	Athletics				
Coach	Kary Kaufman	Kaufman	Kary	Athletics				
Coach	Maddie Potter	Potter	Maddie	Athletics				
Coach	Kathaleen Marguez	Marquez	Kathaleen	Athlatica				
0 Coach	Samira Frederick	Frederick	Samira	Function Arguments			? ×	
1 Counselor	Bob Steele	Steele	Bob	LOOKUR				
2 Counselor	Lauryn Drake	Drake	Lauryn	Lookor	•	- "Animation"		
3 Counselor	Trinidad Faulkner	Faulkner	Trinidad	Lookup_value Animation	1	- Animation		
4 Counselor	Sixta Jarvis	Jarvis	Sixta	Lookup_vector Table2[Positio	n] 👤	= {"Admin Asst.";"Animation	n";"Asst. He	
5 Counselor	Shayna Cantrell	Cantrell	Shayna	Result_vector Table2[Staff M	ember] 🛨	= {"Nell Gomez";"Marilee Ri	chard";"Ro	
6 Fashion and Textiles	Olevia Pennington	Pennington	Olevia			= "Marilee Richard"		
7 Fine Art and Visual Culture	Claudia Walls	Walls	Claudia	Looks up a value either from a one-row	or one-column range	or from an array. Provided for	backward	
8 Graphic Design	Justin Espinoza	Espinoza	Justin	compatibility.				
9 Headmaster	Deneen Richards	Richards	Deneen	Result_vector	is a range that conta Lookup vector	ins only one row or column, th	e same size as	
0 Janitorial	Rubye Donaldson	Donaldson	Rubye					
1 Janitorial	Fannie Buckner	Buckner	Fannie					
2 Nurse	Luann Hull	Hull	Luann	Formula result = Marilee Richard				
3 Photography	Bee Anthony	Anthony	Bee	Help on this function		ОК	Cancel	
4 Secretary	Dorie Salinas	Salinas	Dorie					
5 Secretary	Gay Washington	Washington	Gav	Admin				



ARRAY LOOKUP

Array LOOKUP

We will use the same LOOKUP function to determine the Staff Member who works the "Graphic Design" Position, but instead use the array argument. In **H3**, type **=LOOKUP(**, then click the **Fx** icon and chose "**lookup_value, array**" from the menu.



While the vector argument requires three pieces of information or syntax, the array function only requires two. Just like in the vector LOOKUP formula, the **Lookup_value** is what you want Excel to find. In this case, it will be the "**Graphic Design**" position, which must be typed in quotations. Next is the array. The **array** is a section of the table that has the information we want to search for and find. In this case, it is both the **Position** and **Staff Member** column because we want to search "Graphic Design" in the Position and find who the Staff Member is. In **Array**, select cells **A3:B31** or type **Table2[[Position]:[Staff Member]]**. The result should be Justin Espinoza.

The formula in H3 should read =LOOKUP("Graphic Design", Table2[[Position]:[Staff Member]])

Pro Tip: There is a simpler way to select a column without clicking and dragging the cells to select. To select an entire column, select the first cell in the column. The press **Ctrl + Shift + the down arrow**. The entire column will be selected.

