

# Welcome

## Plan for Today

- How to find data in Excel
- How to use Lookup Functions
- Specific Lookup Function  
MATCH, XMATCH, VLOOKUP, HLOOKUP, XLOOKUP, INDEX
- Combining Functions
- TechMentor Services

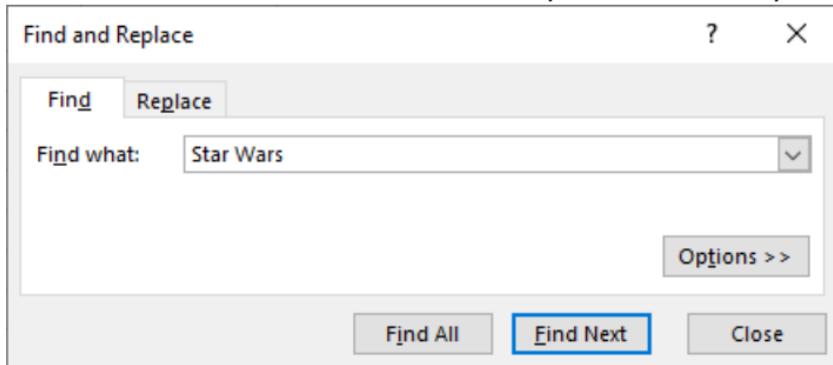
## Where can I find past webinars?

You can find past and future TechMentors webinars at  
<https://theTechMentors.com/Webinars>

# How to find data in Excel

## Does Excel have a search feature?

Yes. From the ribbon select Home, Find & Select, Find...



Enter the desired value.

Click Find Next.

## Is there a keyboard shortcut for Find?

Yes, use **Ctrl F**.

## What does the Find All button do?

It finds all the instances of your search term.

Book	Sheet	Name	Cell	Value	Formula
Movies.xlsx	Movie List		\$E\$19	Science	
Movies.xlsx	Movie List		\$E\$20	Science	
Movies.xlsx	Movie List		\$E\$53	Science	
Movies.xlsx	Movie List		\$E\$122	Science	
Movies.xlsx	Movie List		\$E\$123	Science	
Movies.xlsx	Movie List		\$E\$124	Science	

203 cell(s) found

## Can I limit my search to specific cells?

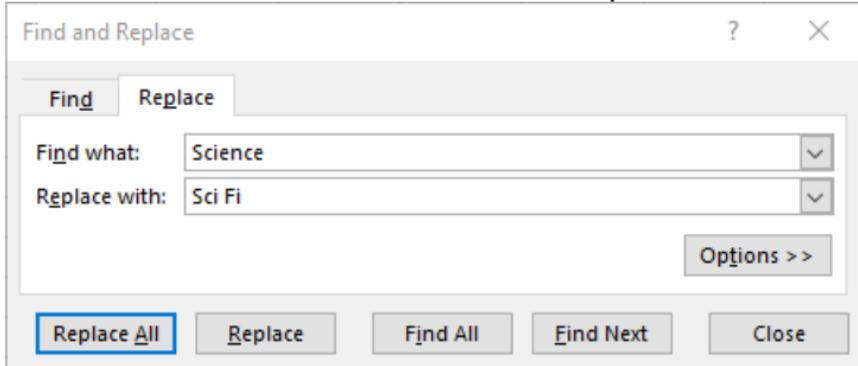
Yes. It is a two-step process.

1. First select the rows, columns, or range of cells you want to search.
2. Press **Ctrl F** or from the ribbon select Home, Find & Select, Find...

## Can I do a Search and Replace?

Yes. From ribbon select Home, Find & Select, Replace...

Then enter the search value and the replacement value.

