

Learn How to Find the Lowest 3 Values in Excel: A Step-by-Step Guide

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November 10, 2025

RECOMMENDED CITATION

Mohammed loot (2025). *Learn How to Find the Lowest 3 Values in Excel: A Step-by-Step Guide*. PSYCHOLOGICAL STATISTICS. Retrieved from <https://statistics.arabpsychology.com/?p=15619>

Finding extreme values--whether the highest or the lowest--is a fundamental task in [Excel](#) data analysis. While sorting the data manually provides a straightforward solution, dealing with large, dynamic datasets requires a more robust, formula-based approach. This guide provides a detailed explanation of how to efficiently extract the lowest three values from any specified [data range](#) using a powerful combination of built-in functions.

By utilizing the capabilities of array processing, we can return multiple results simultaneously without needing separate formulas for each value. The primary method relies on the [SMALL function](#), which is specifically designed to identify the k-th smallest element within a numerical set.

The core formula structure employed to locate the lowest 3 values in a designated range is presented below:

```
=TRANSPOSE(SMALL(B2:B13, {1,2,3}))
```

This sophisticated construction returns an [array formula](#) output, listing the first, second, and third smallest values contained within the range **B2:B13**. The following sections break down the components of this formula and demonstrate its practical application using a real-world dataset.

Understanding the Core Functions: SMALL and TRANSPOSE

To effectively locate the lowest values, it is essential to understand the roles played by the two primary functions in this solution: [SMALL](#) and [TRANSPOSE](#). These functions, when combined, offer a dynamic and flexible method for extracting multiple ranked statistics.

The [SMALL function](#) is the engine of the operation. It requires two arguments: the array (or range) of numbers, and 'k', which specifies the position of the value you wish to find from the smallest end. For instance, `SMALL(Range, 1)` returns the absolute minimum value, while `SMALL(Range, 5)` returns the fifth smallest value. To retrieve the lowest three values simultaneously, we pass the 'k' argument as an array constant: **{1, 2, 3}**. This tells Excel to calculate the 1st smallest, the 2nd smallest, and the 3rd smallest value all at once, resulting in a horizontal array of three numbers.

The [TRANSPOSE function](#) serves a critical formatting purpose. Since the [SMALL function](#), when provided with an array constant like **{1, 2, 3}**, naturally returns its output horizontally, we often need to present these results vertically, especially if the subsequent calculations or visualizations require a columnar format. The [TRANSPOSE function](#) flips the orientation of the resulting array, changing it from a row vector into a column vector, allowing the three smallest values to stack neatly into three consecutive cells vertically.

Step-by-Step Implementation of the Array Formula

Implementing this solution requires careful entry, especially in older versions of Excel where explicit array handling was necessary. In modern versions (Excel 365), this is often handled automatically as a dynamic array, but understanding the steps ensures compatibility and accuracy.

The process begins by identifying the destination cells where the results will be displayed. Because the formula returns three values, you must select three contiguous cells where you wish the output to appear--in our example, these will be three vertical cells, such as **D2:D4**.

Once the destination cells are selected, you type the formula exactly as shown: `=TRANSPOSE(SMALL(B2:B13, {1,2,3}))`. Crucially, if you are using an older version of Excel, you must confirm the entry by pressing **Ctrl + Shift + Enter** simultaneously, which signals to Excel that you are entering an array formula. This action results in curly braces `{ }` appearing around the formula in the formula bar, confirming its status as an array calculation. If using a newer version supporting dynamic arrays, pressing only **Enter** is sufficient, and the results will automatically spill into the necessary adjacent cells.

This method is highly efficient because it avoids the need for sorting the original data, preserving the integrity of the source table while providing the desired statistical summary instantly.

Detailed Example: Analyzing Basketball Player Data

To illustrate the power and simplicity of this technique, consider a practical scenario involving sports statistics. Suppose we have a table tracking various basketball players and their total points scored over a season. Our goal is to quickly identify the three players who scored the fewest points.

The dataset, comprising player names and their corresponding point totals, is structured as follows:

	A	B	C	D	E	F
1	Player	Points				
2	Andy	22				
3	Bob	26				
4	Chad	18				
5	Doug	19				
6	Eric	30				
7	Frank	36				
8	Greg	12				
9	Henry	19				
10	Isaac	22				
11	John	11				
12	Kendall	15				
13	Luke	40				
14						
15						
16						
17						

In this example, the numerical data we are analyzing--the **Points** column--is located in the cell range **B2:B13**. We want our results to appear starting in cell **D2**, listing the lowest three scores vertically.