H3		-LOOKUP("Graphic Design"	,Table2[[Positio	n]:[Staff Member]])							~
	А	В	Q	D	E		F		G	Н	
3	Admin Asst.	Nell Gomez	Gomez	Nell	Admin			Marilee F	Richard	on]:[Staff Member]])	
4	Animation	Marilee Richard	Richard	Marilee	Teacher						
5	Asst. Headmaster	Roland Hale	Hale	Roland	Admin						
6	Athletic Director	Abraham Hester	Hester	Abraham	Athletics						
7	Coach	Kary Kaufman	Kaufman	Kary	Athletics						
8	Coach	Maddie Potter	Potter	Maddie	Athletics						
9	Coach	Kathaleen Marquez	Mar Function A	rauments				? X			
10	Coach	Samira Frederick	Free	··· j -··· -·· -							
11	Counselor	Bob Steele	Stee LOOKUP			_					
12	Counselor	Lauryn Drake	Dra	Lookup_value 'Graphi	c Design" 1	= "Graphi	c Design"				
13	Counselor	Trinidad Faulkner	Fau	Array osition]	:[Staff Member]]	= {"Admin	Asst.", "Nell Gomez	;"Animat			
14	Counselor	Sixta Jarvis	Jarv			= Tustin F	spinoza				
15	Counselor	Shayna Cantrell	Car Looks up a	value either from a one-ro	w or one-column range or	from an array. F	Provided for backw	ard			
16	Fashion and Textiles	Olevia Pennington	Pen compatibili	ty.							
17	Fine Art and Visual Culture	Claudia Walls	Wal	Arra	y is a range of cells that c	ontain text, nur	nber, or logical valu	ues that you			
18	Graphic Design	Justin Espinoza	Esp		want to compare with L	ookup_value.					
19	Headmaster	Deneen Richards	Rich								
20	Janitorial	Rubye Donaldson	Dor Formula re	sult = Justin Espinoza							
21	Janitorial	Fannie Buckner	Buc				01	Consul			
22	Nurse	Luann Hull	Hull Help on th	<u>s function</u>			UK	Cancel			
23	Photography	Bee Anthony	Anthony	Bee	Teacher						
24	Secretary	Dorie Salinas	Salinas	Dorie	Admin						
25	Secretary	Gay Washington	Washington	Gav	Admin						
4	LOOKUP Staff	LOOKUP Staff Completed 🗧 🕂)								Þ



HLOOKUP

HLOOKUP

HLOOKUP is a horizontal lookup function used when data is laid out horizontally.

Open "File 02 HLOOKUP." In this example, the "Teach Staff" worksheet has the classes and teachers input in a horizontal matter. HLOOKUP is going to be used to pull this data and add it to the table located on the "Teaching Staff HLOOKUP" worksheet.

Select B5 on the "Teaching Staff HLOOKUP" worksheet and begin typing the formula =HLOOKUP(.

Click the **Fx** icon to open the **Functions Argument** window.

Lookup_value is a value that must exist on both worksheets. It is the value that Excel will look for in both worksheets and use to complete the table. In this case, we want to use **A5** to indicate that the name of the class is the lookup value.

Table_array is the portion of the worksheet that has the original data. In this case, it exists on the "Teaching Staff" worksheet in cells A2:E3. The entire table needs to be selected so Excel can find the class name and retrieve the staff person's name. We will want to make the table array absolute by clicking F4 or adding dollar (\$) signs in the cell name. It should read \$A\$2:\$E\$2 so that the range of the array doesn't change.

Row_index_num is used to indicate which row of the table array has the information you want as the result. In our case, row **2** has the staff person's name.

Range_lookup is used to determine exact match or approximant match. Exact match is identified as a 0.

B5	▼ : × ✓ fx =HLOOK	JP(A5,'Teaching Staff'!\$A\$2:\$E\$3,2,0)									*
	A	В	С	D	E	F	G	Н	I.	J	K 🔺
1 2 3 4 5 6 7 8	Class Animation Fashion and Textiles Fine Art and Visual Culture Graphic Design	x Academy eaching Staff Staff Member =HLOOKUP(A5,Teaching Staff'I\$A\$2:\$E\$3,2	Function Arg HLOOKUP Loo Row_ Ran Looks for a va a row you spe	uments okup_value Table_array index_num nge_lookup lue in the top crify. Rai	A5 Teaching Staff IS/ 2 0 p row of a table or nge lookup is a l	A\$2:\$E\$3 array of values ogical value: to		ition" ation","Fashion te Richard" value in the sa : match in the te	? × and Textiles", "F me column from op row (sorted in		
9 10	Photography				ascer	nding order) =	TRUE or omitted	l; find an exact	match = FALSE.		
11			Formula result	t = Marilee I	Richard						
12			Help on this f	unction				OK	Cancel]	
14											
15											
17											
_18	Teaching Staff	HLOOKUP Teaching Staff HLOOKUP Complete	+		: •						•



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HLOOKUP

The formula in B5 should read =HLOOKUP(A5, 'Teaching Staff'!\$A\$2;\$E\$3, 2, 0)

The result for the Staff Member who teaches Animation is Marilee Richard. To copy this formula for the remainder of the table, double click the "autofill" green square in the bottom right of cell B5.