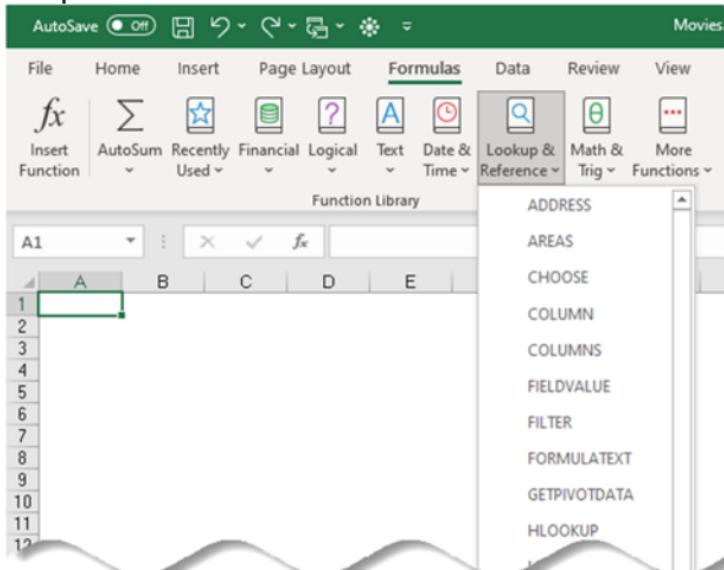


Click the Replace button to replace the next found instance or click the Replace All button replace all found instances.

## How to use Lookup Functions

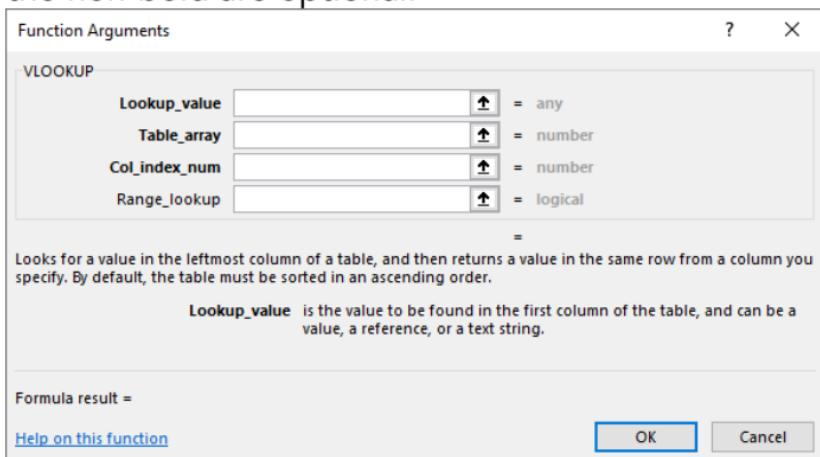
How do you get a formula to lookup information?

Microsoft Excel has many functions that can be used to lookup data from the spreadsheet. These can be found on the ribbon's Formulas tab under the Lookup & Reference drop down.



## Arguments

Each of these functions will have one or more required arguments, and sometimes some optional arguments. As shown below, the arguments names in bold are required, and the non-bold are optional.



## Function Description

Below the arguments the dialog box gives you a short description of the function. This description is worth reading so you know what the function will do.

Function Arguments

VLOOKUP

Lookup_value	= any
Table_array	= number
Col_index_num	= number
Range_lookup	= logical
=	

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.

Lookup\_value is the value to be found in the first column of the table, and can be a value, a reference, or a text string.

Formula result =

[Help on this function](#)

OK Cancel

## Argument Information

As you move your cursor through the various arguments, the dialog box will give you information about the argument.

Function Arguments

VLOOKUP

Lookup_value	= any
Table_array	= number
Col_index_num	= number
Range_lookup	= logical
=	

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.

Lookup\_value is the value to be found in the first column of the table, and can be a value, a reference, or a text string.

Formula result =

[Help on this function](#)

OK Cancel

## Help

The dialog box includes a “Help on this function” hyperlink that will take you to a Microsoft webpage with descriptions, examples, and sometimes helpful videos.

Function Arguments

VLOOKUP

Lookup_value	= any
Table_array	= number
Col_index_num	= number
Range_lookup	= logical
=	

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.

Lookup\_value is the value to be found in the first column of the table, and can be a value, a reference, or a text string.

Formula result =

[Help on this function](#)

OK Cancel

Microsoft | Support Microsoft 365 Office Windows Surface Xbox Deals Buy Microsoft 365

Office support Products Devices What's new Install Office Account & Billing Templates More support

Excel / Formulas and functions / Reference / VLOOKUP function

### VLOOKUP function

Excel for Microsoft 365, Excel for Microsoft 365 for Mac, Excel for the web, Excel 2019

**Tip:** Try using the new `VLOOKUP` function, an improved version of `VLOOKUP` that works in any direction and returns exact matches by default, making it easier and more convenient to use than its predecessor.

Use `VLOOKUP` when you need to find things in a table or a range by row. For example, look up a price of an automotive part by the part number, or find an employee name based on their employee ID.

