

# Create a Forecast in Google Sheets (With Example)

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## The Power of Prediction: Understanding the `FORECAST` Function in Google Sheets

In the rapidly evolving landscape of **data analysis**, the capacity to project future outcomes is a cornerstone of effective strategic planning and resource management. Whether your goal is to anticipate sales figures, model financial performance, or estimate future demand, the practice of [forecasting](#) provides critical foresight. For users seeking a robust yet accessible tool for generating these projections, [Google Sheets](#) offers the highly efficient [FORECAST](#) function.

The [FORECAST](#) function is specifically designed to calculate the anticipated value of a future data point by analyzing existing [historical data](#). This tool is indispensable when your past data exhibits a clear **linear trend**, enabling you to extrapolate that pattern into the future. It significantly simplifies the process of generating reliable predictions directly within your spreadsheet environment, eliminating the need for specialized statistical software for basic trend analysis.

By integrating this function into your workflow, you can rapidly transform raw historical numbers into actionable insights about potential future scenarios. This guide will meticulously detail the practical application of the [FORECAST](#) function, providing clear, step-by-step instructions for predicting both singular future values and generating forecasts across multiple periods.

### The Statistical Foundation: How the `FORECAST` Function Operates

At its core, the mechanism driving the [FORECAST](#) function is [simple linear regression](#). This established statistical methodology identifies the "line of best fit"--a straight line that minimizes the distance between itself and all the given historical data points. Once this linear relationship is defined, the function utilizes the line's equation to accurately estimate the corresponding [y-value](#) for any new, specified [x-value](#). Crucially, this operation is based on the assumption that the established historical correlation between your independent variable (x-values) and dependent variable (y-values) will remain consistent moving forward.

The syntax required for the [FORECAST](#) function is concise and mandates three distinct arguments:

**x:** This required argument specifies the future data point for which you need a prediction. It serves as the target [x-value](#) (the independent variable) whose corresponding output [y-value](#) you are seeking.

**data\_y:** This is the range containing all the known, past [y-values](#). These represent your historical dependent variables, such as monthly revenue totals or recorded temperature averages.

**data\_x:** This is the range containing all the known, past [x-values](#). These are the historical

independent variables, which typically correspond to chronological data like dates, time periods, or sequential counts.

It is absolutely essential that the ranges specified for `data_y` and `data_x` contain an identical number of data points and are provided in a meticulously consistent order. The function relies on this one-to-one correspondence to accurately establish the correlation between the two sets of [historical data](#) necessary for generating a valid prediction.

## Method 1: Forecasting a Single Future Value

The most frequent use case for the [FORECAST](#) function involves estimating a single upcoming value based on the established linear trend derived from your historical data. This method is perfectly suited when you require a precise, specific projection for a single future point in time, such as the sales estimate for next Tuesday or the expected temperature for the end of the month.

To execute a single-point forecast, the formula is structured as follows:

```
=FORECAST(A17, B2:B16, A2:A16)
```

In this illustrative formula, we are instructing Google Sheets to predict a future [y-value](#). The first argument, `A17`, is the future [x-value](#) (e.g., a specific future date or time index) for which the prediction is sought. The range `B2:B16` provides the historical dependent variables (past sales, production numbers, etc.), while `A2:A16` supplies the corresponding historical independent variables (past dates or time periods). The function then calculates the most likely [y-value](#) that falls on the line of best fit corresponding to the future [x-value](#) contained in cell `A17`.

## Method 2: Forecasting Multiple Future Values with `ArrayFormula`

While predicting a single value is useful, most analytical tasks require projecting trends across several future time periods. To achieve this efficiency in [Google Sheets](#), the [FORECAST](#) function is combined with the powerful [ArrayFormula](#) wrapper. An [ArrayFormula](#) allows a function that typically returns a single result to process an entire range of input data and output a corresponding array of results across multiple cells automatically.