The formula in **B6** should read =HLOOKUP(A6, 'Teaching Staff'!\$A\$2:\$E\$3, 2, 0)

B5	B5 ▼ : × √ fx =HLOOKUP(A5, 'Teaching Staff'!\$A\$2:\$E\$3, 2, 0)												
	А	В	С										
1	e coux Acaden	Roux Academy											
2		Teaching Staff											
3	a bus alls, and b												
4	Class	Staff Member											
5	Animation	Marilee Richard											
6	Fashion and Textiles	Olevia Pennington											
7	Fine Art and Visual Culture	Claudia Walls											
8	Graphic Design	Justin Espinoza											
9	Photography	Bee Anthony											
10													
11													
12													

The lookup value should have changed to A6 (Fashion and Textiles), but the table array should not have changed thanks to the absolute (\$) symbols.

VLOOKUP Exact

VLOOKUP is a vertical lookup function used when data is laid out vertically.

Open "File 03 VLOOKUP Basic." This file has two worksheets: 2017 Student Roster and Photography Student Roster. They both have a column for "ID." However, the column for "Student Name" in Photography Student Roster is currently empty. We are going to used the VLOOKUP function to locate the ID numbers on both pages and automatically add the Student Name into the empty column.

A18	3 *	$:$ \times \checkmark f_x	526993				
	А	В	С		D		
1		ox Acades					
2		- 2					
3							
	8 i 8	3					
	°C,	20214					
4	C C	16 (614					
5	ID	STUDENT NAME	STATE	PHO	DNE		
6	12043	Nicola Adams	Michigan	(231) 555-1211		
7	5432	Gema Aguirre	Georgia	(762) 555-0379		
8	4450	Marlon Alexander	Virginia	(703) 555-3539		
9	11845	Rudolf Alston	Maryland	(443) 555-9148		
10	11764	Elwanda Avery	California	(559) 555-7937		
11	9649	Leia Barker	Louisiana	(504) 555-8378		
12	2479	Erwin Barnett	Washington	(360) 555-0325		
13	3213	Nicolle Barrera	California	(408) 555-1532		
14	12332	Sidney Barrett	New Jersey	(848) 555-0710		
15	11973	Cole Bass	Illinois	(773) 555-89			
16	1298	Young Becker	South Carolina	(803) 555-84			
17	4141	Clark Becker	Minnesota	(507) 555-4592			
18	9329	Tabetha Becker	Rhode Island	(401) 555-85			
19	6368	Dena Best	Illinois	(618) 555-1001		
20	353066	Beulah Blackburn	Vermont	(802) 555-7077		
-	•	2017 Student Roster	PhotographyStudentRo	oster	Photograph		