In its simplest form, the `VLOOKUP` function says:

`=VLOOKUP(What you want to look up, where you want to look for it, the column number in the range containing the value to return, return an Approximate or Exact match = indicated as TRUE, or FALSE)`

Select the value to look up

# Specific Lookup Functions

## MATCH

### Description:

Calculates the relative position of an item in a range of cells.

### Syntax:

`MATCH(Lookup_value, Lookup_array, match_type)`

### Arguments:

Lookup_value Required	The value you want to find
Lookup_array Required	The range of cells that will contain the lookup_value.
Match_type Optional	<p>Enter <b>0</b> to find the position of an <b>exact</b> match.</p> <p>Leave <b>blank</b> or enter <b>1</b> to find the closest value without going over. The data must be sorted in <b>ascending</b> order or weird things happen.</p> <p>Enter <b>-1</b> to find the closest value without going under. The data must be in <b>descending</b> order or weird things happen.</p>

## XMATCH

### Description:

New and improved version of Match. It also calculates the relative position of an item in a range of cells, but the default is an exact match.

### Syntax:

`XMATCH( Lookup_value, Lookup_array, match_type)`

### Arguments

Lookup_value Required	The value you want to find
Lookup_array Required	The range of cells that will contain the lookup_value.
Match_mode Optional	<p>Leave <b>blank</b> or enter <b>0</b> to find the position of an exact match.</p> <p>Enter <b>-1</b> to find exact match or next smaller item.</p> <p>Enter <b>1</b> to find exact match or next larger item.</p>
Search_mode Optional	<p>Enter <b>1</b> to search from first to last</p> <p>Enter <b>-1</b> to search from last to first</p> <p>Enter <b>2</b> to search with data in ascending order</p> <p><b>-2</b>: Search with data in descending order</p>

# VLOOKUP

## Description:

Performs a vertical lookup. Looks for a value in the leftmost column of a table or range of cells, and then returns the value from the specified column of that same row.

## Syntax:

**VLOOKUP**(Lookup\_value, Table\_array, Col\_index\_num, Range\_lookup)

## Arguments

Lookup_value Required	The value to find
Table_array Required	The table or range of cells where the value can be found.
Col_index_num Required	The column number in the table from which the value is to be returned.
Range_lookup Optional	Leave blank or enter TRUE to find the closest match. Enter FALSE to find only an exact match.

## VLOOKUP Tip #1

Make sure the search column is the leftmost column of the Table\_array, otherwise the function will return an error.

A	B	C	D	E	F	G	H	I	J
1									
2	Name	Score	Grade						
3	Rose	88	#N/A	=VLOOKUP(C3,\$H\$2:\$I\$7,TRUE)					
4	Summer	95	#N/A						
5	Winter	55	#N/A						
6	Daisy	67	#N/A						
7	Titan	93	#N/A						
8	Bud	71	#N/A						
9	Peanut	82	#N/A						
10									

Grade	Score
A	90
B	80
C	70
D	60
F	50

## VLOOKUP Tip #2

Make sure the table\_array is sorted from lowest to highest (ascending order) otherwise the function will return the wrong results when searching for the closest value.

A	B	C	D	E	F	G	H	I	J
1									
2	Name	Score	Grade						
3	Rose	88	F	=VLOOKUP(C3,\$H\$2:\$I\$7,2)					
4	Summer	95	F						
5	Winter	55	#N/A						
6	Daisy	67	#N/A						
7	Titan	93	F						
8	Bud	71	#N/A						
9	Peanut	82	F						
10									

Score	Grade
90	A
80	B
70	C
60	D
50	F

## VLOOKUP Tip #3

Remember the column\_index\_num is relative to the table\_array not to the sheet.

A	B	C	D	E	F	G	H	I	J	K
1										
2	Score	Grade								
3	90	A								
4	80	B								
5	70	C								
6	60	D								
7	50	F								
8										
9										
10										
11										

Name	Score	Grade
Rose	88	#REF!
Summer	95	#REF!
Winter	55	#N/A
Daisy	67	#N/A
Titan	93	#REF!
Bud	71	#N/A
Peanut	82	#REF!

## VLOOKUP Tip #4

Create a named ranges and use them in the formula because named ranges are easier to read than range addresses.