We initiate the calculation by typing the previously defined formula directly into cell **D2**, ensuring we reference the correct range **B2:B13** and specify the array constant **{1, 2, 3}** to request the three smallest values:

=TRANSPOSE(SMALL(B2:B13, {1,2,3}))

Upon entering the formula (using Ctrl+Shift+Enter if necessary), Excel processes the array and returns the three specific values requested. The following screenshot visually confirms the result of this operation within the spreadsheet environment:

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F
1	Player	Points		Lowest 3 Points		
2	Andy	22		11		
3	Bob	26		12		
4	Chad	18		15		
5	Doug	19				
6	Eric	30				
7	Frank	36				
8	Greg	12				
9	Henry	19				
10	Isaac	22				
11	John	11				
12	Kendall	15				
13	Luke	40				
14						
15						

Analyzing the Formula Output and Verification

The immediate output, displayed vertically starting in cell **D2**, clearly shows the results of the calculation. Based on the data processed, we can ascertain that the lowest three points values recorded in the dataset are **11, 12, and 15**.

Verification is a crucial step in data analysis to ensure the formula performed as expected. We can manually scan the original **Points** column (B2:B13) to confirm the accuracy of the formula's output. By inspecting the list, we look for the smallest numbers and confirm their presence:

The lowest score is 11.

The second lowest score is 12.

The third lowest score is 15.

This manual check confirms that the array formula successfully identified and returned the correct three minimum values. The use of the [SMALL function](#) combined with the array constant is a highly reliable method for extracting ranked data without requiring any manual reordering of the source data table.

The screenshot below highlights these lowest three values within the original dataset, providing visual confirmation of their location and correctness:

	A	B	C	D	E
1	Player	Points		Lowest 3 Points	
2	Andy	22		11	
3	Bob	26		12	
4	Chad	18		15	
5	Doug	19			
6	Eric	30			
7	Frank	36			
8	Greg	12			
9	Henry	19			
10	Isaac	22			
11	John	11			
12	Kendall	15			
13	Luke	40			
14					
15					
16					

Modifying Output Orientation: Horizontal vs. Vertical Results

As discussed earlier, the role of the [TRANSPOSE function](#) is purely to reorient the output array from horizontal to vertical. Depending on the requirements of your report or dashboard layout, you may prefer the results to be displayed horizontally across a row instead of vertically down a column.

Achieving a horizontal output is straightforward: simply remove the [TRANSPOSE function](#) wrapper from the original formula. The simplified formula, designed for horizontal display, is as follows:

=SMALL(B2:B13, {1,2,3})

When this modified formula is entered (potentially using Ctrl+Shift+Enter) into a single cell, the results will automatically spill or must be selected across three horizontal cells (e.g., **D2, E2, F2**) to display all three values.

The resulting output demonstrates how the lowest 3 values from the **Points** column are now returned horizontally, occupying adjacent cells in a row, offering flexibility in how the results are integrated into your spreadsheet design:

	A	B	C	D	E	F
1	Player	Points		Lowest 3 Points		
2	Andy	22		11	12	15
3	Bob	26				
4	Chad	18				
5	Doug	19				
6	Eric	30				
7	Frank	36				
8	Greg	12				
9	Henry	19				
10	Isaac	22				
11	John	11				
12	Kendall	15				
13	Luke	40				
14						
15						
16						
17						

Conclusion and Further Resources

Mastering the combination of the [SMALL function](#) and array constants provides a robust tool for extracting specific ranked statistics from large datasets in Excel. Whether you need the lowest 3, the lowest 10, or any defined set of minimum values, this method ensures accuracy and efficiency without manual sorting. The judicious use of the [TRANSPOSE function](#) further enhances flexibility by allowing control over the orientation of the final output, tailoring the results perfectly to your reporting needs.

For those seeking to expand their knowledge of data extraction and statistical functions within Excel, the following tutorials explain how to perform other common tasks and explore related statistical concepts:

Finding the largest N values (using the complementary **LARGE** function).

Calculating conditional averages (using functions like **AVERAGEIF** or **AVERAGEIFS**).

Using **RANK.EQ** and **RANK.AVG** to assign ranks to all values in a dataset.