B32	• : :	$\times \checkmark f_x$								
	А	В	С	D	Е	F	G	н	I.	J
1			Photog	raphy 104		`				
2			Fall	l 2017						
3	Teacher:									
4										
5	ID	STUDENT NAME	STATE	PHONE	GPA	EMAIL	GRADYEAR	GPA	PROGRAM	STUDIEDABROAI
6	526993		Washington D.C	(202) 555-4164		loneal@alumni.rouxacademy.com	2019		Photography	NO
7	666780		Pennsylvania	(412) 555-4073		nreid@alumni.rouxacademy.com	2016		Photography	NO
8	988777		Pennsylvania	(724) 555-4205		szamora@alumni.rouxacademy.com	2016		Photography	NO
9	244837		New Mexico	(505) 555-9879		dkelley@alumni.rouxacademy.com	2021		Photography	NO
10	113890		California	(949) 555-8191		lmoss@alumni.rouxacademy.com	2016		Photography	YES
11	118630		Rhode Island	(401) 555-2131		smeyer@alumni.rouxacademy.com	2017		Photography	NO
12	485408		Delaware	(302) 555-0016		jnorman@alumni.rouxacademy.com	2017		Photography	NO
13	970483		Connecticut	(475) 555-9023		jmaynard@alumni.rouxacademy.com	2018		Photography	NO
14	330440		Connecticut	(203) 555-9394		abradford@alumni.rouxacademy.com	2019		Photography	NO
15	353066		Vermont	(802) 555-7077		bblackburn@alumni.rouxacademy.com	2020		Photography	NO
16	835616		California	(714) 555-8918		glivingston@alumni.rouxacademy.com	2021		Photography	NO
17	981047		Arizona	(520) 555-3871		afrazier@alumni.rouxacademy.com	2020		Photography	NO



B6 is the first cell in the "Photography Student Roster" worksheet missing a name. In **B6**, begin the VLOOKUP formula by typing =**VLOOKUP(**. Then click the **Fx** icon to open the **Function Arguments** menu.

Lookup_value must be a value that exists on both worksheets. Excel will lookup the value indicated in the formula, and then locate that same value on the other worksheet and produce a student name. In this case, the lookup value is in **B5**. This will tell Excel to lookup the ID number 526993.

The **Table_array** is the table of data Excel will search through to find the lookup value indicated above. In this case, it is the entire table located on the 2017 Student Roster worksheet. This can be identified by typing **'2017 Student Roster'!\$A:\$J**. It is important to use the **absolute (\$) symbols** so that the table range does not shift when you autofill the formula in a later step.

Col_index_number is the column number of the table array that has the data you are seeking. In this case, it is column number **2** because **Student Name** is the second column in '2017 Student Roster'!\$A:\$J.

Range_lookup is used to determine if you want an exact match or approximate match. For this example, we want to exactly match the ID to the Student Name. **Exact match is identified as a 0.**

The formula in B6 should read =VLOOKUP(A6, '2017 School Roster'!\$A:\$J, 2, 0)

The result should be Lazaro Oneal.

B6	· ·	× ✓ f_x =VLOOKUP(A6,	'2017 Stude	nt Roster'!\$A:\$J,2,0)										Ý
	А	В	С	D	E		F		G		н	I.	J	-
						(°								
1			Ph	otography 104										
										1				
2				Function Arguments				?	×					
3	Teacher:			VLOOKUP										
4				Lookup_value	A6	1	b = 5269	993						
5	ID	STUDENT NAME	STATE	Table_array	'2017 Studen	t Roster'ISA:SJ 1	b = {}			'EAR	GPA	PROGRAM	STUDIEDABR	IAOS
6	526993	=VLOOKUP(A6,'2017 Studer	nt Roster'!	Col_index_num	2	1	<u>t</u> = 2			2019		Photography	NO	
7	666780		Pennsylv	Range lookup	d	1	E = FALS	SE		2016		Photography	NO	
8	988777		Pennsylv							2016		Photography	NO	
9	244837		New Mex	Looks for a value in the leftmo	st column of a	table and then retur	= "Lazi ros a value i	aro Oneal in the same row from a (olumn vou	2021		Photography	NO	
10	113890		California	specify. By default, the table m	ust be sorted	in an ascending order	r.		.oranin' you	2016		Photography	YES	
11	118630		Rhode Is	Range	lookup is a	logical value: to find t	the closest r	match in the first columr	n (sorted in	2017		Photography	NO	
12	485408		Delawar		asce	nding order) = TRUE	or omitted;	find an exact match = F	ALSE.	2017		Photography	NO	
13	970483		Connecti							2018		Photography	NO	
14	330440		Connecti	Formula result = Lazaro Onea	al					2019		Photography	NO	
15	353066		Vermont							2020		Photography	NO	
16	835616		California	Help on this function				OK	Cancel	2021		Photography	NO	
17	981047		Arizona	(520) 555-387	1	atrazier@alun	nni.rouxa	academy.com		2020		Photography	NO	
18	373213		Arkansas	(870) 555-538	5	aperry@alum	ni.rouxac	cademy.com		2021		Photography	NO	
19	306800		Texas	(325) 555-487	1	lwagner@alur	mni.rouxa	academy.com		2020		Photography	YES	
20	200607	tudent Poster	Maccach	PhotographyStudentP	E octor Compl	mmille@alum	ni rouvoc	radomy com		2016		Dhotography	NO	
	2017 3	Photographysic	niemikoster	Filotographystudentk	oster compr			•						•