To forecast an entire series of future values simultaneously, you would structure your formula to look like this:

```
=ArrayFormula(FORECAST(A17:A19, B2:B16, A2:A16))
```

In this enhanced formulation, instead of specifying a single cell for the future x-value, we input a

range of cells, **A17:A19**. This range encompasses all the upcoming [x-values](#) (e.g., three consecutive future dates) for which we desire a prediction. The [ArrayFormula](#) executes the **FORECAST** calculation for every item in the **A17:A19** range, using the historical trend established by **B2:B16** (past y-values) and **A2:A16** (past x-values). The output automatically spills into the adjacent cells, providing a series of forecasted [y-values](#) and significantly accelerating multi-period planning.

## Practical Example: Forecasting Business Sales

To clearly demonstrate the utility of the **FORECAST** function, let us apply it to a common business scenario: predicting future sales based on monthly historical performance. We will examine how to set up the data structure for both single-point estimates and multi-period projections.

### Forecasting a Single Sales Value

The image below illustrates the data setup for predicting sales for a specific date, April 1, 2021. The historical timeline is defined by dates in cells **A2:A16** (our independent [x-values](#)), and the corresponding historical sales figures are located in **B2:B16** (our dependent [y-values](#)). The target date for the prediction, April 1, 2021, is placed in cell **A17**.

B17		=FORECAST(A17, B2:B16, A2:A16)			
	A	B	C	D	
1	<b>Date</b>	<b>Sales</b>			
2	1/1/2020	45			
3	2/1/2020	56			
4	3/1/2020	61			
5	4/1/2020	78			
6	5/1/2020	85			
7	6/1/2020	90			
8	7/1/2020	91			
9	8/1/2020	98			
10	9/1/2020	104			
11	10/1/2020	118			
12	11/1/2020	120			
13	12/1/2020	140			
14	1/1/2021	130			
15	2/1/2021	140			
16	3/1/2021	148			
17	4/1/2021	156.9550162			
18	5/1/2021				
19	6/1/2021				
20					
21					

Once the correct [FORECAST](#) formula is entered, the function analyzes the linear relationship between the historical months and their sales performance. Based on this established trend, the function calculates an estimated value of **156.955** total sales for that specific date. This immediate, single predicted value provides essential information that businesses can use to quickly adjust inventories, marketing campaigns, or staffing requirements.

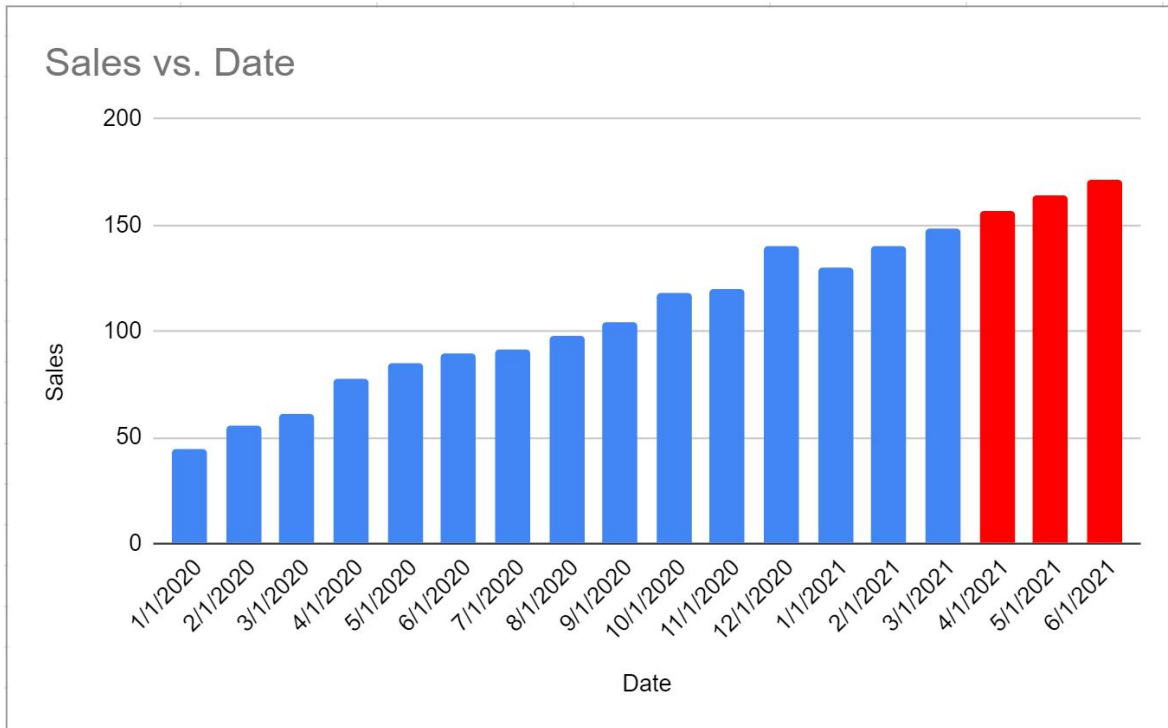
### Forecasting and Visualizing Multiple Future Periods

