

# How to use the EXPAND function in Excel

There are many features built into Microsoft Excel to help you get the most out of the data in your spreadsheets.

The variety of tools and functions available can solve problems in creative ways that you might not expect.

One of them is the EXPAND function, which can help you quickly and efficiently attach new data to your array. Read on to learn why this function can be useful and how to use it in your spreadsheets.

## What is the EXPAND function in Microsoft Excel?

The main purpose of the EXPAND function is to use a data value to expand or add an array to the specified criteria (dimension) larger than specified. This can be useful in some situations, such as filling out spreadsheets for visualization purposes when incomplete data is present.

It can also be used to add additional information to an existing array without having to click and drag or re-enter the same data into every relevant cell. However, you can only add one value to the EXPAND function, so its flexibility is limited in this respect.

## Learn the syntax of the EXPAND function in Excel

The EXPAND function consists of 4 arguments:

```
=EXPAND(array, rows, [columns], [pad_with])
```

The array argument defines the data set to be used for the function. The rows argument specifies how many rows the new array will have. Likewise, the columns argument specifies how wide the new array should be.

The sizes listed inside the "rows" and "columns" arguments must be larger than the size of the original array, or the #VALUE! error. So, for example, if your original dataset contains 6 rows and 3 columns, you could enter "8" in the "rows" argument and tell it to resolve correctly, not "4".

If the "rows" or "columns" (or both) arguments are empty, the formula will default to the size of the original array and no additional rows or columns will be added to the output.

The pad\_with argument specifies the value the additional cells should contain in the new array. The default argument is "#N/A", but you can add any text or numeric value.

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Let's say you have 3 tables of sales data coming in from each department. The sales manager wants to see the total sales of people from all departments, so you will have to merge these 3 tables together into one large data set.

(In reality, these could be separate files, but for convenience, let's assume they're all in the same place.)

Manufacturing						Total Sales, Weeks 18 through 22						
Name	Week 18	Week 19	Week 20	Week 21	Week 22	Name	Week 18	Week 19	Week 20	Week 21	Week 22	Department
Keller	378	313	246	80	133							
Martin	232	264	271	280	299							
Donaldson	231	68	400	154	390							
James F	80	418	372	425	86							
James B	362	371	287	61	108							
Bryant	420	428	347	259	349							
Development												
Name	Week 18	Week 19	Week 20	Week 21	Week 22							
Coleman	135	65	148	155	205							
Steiner	317	230	338	281	116							
Dewitt	340	382	183	154	382							
Stevens	148	98	189	62	386							
Services												
Name	Week 18	Week 19	Week 20	Week 21	Week 22							
Rogers	322	171	324	281	292							
Roberts	193	282	238	207	178							
Lopez	307	95	286	388	352							
Aguilar	422	56	149	359	266							
Giancarlo	428	295	90	129	344							

Most of the table columns will be moved directly, but there is also a new "Department" column to fill in. The EXPAND function can easily be used to transfer data from all 3 tables and add data for a new column without much input.

Move the data from the "Manufacturing" table by typing or pasting the following in cell I3 and pressing Enter.

=EXPAND ( A3 : F8 , 6 , 7 , A1 )

This formula tells the function to use the data set under the heading "Manufacturing" cells A3 through F8 as the basis. There are 6 rows of data, so the example entered that number in the "rows" argument. Alternatively, you can leave that argument blank and get the same result.

There are also 6 columns, but need one more column for "Department" in the new table and let that argument contain the value "7" instead. What to populate the new column is the headers above the individual tables (department names), so only those cells (in this case, A1 ) can be referenced as values ??for the "pad\_with" argument .

Manufacturing						Total Sales, Weeks 18 through 22						
Name	Week 18	Week 19	Week 20	Week 21	Week 22	Name	Week 18	Week 19	Week 20	Week 21	Week 22	Department
Keller	378	313	246	80	133	Keller	378	313	246	80	133	Manufacturing
Martin	232	264	271	280	299	Martin	232	264	271	280	299	Manufacturing
Donaldson	231	68	400	154	390	Donaldson	231	68	400	154	390	Manufacturing
James F	80	418	372	425	86	James F	80	418	372	425	86	Manufacturing
James B	362	371	287	61	108	James B	362	371	287	61	108	Manufacturing
Bryant	420	428	347	259	349	Bryant	420	428	347	259	349	Manufacturing

  

Development					
Name	Week 18	Week 19	Week 20	Week 21	Week 22
Coleman	135	65	148	155	205
Steiner	317	230	338	281	116
Dewitt	340	382	183	154	382
Stevens	148	98	189	62	386

  

Services					
Name	Week 18	Week 19	Week 20	Week 21	Week 22
Rogers	322	171	324	281	292
Roberts	193	282	238	207	178
Lopez	307	95	286	388	352
Aguilar	422	56	149	359	266
Giancarlo	428	295	90	129	344

Now, the first table has been moved. Next, use the same formula, with a few adjustments to the cell references, to convert the remaining two tables.

For the second table, "Development", type or copy and paste the following formula into cell I9 and press Enter.

=EXPAND(A12:F15,4,7,A10)

There are only 4 employees in this department, so the "rows" argument has been changed to reflect that. And for the third "Services" table, type or copy and paste the following in cell I13 and then press Enter.

=EXPAND(A19:F23,5,7,A17)

The finished new dataset should look something like this:

Manufacturing						Total Sales, Weeks 18 through 22						
Name	Week 18	Week 19	Week 20	Week 21	Week 22	Name	Week 18	Week 19	Week 20	Week 21	Week 22	Department
Keller	378	313	246	80	133	Keller	378	313	246	80	133	Manufacturing
Martin	232	264	271	280	299	Martin	232	264	271	280	299	Manufacturing
Donaldson	231	68	400	154	390	Donaldson	231	68	400	154	390	Manufacturing
James F	80	418	372	425	86	James F	80	418	372	425	86	Manufacturing
James B	362	371	287	61	108	James B	362	371	287	61	108	Manufacturing
Bryant	420	428	347	259	349	Bryant	420	428	347	259	349	Manufacturing

  

Development					
Name	Week 18	Week 19	Week 20	Week 21	Week 22
Coleman	135	65	148	155	205
Steiner	317	230	338	281	116
Dewitt	340	382	183	154	382
Stevens	148	98	189	62	386

  

Services					
Name	Week 18	Week 19	Week 20	Week 21	Week 22
Rogers	322	171	324	281	292
Roberts	193	282	238	207	178
Lopez	307	95	286	388	352
Aguilar	422	56	149	359	266
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