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Double click the "autofill" green square at the bottom of cell B6 to complete the VLOOKUP formula for the remainder of the Student Name column.

On Your Own Activity

Use the **VLOOKUP** formula to fill in the "**GPA**" column of "Photography Student Roster" worksheet with the "**GPA**" column in 2017 Student Roster worksheet. (*Hint: The GPA column in "2017 Student Roster" is column number 6 of the table.*)

B6	• :	× ✓ ∱∗ =VLOOKUP(A6,	?(A6,'2017 Student Roster'!\$A:\$J,2,0)									
	А	В	С	D	E							
1			Photog	raphy 104								
2			Fal	l 2017								
3	Teacher:											
4												
5	ID	STUDENT NAME	STATE	PHONE	GPA	E						
6	526993	Lazaro Oneal	Washington D.C	(202) 555-4164		lor						
7	666780	Nelida Reid	Pennsylvania	(412) 555-4073		nre						
8	988777	Stephenie Zamora	Pennsylvania	(724) 555-4205		SZ						
9	244837	Darcey Kelley	New Mexico	(505) 555-9879		dk						
10	113890	Lesha Moss	California	(949) 555-8191		Im						
11	118630	Shiela Meyer	Rhode Island	(401) 555-2131		sm						
12	485408	Judie Norman	Delaware	(302) 555-0016		jnc						
13	970483	Janella Maynard	Connecticut	(475) 555-9023		jm						
14	330440	Annie Bradford	Connecticut	(203) 555-9394		ab						
15	353066	Beulah Blackburn	Vermont	(802) 555-7077		bb						
16	835616	Graham Livingston	California	(714) 555-8918		gli						
17	981047	Andra Frazier	Arizona	(520) 555-3871		afr						
18	373213	Alexander Perry	Arkansas	(870) 555-5385		ap						
19	306800	Lavern Wagner	Texas	(325) 555-4871		lwa						
) (200607	Student Roster PhotographySt	Massachusotte udentRoster Pho	(G17) EEE 4275 tographyStudentRos	ter Comple	-						

File 02 VLOOKUP Exact

"File 02 VLOOKUP Exact" is another workbook that needs VLOOKUP to complete a the Department and Category columns using an exact match. For the Department column, our lookup value is going to be found in column A, beginning with A6. The Products in column A will be searched in the Products in column K and matched to the Department in Column L. Therefore, our Table_array will be \$K:\$L and the Col_index_num will be 2. Range_lookup will be 0 in order to product an exact match. The formula in H6 should read =VLOOKUP(A6, \$K:\$L, 2, 0)

Use a **VLOOKUP** function to fill the **Category** column. (*Hint: The Table_array and Col_index_num will change.*)

