

How to Find the Minimum Value with VLOOKUP in Google Sheets

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The VLOOKUP function is an exceptionally powerful tool within Google Sheets, designed to facilitate rapid retrieval of specific corresponding data from large tables. While VLOOKUP is typically used for exact match lookups, its true versatility shines when combined with other functions. This article demonstrates how to leverage VLOOKUP alongside the MIN function to efficiently identify the absolute minimum numerical value within a specified column and return a piece of related, corresponding data, such as a category or name. This technique is indispensable for effective data analysis and comparison, allowing users to instantly pinpoint critical lowest figures without time-consuming manual searches. Mastering this nested function approach significantly streamlines reporting and decision-making processes.

Google Sheets: Using VLOOKUP to Identify and Return the Minimum Value

The Power of Nested Functions: VLOOKUP and MIN

Standard VLOOKUP requires a static lookup value, but by nesting the MIN function within the VLOOKUP formula, we create a dynamic lookup criterion. The MIN function first scans a designated column range to calculate the smallest numerical entry. This calculated minimum value is then immediately passed as the primary argument (the **search_key**) for the VLOOKUP function.

This nested structure solves a common challenge: finding an associated piece of text (like a product name or category) that corresponds precisely to the lowest number (like the lowest price or smallest quantity). The resulting formula is highly efficient and automates the process of identifying minimums and retrieving their linked descriptors across large datasets.

To successfully find the minimum value in a range and retrieve a corresponding value using this method, the table must be structured such that the column containing the numerical values (where the MIN function operates) is the first column of the overall lookup range defined by VLOOKUP. This is a fundamental requirement of how VLOOKUP processes tables.

Defining the Combined VLOOKUP and MIN Syntax

The core syntax for using VLOOKUP to return a value corresponding to the minimum entry is concise yet powerful. This formula first determines the minimum value, then uses that minimum as the target to search for in the first column of the data range.

The syntax combines the two functions into a single expression. This is how the structure appears in Google Sheets, assuming your numeric data is in column A and the corresponding descriptive data is in column B:

=VLOOKUP(MIN(A2:A11), A2:B11, 2, FALSE)

In this specific structure, the MIN portion finds the lowest numerical entry within the range **A2:A11**. That calculated minimum value then serves as the lookup key for VLOOKUP, which searches the entire range **A2:B11** and returns the value from the second column (index 2) corresponding to the row where the minimum value was found.

Detailed Breakdown of Formula Arguments

Understanding each component of the nested formula is key to successful implementation. The formula, `=VLOOKUP(MIN(A2:A11), A2:B11, 2, FALSE)`, can be broken down into four essential parts:

MIN(A2:A11) (Search Key Generation): This is the initial and critical step. The MIN function calculates the smallest value in the specified range (A2 through A11). If the smallest value is 11, the VLOOKUP function effectively begins its search looking for the number 11.

A2:B11 (Range): This defines the entire block of data VLOOKUP will search. Crucially, the column containing the MIN value (Column A) must be the first column in this range.

2 (Index): This argument specifies which column within the defined range (A2:B11) holds the value you want to return. Since A is the first column (index 1) and B is the second column (index 2), entering 2 instructs the function to return the corresponding value from Column B.

FALSE (Is Sorted): This is vital for accurate data retrieval. Setting this argument to `FALSE` ensures that VLOOKUP performs an **exact match** lookup. It guarantees that the function finds the row corresponding exactly to the minimum value calculated by the MIN function, preventing incorrect approximations.

Practical Example: Analyzing Basketball Player Data

To illustrate this technique, consider a dataset tracking basketball performance, specifically recording the total points scored by various players and the teams they belong to. Our goal is to use the nested function to quickly determine which team had the player who scored the absolute minimum number of points.

Suppose we have the following table, where Column A lists the points scored and Column B lists the corresponding Team Name:

	A	B	C
1	Points	Team	
2	22	Mavs	
3	14	Spurs	
4	19	Rockets	
5	13	Kings	
6	40	Warriors	
7	30	Nets	
8	28	Lakers	
9	17	Thunder	
10	15	Blazers	
11	11	Jazz	
12			
13			
14			
15			
16			

In this scenario, we aim to look up the minimum value present in the points column (A2:A11) and, rather than just returning the number 11, we want to retrieve the associated team name (from B2:B11).

Implementing the Nested Formula Step-by-Step

We will input the formula into an empty cell, such as **D2**, to execute the lookup. This formula identifies the smallest number in the points column and then uses that number to locate the descriptive text in the team column.