A	B	C	D	E	F	G	H	I	J
1									
2	Name	Score	Grade				Score	Grade	
3	Rose	88	B	=VLOOKUP(C3,GradeTable,2)	👍		50	F	
4	Summer	95	A	=VLOOKUP(C3,\$H\$3:\$I\$7,2)	👎		60	D	
5	Winter	55	F				70	C	
6	Daisy	67	D				80	B	
7	Titan	93	A				90	A	
8	Bud	71	C						
9	Peanut	82	B						
10									

Named ranges like "GradeTable" are easier to read than range addresses like \$H\$3:\$I\$7.

## VLOOKUP Tip #5

Put the VLOOKUP function inside an IFERROR function to replace unfriendly error messages with friendly ones.

A	B	C	D	E	F	G	H	I	J
1									
2	Name	Score	Grade				Score	Grade	
3	Salty	?	#N/A	=VLOOKUP(C3,GradeTable,2)	👎		50	F	
4	Pepper	?	Not found	=IFERROR(VLOOKUP(C4,GradeTable,2),"Not found")	👍		60	D	
5							70	C	
6							80	B	
7							90	A	
8									
9									
10									

Since ? is not in the source table the #N/A error appears. The IFERROR function lets us replace the error with something more user friendly.

## HLOOKUP

### Description:

Performs a horizontal lookup. Looks for a value in the top row of a table or range of cells, and then returns the value from the specified row of that same column.

### Syntax:

**HLOOKUP**(Lookup\_value, Table\_array, Row\_index\_num, Range\_lookup)

### Arguments

Lookup_value Required	The value to find
Table_array Required	The table or range of cells where the value can be found.
Row_index_num Required	The row number in the table from which the value is to be returned.
Range_lookup Optional	Leave blank or enter TRUE to find the closest match.  Enter FALSE to find only an exact match.

## XLOOKUP

### Description:

Looks for a value in one range of cells and returns the corresponding value from a second range of cells.

### Syntax:

**XLOOKUP**(Lookup\_value, Lookup\_array, Return\_array, If\_not\_found, Match\_mode, Search\_mode)

### Arguments

Lookup_value Required	The value to find
Lookup_array Required	The range of cells to search

Return_array Required	The range of cells where the return value is located.
If_not_found Optional	When the search value is not found, this value will be returned if provided.  If this is left blank, and the search value is not found, #N/A is returned.
Match_mode Optional	Enter 0 or <b>blank</b> to find an <b>exact match</b> .  Enter -1 to find an <b>exact match</b> or a <b>smaller value</b> .  Enter 1 to find an <b>exact match</b> or a <b>larger value</b> .  Enter 2 if your search value includes a wildcard.
Search_mode Optional	Enter 1 or <b>blank</b> to search from the <b>first item to the last item</b> .  Enter -1 to search from the <b>last item to the first item</b> .  Enter 2 to do a case sensitive search of data that is in <b>ascending order</b> .  Enter -2 to do a case sensitive search of data that is in <b>descending order</b> .

## INDEX

### Description:

Finds the value from a table or range of cells that is at the intersection of the specified row and column numbers.

### Syntax:

**INDEX**(Array, Row\_num, Column\_num)

### Arguments

Array Required	The table or range of cells to search
Row_num Required	Specifies the desired row number within the table or range of cells.
Column_num Optional	Specifies the desired column number within the table or range of cells.

## INDEX and XMATCH

### Description:

Using INDEX and XMATCH together is like a VLOOKUP that uses ID and Field Name

### Syntax:

**INDEX**(Array, Row\_num, **XMATCH**(Field, ColHeadings))

### Arguments

Array Required	The table or range of cells to search
Row_num Required	Specifies the desired row number within the table or range of cells.

Field Required	Specifies the name of the field whose data you want to view.
ColHeadings Required	Specifies the location of the column headings

# TechMentor Services

TechMentors mission is to help individuals and organizations unlock business potential through computer training and consulting. Our services include:



One-on-one software mentoring



Online or in-person group software classes



Creating, enhancing,  
troubleshooting  
**Microsoft Access**  
databases



Creating, enhancing,  
troubleshooting  
**Microsoft SQL Server**  
databases



Creating, enhancing,  
troubleshooting  
**Microsoft Excel**  
spreadsheets,  
templates, and macros



Creating, enhancing,  
troubleshooting  
**Microsoft Word**  
documents, templates,  
and macros



Creating, enhancing,  
troubleshooting other  
**Microsoft 365**  
applications



Free monthly  
**Tips and tricks**  
webinars

Learn how to unlock your business potential at  
<https://theTechMentors.com>



Thank you for attending today's webinar.