H6	▼ : × ✓ fx	=VLOOKUP(A6,\$K:\$L,2,0)									~	
	А	В	С	D	Е	F	G	Н	I.	J	К	L 🖻	
1	NO OBSTACLE	S									Product	Departm	
2		7	No Obsta	cles							Wooden Bamboo Curtain Rod	Home	
3	│ 🌰 🗣 \/ -	-	HOME 20	12 Produ	ict Line Re	evenue					Dream White Noise Machine	Home	
4		_									Natural Bamboo Runner Mat	Home	
5	Product	Size	Color	\$ Price	In Stock	Sold	Revenue	Department	Category		Ceramic Saucepan with Lid	Home	
6	Bamboo Arm Chair	H:41"xW:24"xD:24"	Ebony	89.00	127	1330	118,370	=VLOOKUP(A	6,\$K:\$L,2,0	0)	Recycled Red Wine Glasses	Home	
7	Bamboo Arm Chair	H:41"xW:24"xD:24"	I Function Arau	iments					?	X	Natural Bamboo Floor Lamp	Lighting	
8	Bamboo Side Chair	H:41"xW:22"xD:24"	VIOORUR								Natural Bamboo Table Lamp	Lighting	
9	Bamboo Side Chair	H:41"xW:22"xD:24"	VLOOKUP	lookup value	e 46		1	= "Bamboo Arm (Chair"		Natural Bamboo Bath Towel	Textiles	
10	Kitchen Utensil Set	4 Piece		Table_array	y SK:SL		1	= {}			Natural Bamboo Hand Towel	Textiles	
11	Natural Bamboo Desk	H:20"xW:30"xD:20"	$\frac{1}{2} = \frac{1}{2}$							Bamboo Placemats-Set of 4	Textiles		
12	Ceramic Utensil Cady	8"	F	Range_lookup	o ol		Î	= FALSE			Wooden Bamboo Shower Ring	Home	
13	Natural Bamboo Desk	H:20"xW:30"xD:20"						= "Furniture"			Bamboo Arm Chair	Furniture	
14	Natural Bamboo Desk	H:20"xW:30"xD:20"	Looks for a val specify. By defa	ue in the lefts sult, the table	nost column o must be sorte	f a table, ed in an a	ımn you	Bamboo Side Chair	Furniture				
15	Ceramic Utensil Cady	8"	Range_lookup is a logical value: to find the closest match in the first column (sorted								Kitchen Utensil Set	Home	
16	Ceramic Utensil Cady	8"			Natural Bamboo Desk	Furniture							
17	Natural Bamboo Doormat	W:30"xL:18"	Commute and the	Ceramic Utensil Cady									
4	VLOOKUP-Exact	/LOOKUP-Exact Completed	Help on this fu	nction				0	OK Ca	incel			



VLOOKUP Approximate

So far, we have been using the HLOOKUP and VLOOKUP functions to find exact matches. The exact match option is great for matching text, names, or ID numbers, but is not as useful when using VLOOKUP for sales and inventory numbers.

Open "File 06 VLOOKUP Approximate." This file is an example of when VLOOKUP approximate would be used instead of the exact match function. We can see that this chart is being used to track order numbers and costs. In this scenario, customers will receive a reduction in cost based on the subtotal of their order. To the right of the table is a separate table indicating the reduction rate based on the subtotal range. Instead of manually entering a reduction rate, we will use the VLOOKUP function to find the **Subtotal** from column D and compare it to the subtotal ranges in column H to produce the Reduction Rate that will appear in column E. The **Reduction Rate** in column E will then be used in a formula with the **Subtotal** to create an **Adjusted Total** for column F.

E11	-	: × 🗸	f_{x}													*
	А	В	С	D	E	F	G		Н	I.	J		К	L		4
	NO	OBSTA	CLES													
	H	GV	ΛE													
2	Order #	Item Cost	No Items	Subtotal	Reduction	Adi Total		Red	uction R	ato						
3	11155	340.95	4	1 363 80	Reduction	1 363 80		Ś	-	0%						
4	11232	799.95	3	2.399.85		2.399.85		Ś	500	2.0%						
5	11359	168.95	2	337.90		337.90		\$	1,000	3.0%						
6	11537	168.95	5	844.75		844.75		\$	1,500	4.5%						
7	11559	340.95	11	3,750.45		3,750.45		\$	2,000	6.0%						
8	11587	168.95	9	1,520.55		1,520.55		\$	2,500	8.0%						
9	11593	79.95	2	159.90		159.90										
10	11612	79.95		1,199.25												
11	12115	340.95	1	340.95		340.95										-
	> \	/LOOKUP-Appr	oximate VLC	OKUP-Approximat	e Completed	+				•					►	
Ready												=			+ 1459	%

Pro Tip: When you type formulas in the function bar, Excel will start recommending formulas with the same character. If the formula you are looking for is top of Excel's recommendation list, you can press the **Tab** key to "lead" into the formula and have it Excel autotype the formula for you.

