**How to Create a Timeline in Excel**

**Set Up the Data Table**

1. Open up a new Excel workbook.
2. Starting with cell B5=1, create a column of numbers 1-10.
3. Starting with cell C5="Event 1", create a column of event labels.
4. Set up a column starting with cell E5 that will represent the heights of the leader lines in the timeline.
5. In cell F5, enter the following formula:

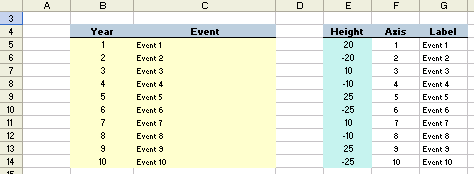
=OFFSET($B$4,ROW()-ROW($F$4),0,1,1)

1. In cell G5, enter the following formula:

=OFFSET($C$4,ROW()-ROW($G$4),0,1,1)

1. Copy the formulas in F5 and G5 down to F14 and G15, respectively.

When you are done with these steps, your spreadsheet should look similar to Figure 2 (you can add the coloring and column labels however you see fit).

  
Figure 2: Data tables used for creating the timeline chart.

**Note:** The timeline chart will be referencing columns E, F, and G. Using the OFFSET formula in columns F and G allows greater flexibility in how the year and event labels in columns B and C are modified to create other timelines (particularly when wanting to sort, copy and paste, cut and paste, or insert and delete events).

**Create the Timeline Chart**

1. Start the Chart Wizard (Insert > Chart...) chart icon
2. In Step 1, choose the XY Scatter Chart ([see image](http://www.vertex42.com/ExcelArticles/Images/timeline/Chart_Step1.gif)).
3. In Step 2, set the X and Y values as follows ([see image](http://www.vertex42.com/ExcelArticles/Images/timeline/Chart_Step2.gif)):   
   X Values: =Sheet1!$F$5:$F$14   
   Y Values: =Sheet1!$E$5:$E$14
4. In Step 3, do the following in each of the tabs ...   
   Titles: Leave all fields blank (unless you want a Title)   
   Axes: Turn off the y-axis   
   Gridlines: Turn off all gridlines   
   Legend: Turn off the legend   
   Data Labels: Turn on the Y values ([see image](http://www.vertex42.com/ExcelArticles/Images/timeline/Chart_Step3.gif)).
5. Click Finish

At this point, you might want to apply some cosmetic changes such as removing the border and the gray background in the Plot Area, coloring the x-axis line, or making the data point markers lines rather than the blue diamonds (or whatever the default marker is). You can apply fill patterns such as shading, or even at a watermark image to the chart by right-clicking on the chart edge and selecting Format Chart Area ... Then click on the Fill Effects button.

**Add the Leader Lines**

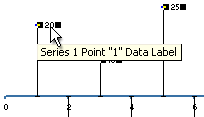
The leader lines are created by adding one-sided error bars to the data series.

1. Right-click on a data point (not the label) and select "Format Data Series..." to open the Format Data Series dialog box, or use the Chart toolbar to do the same thing:   
   chart toolbar
2. In the **Y Error Bars** tab, select the Minus display and set the Percentage to 100 ([see image](http://www.vertex42.com/ExcelArticles/Images/timeline/Y-ErrorBars.gif)).
3. Select OK. You're done with this part.

**Add the Timeline Event Labels**

This step is the most tricky if you are new to Excel charts (and even if you aren't). But, hopefully the images will help explain things.

1. Select the first Data Label (the one on the far left as shown in the image below).



1. Click on the data label once more so that you are editing just the one label.
2. Press the = key, or click inside of the Formula Bar.
3. Either type in the reference, or click on cell G5. The result should look like the following:   
   formula toolbar
4. Repeat the first 4 steps for the rest of the data labels.

**Note:** If you were to reference column C instead of column G, then if you cut and paste or insert/delete events, the ordering of the data labels would be messed up. As long as you don't insert or delete entire rows, you shouldn't have a problem adding, deleting, or sorting the events in columns B and C.

