

How to Find Missing Values Between Two Columns in Google Sheets

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The Challenge of Data Reconciliation

When working with large datasets in a spreadsheet application like Google Sheets, a frequent and critical task is reconciling information between two different lists or columns. Identifying values present in one column but missing from another is essential for tasks such as auditing inventory, cross-referencing customer lists, or validating database synchronicity. Manually comparing thousands of rows is infeasible and prone to human error, necessitating a powerful, automated formula solution.

Fortunately, Google Sheets provides an elegant combination of built-in functions that allow for robust array operations and precise conditional filtering. By leveraging functions designed for lookup, error handling, and array manipulation, we can construct a single, efficient formula to pinpoint exactly which items are missing from a target list. This method avoids the need for auxiliary columns or complex scripting, keeping the spreadsheet clean and highly functional.

The core logic relies on attempting to locate every item from the primary list (List A) within the secondary list (List B). If a lookup attempt fails, it signifies a missing value. We then use conditional filtering based on this failure flag to extract only those records that did not find a match in List B. This methodology is incredibly versatile and forms the backbone of many advanced data comparison techniques used by analysts daily.

The Core Formula for Identifying Missing Values

The most effective and commonly used formula for this specific comparison task combines the FILTER function with the error-checking capabilities of ISNA, nested around a powerful VLOOKUP operation. This structure allows us to process an entire range simultaneously, treating it as an array operation rather than a cell-by-cell comparison, thereby maximizing computational efficiency.

If you need to find all the values located in range A2:A13 that are absent from the corresponding range B2:B7, the following formula provides the necessary result in a single output column:

=FILTER(A2:A13, ISNA(VLOOKUP(A2:A13, B2:B7, 1, FALSE)))

This sophisticated expression effectively performs three major operations: it searches for every element in the primary column within the secondary column, identifies which searches resulted in an error (meaning the value is missing), and then displays only those values from the primary column that triggered the error condition. Understanding how each component contributes to this process is key to mastering data validation in Google Sheets.

The ranges specified must be adjusted precisely to match your dataset. In this example, A2:A13 represents the source list (List A), and B2:B7 represents the lookup list (List B). The output

generated by this function will be a dynamic array containing only the elements unique to List A relative to List B.

Dissecting the Comparison Logic

To fully appreciate the efficiency of this formula, we must break down the roles of the three nested functions. The operation begins from the innermost function, the VLOOKUP, which is instructed to search for the entire range A2:A13 within the range B2:B7. Crucially, by setting the fourth argument (is_sorted) to FALSE, we ensure an exact match is required for the lookup to succeed.

When VLOOKUP operates on an array of values (like A2:A13), it returns an array of results. If a value is found in the lookup range B2:B7, the formula returns that value (or whatever is specified by the column index, which is 1 in this case, referring back to column B). However, if the value from List A is not found in List B, the VLOOKUP function inherently returns the error value #N/A. This error is the signal we rely upon to identify missing data points.

Next, the results of the VLOOKUP array are passed to the ISNA function. The purpose of ISNA is to check if a value is the specific error #N/A. For every cell where the VLOOKUP failed (meaning the value was missing), ISNA returns TRUE. For every cell where the VLOOKUP succeeded (meaning the value was present), ISNA returns FALSE. This operation transforms the array of names and error messages into a pure array of Boolean values (TRUE or FALSE).

Finally, the outermost function, FILTER, uses this Boolean array as its condition. The FILTER function is designed to return a subset of data based on criteria. It looks at the original range, A2:A13, and only returns the corresponding value if the condition (the ISNA result) is TRUE. Because TRUE indicates a missing value, the final output is a clean list of all items from List A that could not be found in List B.

Example: Comparing Two Columns for Missing Values in Google Sheets

To demonstrate this powerful technique, consider a scenario where we have two separate lists of employee names. List A represents the current active roster, and List B represents the employees who have completed a mandatory training session. Our goal is to quickly identify which active employees still need to complete the training.