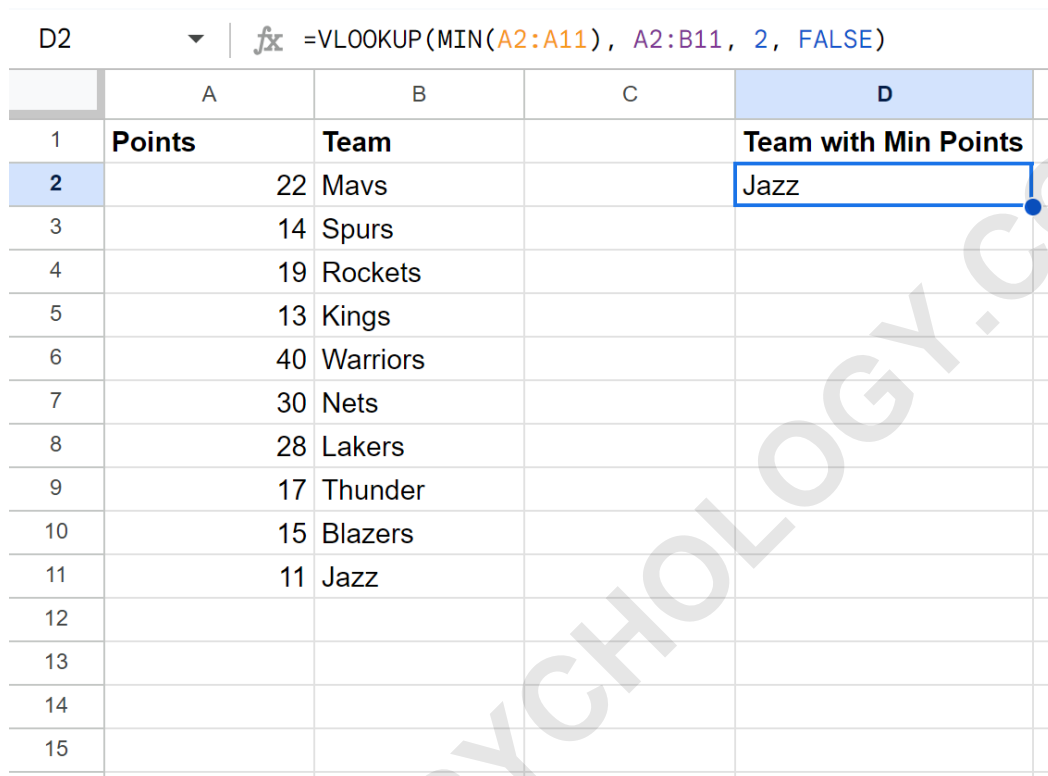
The exact formula to be typed into cell **D2** is:

=VLOOKUP(MIN(A2:A11), A2:B11, 2, FALSE)

Upon execution, the system first determines that the minimum value within the range A2:A11 is **11**. It then searches for 11 in the first column of the range A2:B11. Once the row containing 11 is found, the function moves to the second column (index 2) of that row and returns the corresponding team name.

Interpreting the Accurate Retrieval Results

The application of this formula yields the desired result, clearly demonstrating the efficiency of nesting the MIN function within VLOOKUP. The following screenshot visually confirms the result of the calculation:



	A	B	C	D
1	Points	Team		Team with Min Points
2	22	Mavs		Jazz
3	14	Spurs		
4	19	Rockets		
5	13	Kings		
6	40	Warriors		
7	30	Nets		
8	28	Lakers		
9	17	Thunder		
10	15	Blazers		
11	11	Jazz		
12				
13				
14				
15				

As shown in the output, the formula returns the team name **Jazz**. This confirms that the MIN function correctly identified the minimum value of 11 in the points column, and the VLOOKUP function successfully utilized this value to return the corresponding team descriptor in the second column.

Advanced Retrieval: Finding the Minimum Value Under Specific Criteria

While the MIN/VLOOKUP combination is ideal for finding the absolute minimum across the entire dataset, there are times when you may need to find the minimum value associated with a specific, predefined condition or lookup value. For instance, you might need to determine the lowest score recorded only by the 'Warriors' team, excluding all other teams.

In this advanced scenario, the dedicated MINIFS function (Minimum If Set) is the appropriate tool. Unlike VLOOKUP, which retrieves corresponding text, MINIFS is designed specifically to calculate the minimum numerical value that satisfies one or more specified criteria.

Applying the MINIFS Function for Conditional Minimums

The **MINIFS** function requires three key arguments: the range containing the values to minimize, the range containing the criteria, and the specific criterion itself.

To find the minimum score associated only with the 'Warriors' team, assuming the points are in Column B (B2:B9) and the team names are in Column A (A2:A9), the formula would be structured as follows:

```
=MINIFS(B2:B9, A2:A9, "Warriors")
```

In this formula, **B2:B9** is the **min_range** (the numbers we want the minimum of), **A2:A9** is the **criteria_range1** (the range to check for the condition), and **"Warriors"** is the **criterion1** (the specific team name we are filtering by).

Validating the MINIFS Output

Executing the MINIFS formula against our dataset successfully filters the points column based on the 'Warriors' team and returns the lowest score achieved by that specific team, regardless of other data entries.

D2 | fx =MINIFS(B2:B9, A2:A9, "Warriors")

	A	B	C	D
1	Team	Points		Min Points for Warriors
2	Warriors	31		14
3	Warriors	14		
4	Warriors	19		
5	Warriors	22		
6	Mavs	25		
7	Mavs	11		
8	Mavs	10		
9	Mavs	23		
10				
11				
12				
13				

The formula returns a value of **14**, confirming that this is the minimum score associated exclusively with the 'Warriors' team within the provided dataset. This demonstrates the superior capability of

MINIFS when criteria-based minimum retrieval is required, complementing the VLOOKUP/MIN combination which focuses on retrieving corresponding data for the absolute global minimum.

Further Resources for Google Sheets Mastery

The following tutorials explain how to perform other common tasks in Google Sheets, building upon the foundational knowledge of nested functions discussed here.

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