For More Resources

Visit <u>elmlib.orq/lynda</u> for additional tutorials and example files on Excel.





To begin, select E3 and type =VLOOKUP(. Then click the Fx icon to open the Function Arguments window.

Since we want to find the **Reduction Rate** based on the **Subtotal** of Order # 11155, the **Lookup_valeu** will be **D3**. Excel will then look for D3 (or, 1,363.80) in the table array.

The **Table_array** will be the table to the right, identified as cells **\$H\$2:\$I\$8**. The **absolute (\$)** symbols will be important so that the table array doesn't shift when we autofill the VLOOKUP formula for the remainder of column E.

Col_index_num will be **2**, since the Reduction Rate is located in the second column of the table array \$H\$2:\$I\$8.

Range_lookup will be left blank. This is the different between VLOOKUP using exact match versus approximate. When range lookup is left blank, **VLOOKUP** will take the value found in **Subtotal** and compare it to the ranges found in the **Reduction Rate** table. Therefore, the result in **E3** will be **3.0%**.

The formula in E3 should read =VLOOKUP(D3, \$H\$2:\$I\$8, 2)

Autofill the remainder of column E. You should notice the Adjust Totals have changed. Adjust the format in "Item Cost," "Subtotal," and "Adj. Total" to Currency or Accounting.

Note: The range will only work if it is in ascending order.

HLO	OOKUP	• : >	< 🗸 f×	=VLOOK	UP(D3,\$H\$2:	\$1\$8,2)	i,2) × F G H I J K L M N O P Image: Im											
	А	В	С	D	E	F	G		Н	I	J	К	L	М	N	0	P 🔺	
	NO	OBSTA	CLES															
	U		ΛĽ															
											Function Arguments ? X							
1									VLOOKUP									
2	Order #	Item Cost	No.Items	Subtotal	Reduction	Adj. Total		Red	uction R	ate	Lo	okup_value	D3 🛨 -		= 1363.8	= 1363.8		
3	11155	340.95	4	1,363.80	=VLOOKUP	(D3,\$H\$2:\$I\$	8,2)	\$	-	0%		Table_array	SH\$2:\$I\$8	1	= {"Reduction	on Rate",0;0,0;500,0.	.02;1000,	
4	11232	799.95	3	2,399.85		2,399.85		\$	500	2.0%	Col	_index_num	2	1	= 2			
5	11359	168.95	2	337.90		337.90		\$	1,000	3.0%	Rai	nge_lookup		Ť	= logical			
6	11537	168.95	5	844.75		844.75		\$	1,500	4.5%		= 0.03						
7	11559	340.95	11	3,750.45		3,750.45		\$	2,000	6.0%	Looks for a value in the leftmost column of a table, and then returns a value in the same row from a column you specify. By default, the table must be sorted in an ascending order.							
8	11587	168.95	9	1,520.55		1,520.55		\$	2,500	8.0%		Col_ind	ex_num is the co	olumn number in ta	able_array from	vhich the matching	value	
9	11593	79.95	2	159.90		159.90					should be returned. The first column of values in the table is column 1.							
10	11612	79.95	15	1,199.25		1,199.25												
11	12115	340.95	1	340.95		340.95					Formula result = 3.0%							
12	12200	168.95	14	2,365.30		2,365.30					Help on this function OK Cancel							
13	12233	340.95	14	4,773.30		4,773.30												
14	12492	799.95	7	5,599.65		5,599.65												
15	12571	340.95	8	2,727.60		2,727.60												
16	12752	340.95	9	3,068.55		3,068.55												
VLOOKUP-Approximate VLOOKUP-Approximate Completed																		
Edit																	+ 110%	