Suppose we have the following two distinct lists of names entered into our Google Sheets worksheet:

	A	B	C	D
1	List A	List B		
2	Andy	Andy		
3	Bob	Kendall		
4	Chad	Luke		
5	Doug	Greg		
6	Eric	Frank		
7	Frank	John		
8	Greg			
9	Henry			
10	Isaac			
11	John			
12	Kendall			
13	Luke			
14				
15				

List A spans the range **A2:A13** and contains 12 names, representing the full roster. List B spans **B2:B7** and contains only 6 names, representing those who have completed the training. We specifically want to find all of the names from List A that are missing in List B, thus creating a list of employees who still require the training.

To execute this comparison, we will enter the formula into an empty cell, such as **D2**, which will serve as the starting point for our results array. The formula needs to reference the full primary list (**A2:A13**) and the shorter secondary list (**B2:B7**) correctly.

Step-by-Step Implementation Guide

We can proceed by typing the complete comparison formula into cell **D2**. Note the specific references used for the source range and the lookup range:

=FILTER(A2:A13, ISNA(VLOOKUP(A2:A13, B2:B7, 1, FALSE)))

Upon pressing Enter, Google Sheets immediately calculates the result using array operations and populates the subsequent cells in column D with the identified missing values. The result is a dynamic list that requires no copying or dragging, demonstrating the efficiency of this approach.

The following screenshot illustrates the visual output after the formula is successfully implemented

in cell D2. Notice how the resulting list only contains names unique to List A:

D2 =FILTER(A2:A13, ISNA(VLOOKUP(A2:A13, B2:B7, 1, FALSE)))

	A	B	C	D
1	List A	List B		Names in List A Missing from List B
2	Andy	Andy		Bob
3	Bob	Kendall		Chad
4	Chad	Luke		Doug
5	Doug	Greg		Eric
6	Eric	Frank		Henry
7	Frank	John		Isaac
8	Greg			
9	Henry			
10	Isaac			
11	John			
12	Kendall			
13	Luke			
14				

The resulting output confirms that the formula successfully returns every name from the primary list (List A) that is absent from the secondary list (List B). This list represents the outstanding tasks or discrepancies that need to be addressed by the user.

Analyzing the Missing Data Points

By examining the output generated in column D, we can confirm the precision of the combined FILTER, ISNA, and VLOOKUP formula. Each name displayed in the results array was present in the full roster (List A) but failed the lookup attempt against the completed training list (List B).

For instance, the results clearly show the following specific discrepancies:

The name **"Bob"** appears in List A but is definitively not found in List B.

The name **"Chad"** appears in List A but is definitively not found in List B.

The name **"Doug"** appears in List A but is definitively not found in List B.

The remaining missing names follow the same logical pattern, each representing a value that triggered the #N/A error during the lookup process.

This filtered list provides actionable intelligence. If this were a list of inventory items, these would be the items missing from a shipment. If it were a list of financial transactions, these would be the transactions present in one ledger but missing in the reconciliation report. The utility of this formula

extends far beyond simple name comparisons, serving as a powerful tool for large-scale data integrity checks.

Advanced Considerations and Alternatives

While the **FILTER/ISNA/VLOOKUP** combination is highly reliable for finding missing values in text or numerical columns, it is important to consider alternatives and constraints. For example, if you were comparing two lists to find unique items in both directions (items only in A, AND items only in B), you would need to run the formula twice, swapping the primary and secondary ranges.

An alternative approach, particularly in modern Google Sheets environments, involves using the **MATCH** function alongside **ARRAYFORMULA**, which can achieve similar results. The **MATCH** function also returns #N/A if no match is found, making it interchangeable with VLOOKUP in this specific Boolean logic context, often preferred for its slightly simpler syntax when only checking for existence. However, the **FILTER/ISNA/VLOOKUP** method is widely recognized for its clarity and robustness.

In summary, mastering the utilization of conditional functions like FILTER and error handlers like ISNA in conjunction with lookup functions allows data practitioners to execute complex array-based comparisons efficiently, ensuring data accuracy without resorting to time-consuming manual checks. This is foundational knowledge for anyone aiming to leverage the full analytical power of spreadsheet software.