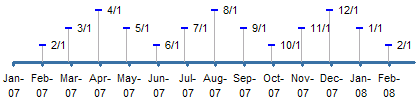
**Using a Date Format in the Timeline Axis**

You can make the x-axis in the chart be a date format such as "yyyy" or "mm/yyyy" if you enter full dates in the "Year" column. For example, if B5 is a date in the form mm/dd/yyyy, the "Axis" column will display the serial number of the date. The trick is to format the axis of the timeline to display the yearly divisions correctly:

1. Right-click on the x-axis and select **Format Axis...**
2. In the **Number** tab, select **Custom** from the Category list and enter **yyyy** as the format in the Type: field.
3. In the **Scale** tab, enter 365.25 in the **Major Unit:** field.
4. In the **Scale** tab, enter the date for the first day of the beginning year (e.g. 1/1/2005) in the Minimum: field and the date for the first day of the ending year (e.g. 1/1/2007) in the Maximum: field. Excel converts the date to the corresponding *serial number*.

This won't be exact, but the 365.25 day increment should work pretty well.

**Using Month Names in the Timeline**: When specifying month names as tick marks using a scatter plot like in the figure below, you can't be exact because the months don't have the same number of days, but you can get pretty close. Right-click on the x-axis and select Properties. In the Scale tab, set the 'Minimum' value to the 1st, 2nd, or 3rd day of the month (e.g. 1/2/2007) and the 'Major Unit' to 30.5 days to avoid repeating month names.To determine what day to start on, use the following guide ( *Month*(*startday*) ): Jan(2), Feb(1), Mar(3), Apr(3), May(3), Jun(3), Jul(3), Aug(3), Sep(2), Oct(2), Nov(2), Dec(2).

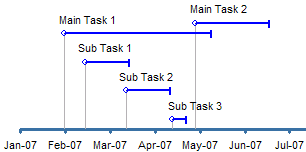


*Hint:* To make the dates line up better, append "+2" to the formulas in the Axis column to superficially add a couple of days. The trade-off is whether you want February or the other months to line up well. The figure below shows the actual date that corresponds to the tick marks in the above timeline.

Timeline with Months as Tick Marks

**Showing the Duration of an Event**

The **project timeline** within the download shows the duration for an event by using X-error bars.



1. Create a column for the Duration (number of days) corresponding to an event. You could use column D.
2. Right-click on a data point (not the label) and select "Format Data Series..." to open the Format Data Series dialog box, or use the Chart toolbar to do the same thing.
3. In the **X Error Bars** tab, select the Plus display and set the 'Custom: +' range to the Duration column that you just created.
4. Select OK. You're done with this part.
5. **Using the Chart toolbar**, select the X Error Bars from the drop down box and then click on the Format button. This allows you to change the color and linewidth properties for JUST the X Error Bars.

*Note*: In order to make the duration bars different colors, you would need to use more than one data series. You CAN format each individual data point label, but the error bars for a single data series all have the same color, linewidth, etc.

**Additional Comments and Help**

Before bringing this tutorial to a close, I need to explain the reason for column E. This column allows you to adjust the heights of the leader lines as needed to make sure your event labels do not overlap. **This is the key to making the chart work as a timeline creator.** I have found that it helps to temporarily turn on the y-axis when I am making a new timeline so that it is easier to pick the y-values. To do this: Right-click on the chart edge > Chart Options... > Axes tab > Check the Value (Y) axis box.

**Adding and Deleting Events**: In the downloadable timeline template, I have included instructions for how to add and delete events. These instructions assume that you know how to modify the data series references. Refer back to the Step 2 in the Chart Wizard, if you have a question about this.

**Cite This Article**

To reference this article from your website or blog, please use something similar to the following citation:

- Wittwer, J.W., "[How to Create a Timeline in Excel](http://www.vertex42.com/ExcelArticles/create-a-timeline.html)" from [*Vertex42.com*](http://www.vertex42.com/), Sep 2, 2005, [http://www.vertex42.com/ExcelArticles/create-a-timeline.html](http://vertex42.com/ExcelArticles/excel-solver-examples.html)