Moving beyond a single estimate, we often need a forecast spanning several periods to create comprehensive sales pipelines or budgetary forecasts. The following visual demonstrates the application of the [FORECAST](#) function combined with [ArrayFormula](#) to project sales for three consecutive months: April 1, 2021, through June 1, 2021.

B17    fx    =ArrayFormula(FORECAST(A17:A19, B2:B16, A2:A16))					
	A	B	C	D	E
1	<b>Date</b>	<b>Sales</b>			
2	1/1/2020	45			
3	2/1/2020	56			
4	3/1/2020	61			
5	4/1/2020	78			
6	5/1/2020	85			
7	6/1/2020	90			
8	7/1/2020	91			
9	8/1/2020	98			
10	9/1/2020	104			
11	10/1/2020	118			
12	11/1/2020	120			
13	12/1/2020	140			
14	1/1/2021	130			
15	2/1/2021	140			
16	3/1/2021	148			
17	4/1/2021	156.9550162			
18	5/1/2021	163.9554985			
19	6/1/2021	171.1893301			
20					
21					

By supplying a range of future dates (e.g., A17:A19) as the target **x-values**, the [ArrayFormula](#) efficiently generates a distinct sales forecast for each of the three specified future months. This provides a more comprehensive and dynamic outlook compared to a single-point estimate, which is crucial for detailed business planning.

To enhance the clarity of the analysis, it is highly recommended to **visually distinguish** between historical results and future predictions in accompanying charts. As seen in the chart below, the final three bars, which represent the forecasted sales, have been styled with a contrasting red fill color. This visual separation immediately communicates which data points are based on actual, realized performance and which are forward-looking projections derived from the model.



The chart's x-axis accurately maps the time progression, while the y-axis represents the corresponding sales volume. This clear graphical representation allows stakeholders to easily grasp the projected trend and understand how the expected future performance extends from the observed historical data.

## Key Considerations and Limitations

Effective utilization of the [FORECAST](#) function requires a fundamental understanding of its underlying statistical constraints. The function fundamentally relies on [simple linear regression](#), a method that seeks to identify a straight line that best describes the relationship within your existing [dataset](#). This "line of best fit" is then used for extrapolation. While this approach is robust for many common business trends, it operates under the critical assumption that the observed linear relationship will continue unchanged into the future.

For datasets exhibiting more complex patterns--such as strong seasonality (e.g., sales spiking every December) or pronounced non-linear growth curves--the simple linear model provided by the [FORECAST](#) function may yield inaccurate predictions. In such advanced scenarios, analysts should consider more sophisticated time-series forecasting techniques or alternative functions specifically designed to handle non-linear data.

Mastering the use of the [FORECAST](#) function in Google Sheets significantly elevates your analytical capacity, allowing you to transition from merely reporting past data to proactively

anticipating future market behavior. By understanding both its methodology and its limitations, you can ensure that your financial and operational decisions are grounded in the best available data projections.

## **Additional Resources**

For a deeper dive into the technical specifications, parameters, and potential error handling associated with this function, please consult the official documentation:

The following tutorials explain how to perform other common tasks in Google Sheets: