

## Web Resource 7.2

### Steps to Designing Simple Behavior Management Line Graph

The following provides screen shots with step-by-step directions on designing a simple behavior management line graph using Microsoft Excel format (2010 for PC or 2011 for Apple).

Keep in mind that you may have a slightly different version of Excel because it changes every few years, but the basic formatting will remain the same. Also included is a sample of a student assignment with a description a **student behavior** and a **chart** using an ABA reversal design based on the student's data. Refer to chapter 7 of the text for more information on evaluating behaviors. In addition, the Institute of Education Sciences at the National Center for Special Education Research (NCSER, 2011) has a website that includes a series of video training modules so you can learn more about designing scientifically valid single-case design research studies and appropriately analyze single-case data: <http://ies.ed.gov/funding/researchDesign.asp>.

1 From B.W. Lavay, R. French, and H.L. Henderson. 2016, *Positive behavior management in physical activity settings web resource*, 3rd ed. (Champaign, IL: Human Kinetics).

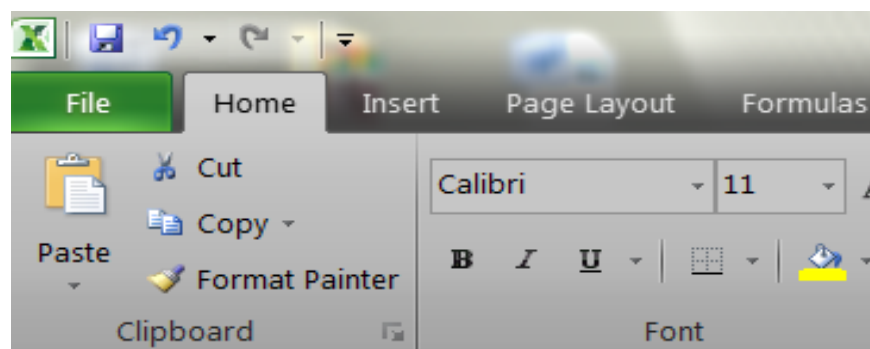
## Steps to Designing an ABA Graph Using PC Microsoft Excel 2010

### Step 1: Open Excel

### Step 2: Enter data

In column A1 type the word “Days” and number down 1 to 12. In column B type in “Speaking out behaviors” and use the numbers you see listed.

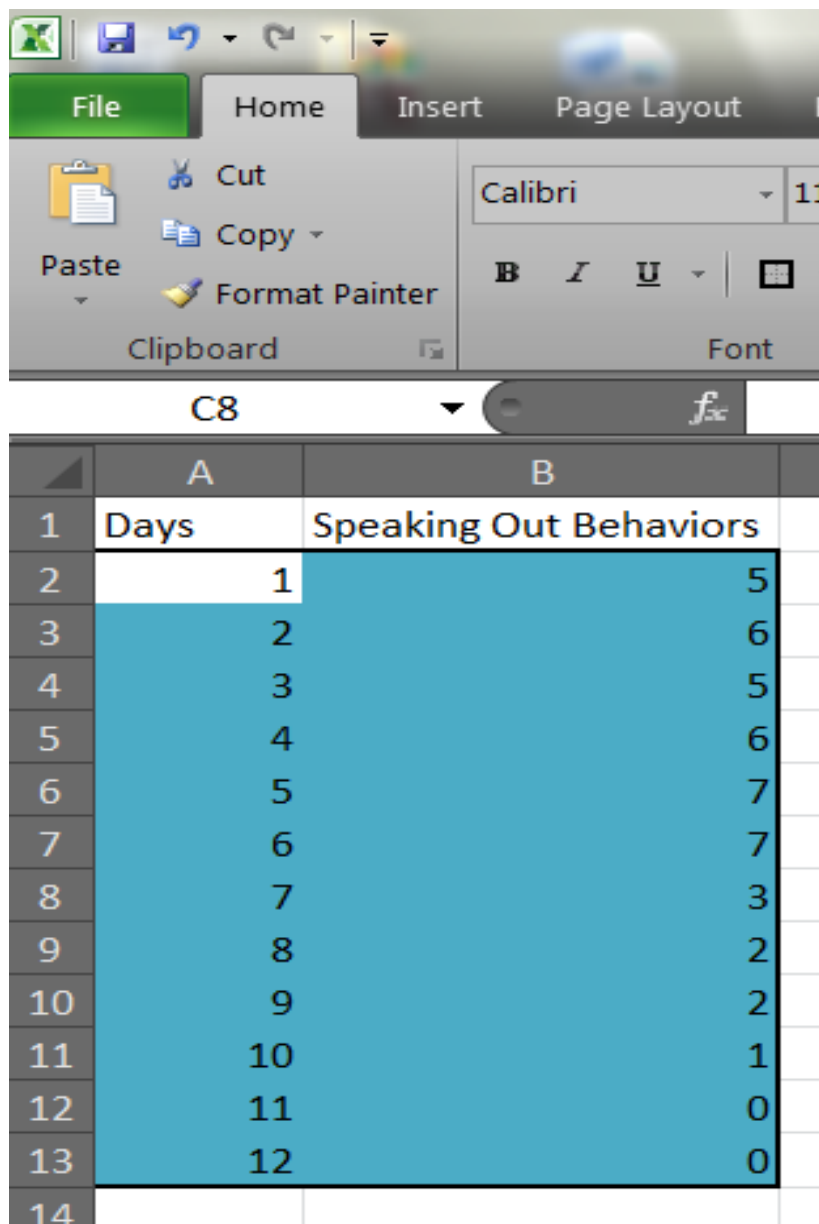
**Hint:** To auto-size the column to fit all words in a title, hover the mouse on the line that is between column B and C. When you see two black arrows (one pointing to the left and one to the right), double-click and the column will adjust to the correct size.



	A	B	C
1	Days	Speaking Out Behaviors	
2	1	5	
3	2	6	
4	3	5	
5	4	6	
6	5	7	
7	6	7	
8	7	3	
9	8	2	
10	9	2	
11	10	1	
12	11	0	
13	12	0	
14			

### Step 3: Graph data pt. 1

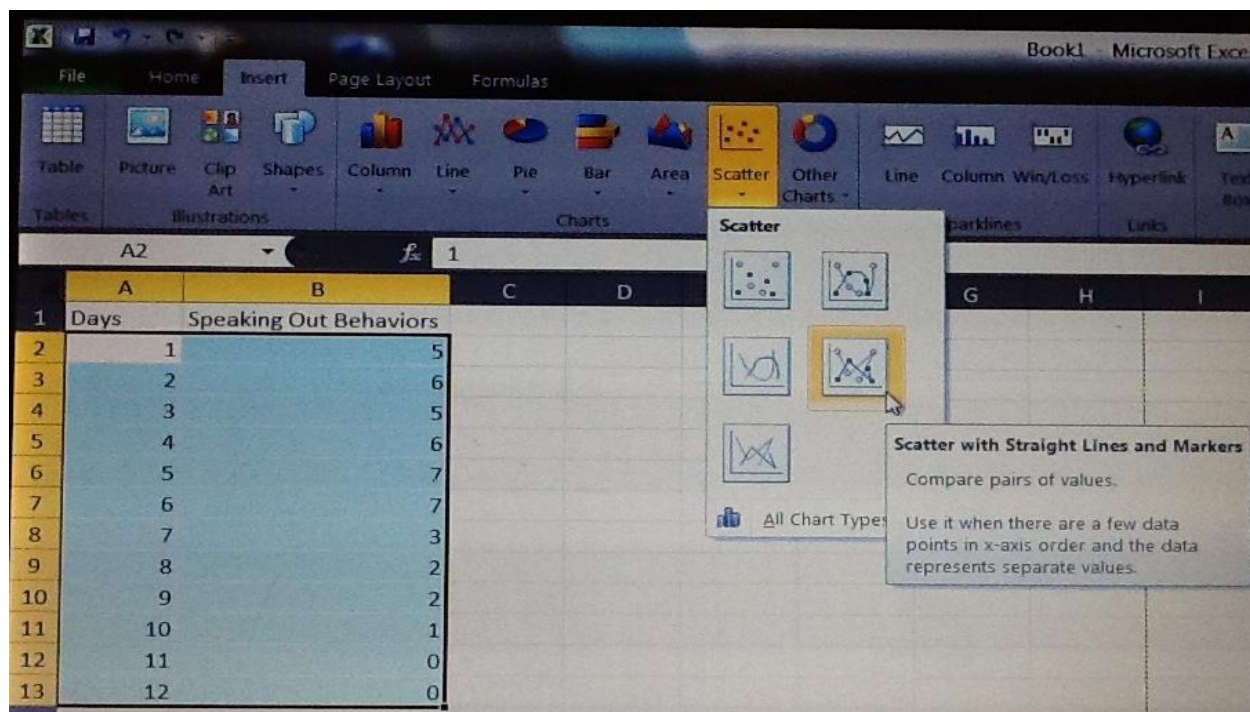
Highlight the data by left-clicking on cell A2 and dragging down and diagonal to B13.



	A	B
1	Days	Speaking Out Behaviors
2	1	5
3	2	6
4	3	5
5	4	6
6	5	7
7	6	7
8	7	3
9	8	2
10	9	2
11	10	1
12	11	0
13	12	0
14		

#### Step 4: Graph data pt. 2

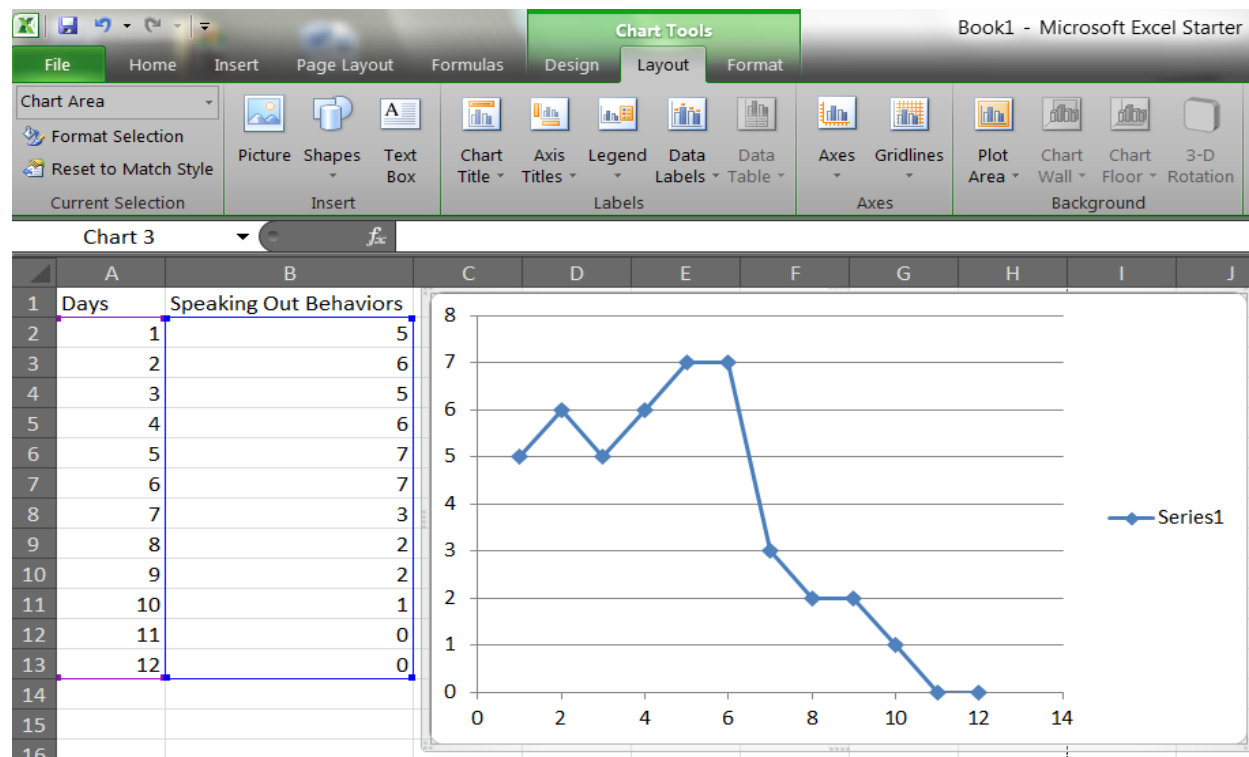
Click on the **Insert** tab, then click on Scatter in the Chart section, and click the **Scatter** with Straight Lines and Markers graph option.



4 From B.W. Lavay, R. French, and H.L. Henderson. 2016, *Positive behavior management in physical activity settings web resource*, 3rd ed. (Champaign, IL: Human Kinetics).

## Step 5: Edit chart

A graph like the following one should appear. Click on the **Layout** tab.

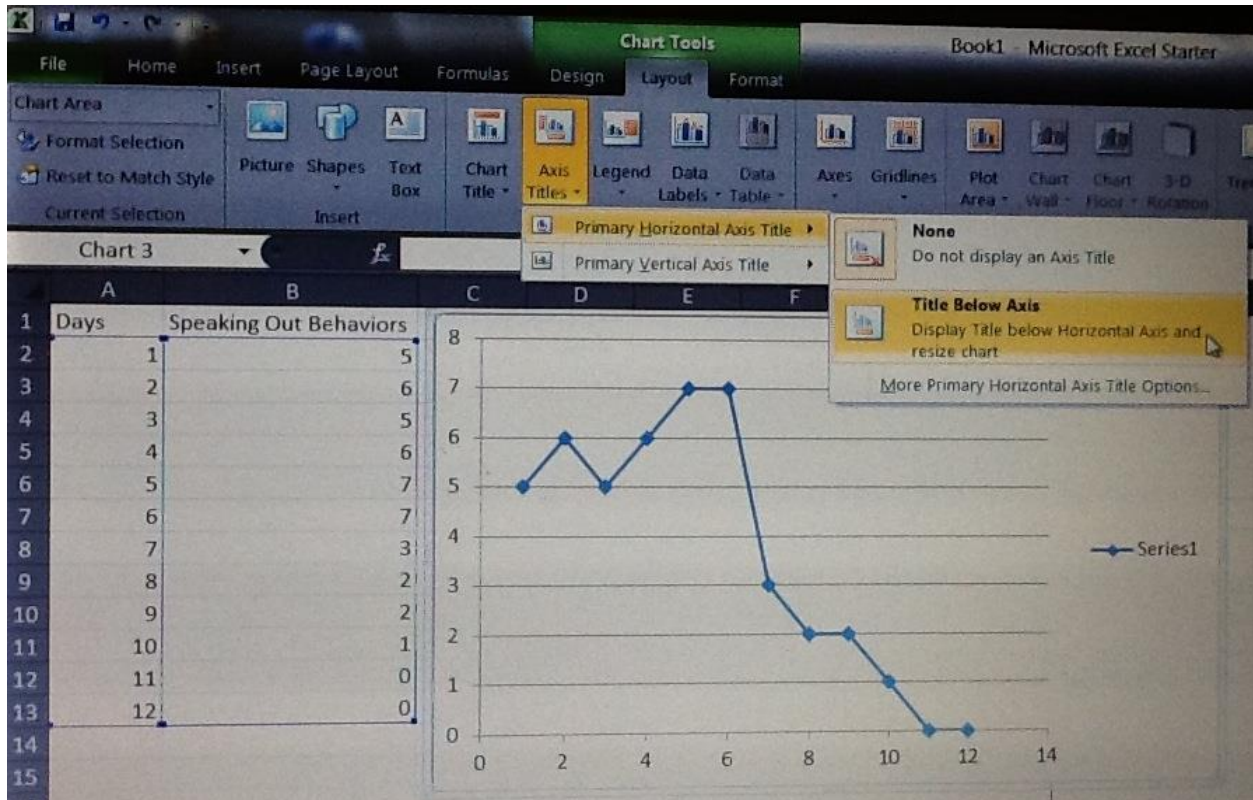


- 5 From B.W. Lavay, R. French, and H.L. Henderson. 2016, *Positive behavior management in physical activity settings web resource*, 3rd ed. (Champaign, IL: Human Kinetics).

## Step 6: Horizontal axis title

Click on **Axis Titles**, go to Primary Horizontal Axis Title, and click Title below Axis. Type in the appropriate title (**Days**).

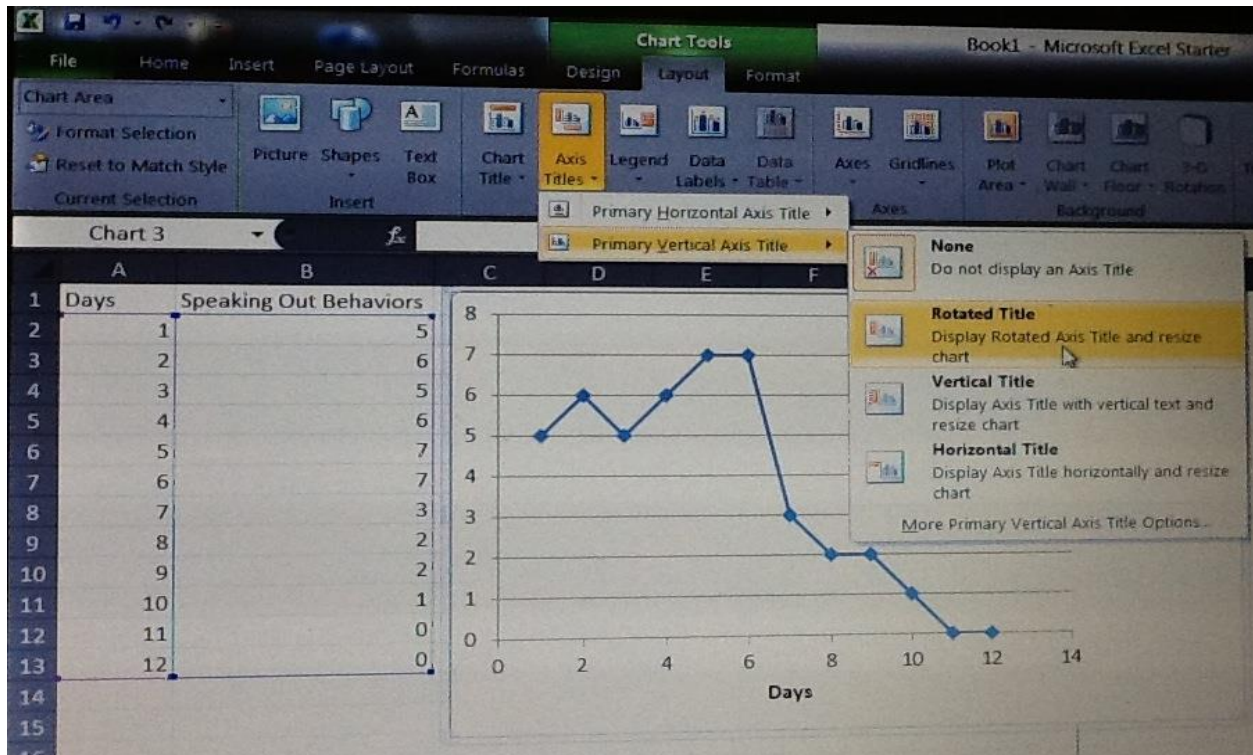
**Hint:** Adding titles (steps 6 to 9) can also be completed by clicking on the **Design** tab and selecting Layout 1 under **Chart Layouts**, then adding the appropriate titles.





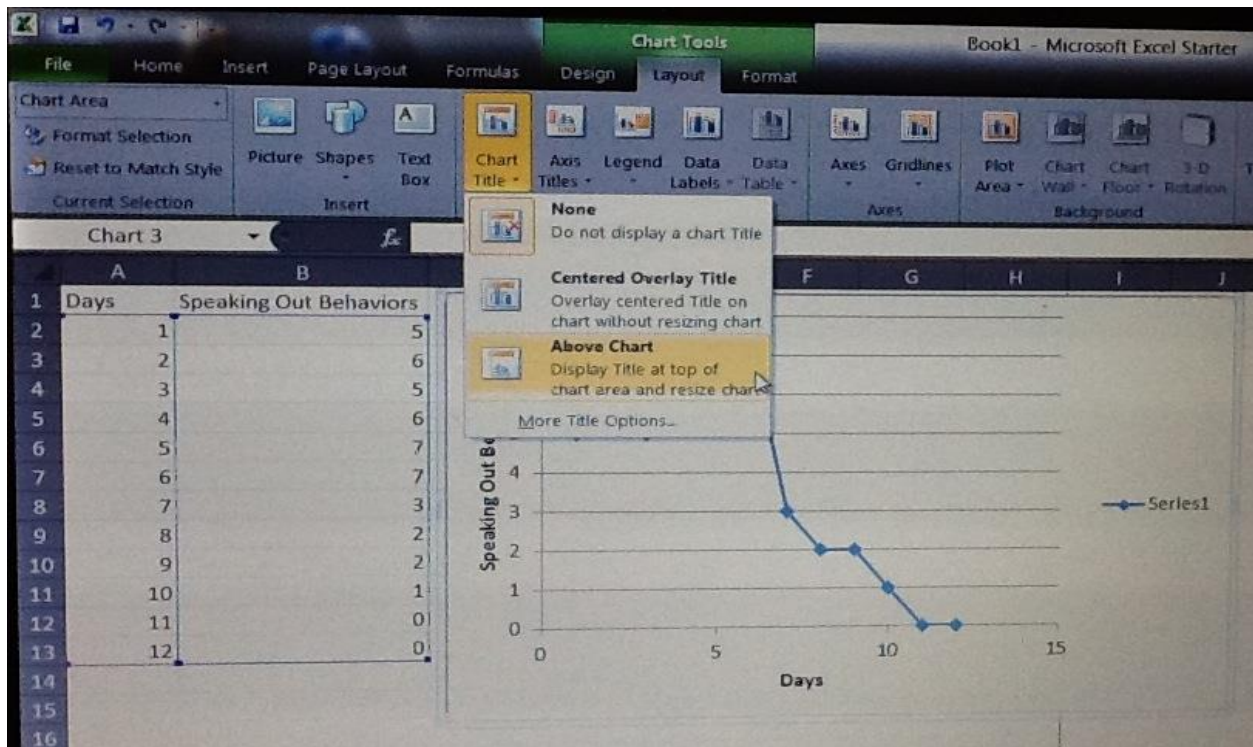
## Step 7: Vertical axis title

Click on **Axis Titles**, go to Primary Vertical Axis Title, and select Rotated Title. Type in the appropriate title (**Speaking Out Behaviors**).



## Step 8: Chart title

Click on **Chart Title**, select Above Chart, and type in the appropriate title.

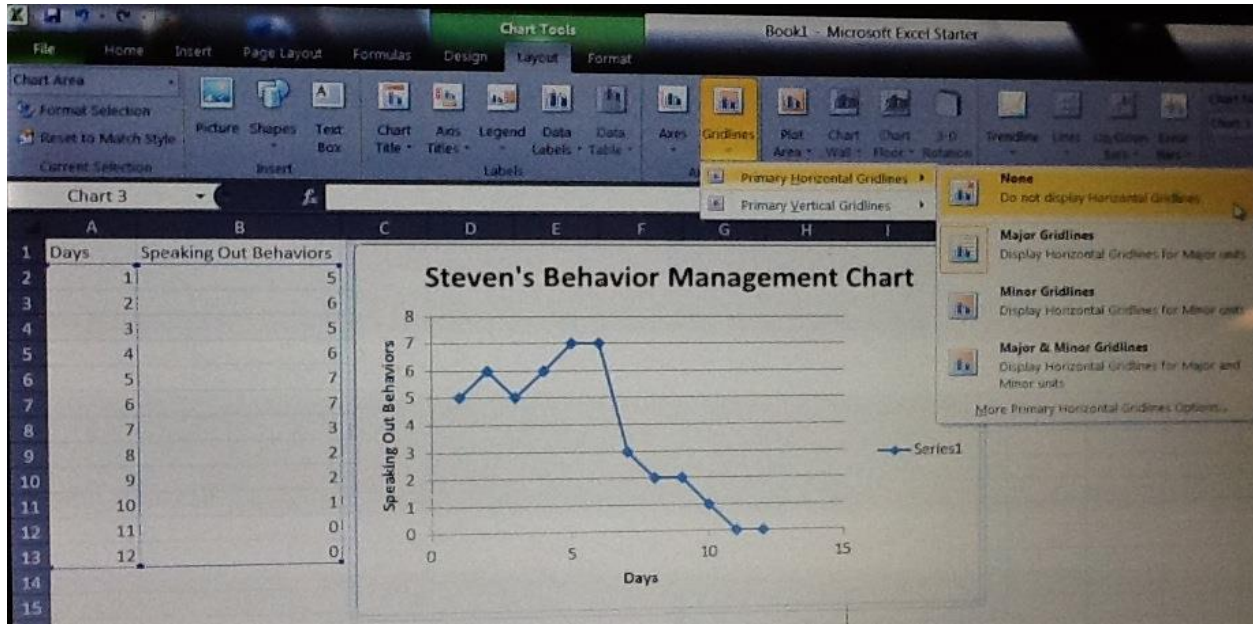




### Step 9: Remove gridlines

Click on **Gridlines**, go to Primary **Horizontal Gridlines**, and select **None**.

**Hint:** If you lose the **Chart Tools** options, click on the graph so that Excel highlights it; **Chart Tools** will appear in the program bar.



### Step 10: Resize chart

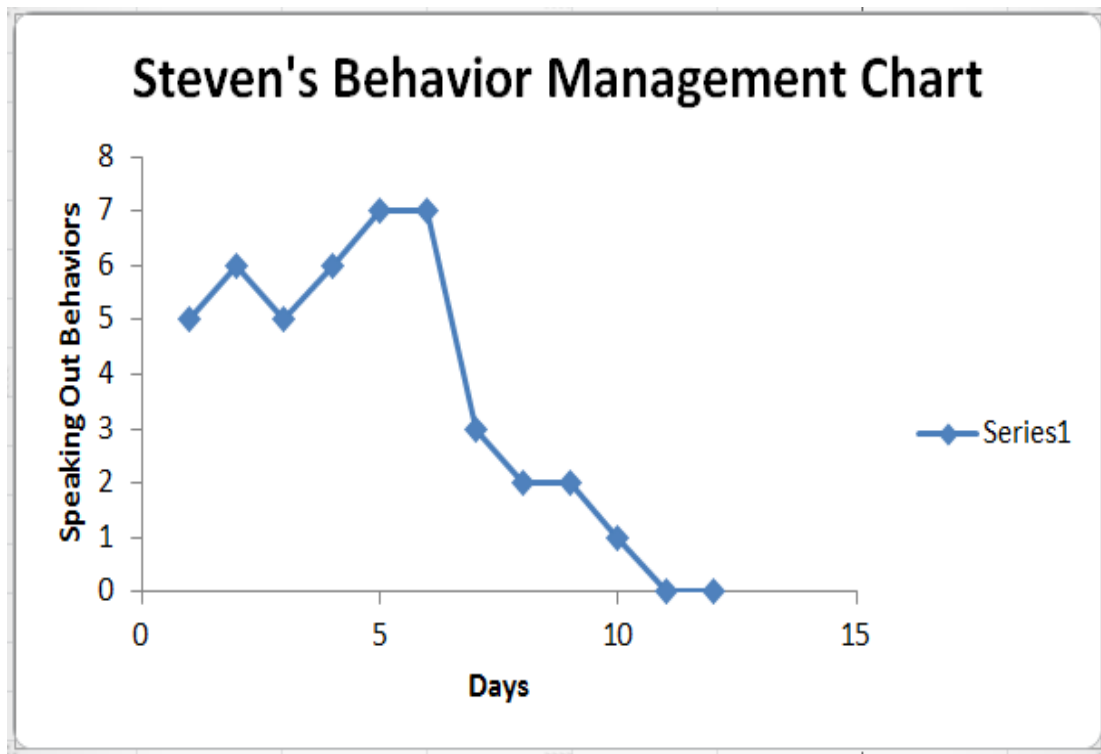
**Resize your chart** to fit the entire page by clicking and dragging the corners.

Your chart should look something like this and take up the entire sheet. Ensure that it does by going to File and then Print Preview.

If it takes up the page, then close the **print preview** and continue.

**Highlight the Series 1** box and delete it by using the Delete key on your keyboard.

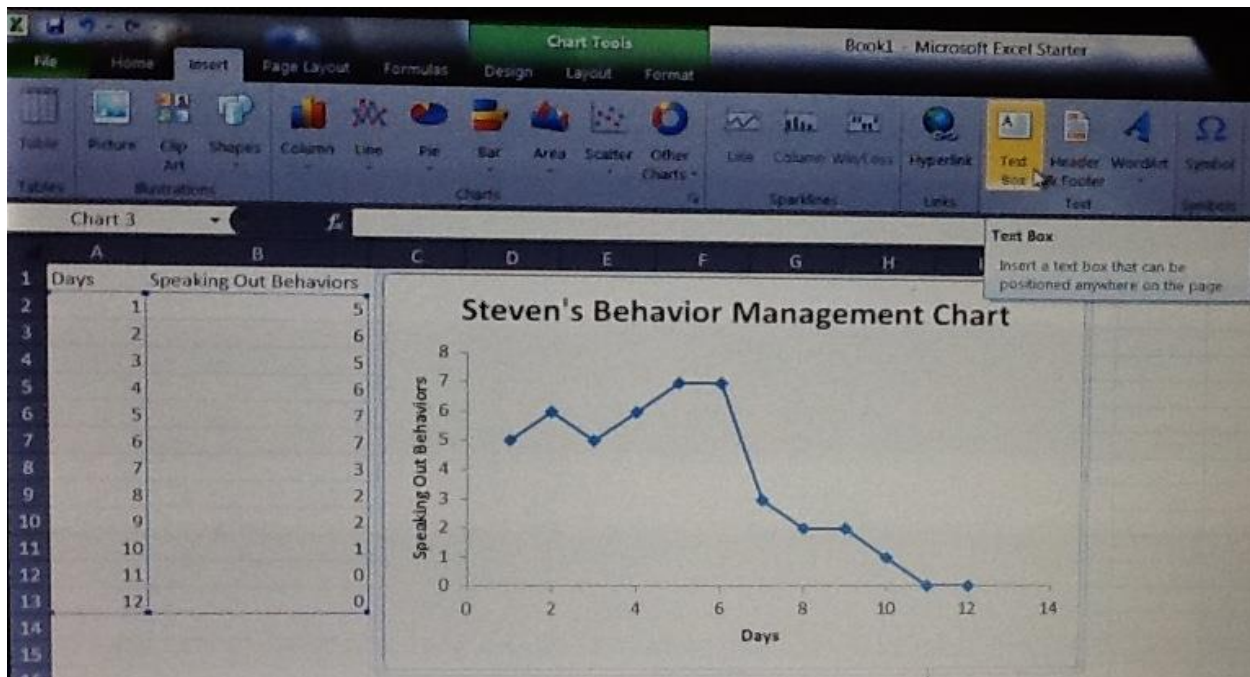
**Hint:** The legend can also be deleted by clicking **Legend** on the **Layout tab** and selecting None.



### Step 11: Add figure legend

Click on the Insert tab and click on Text Box to enter text information.

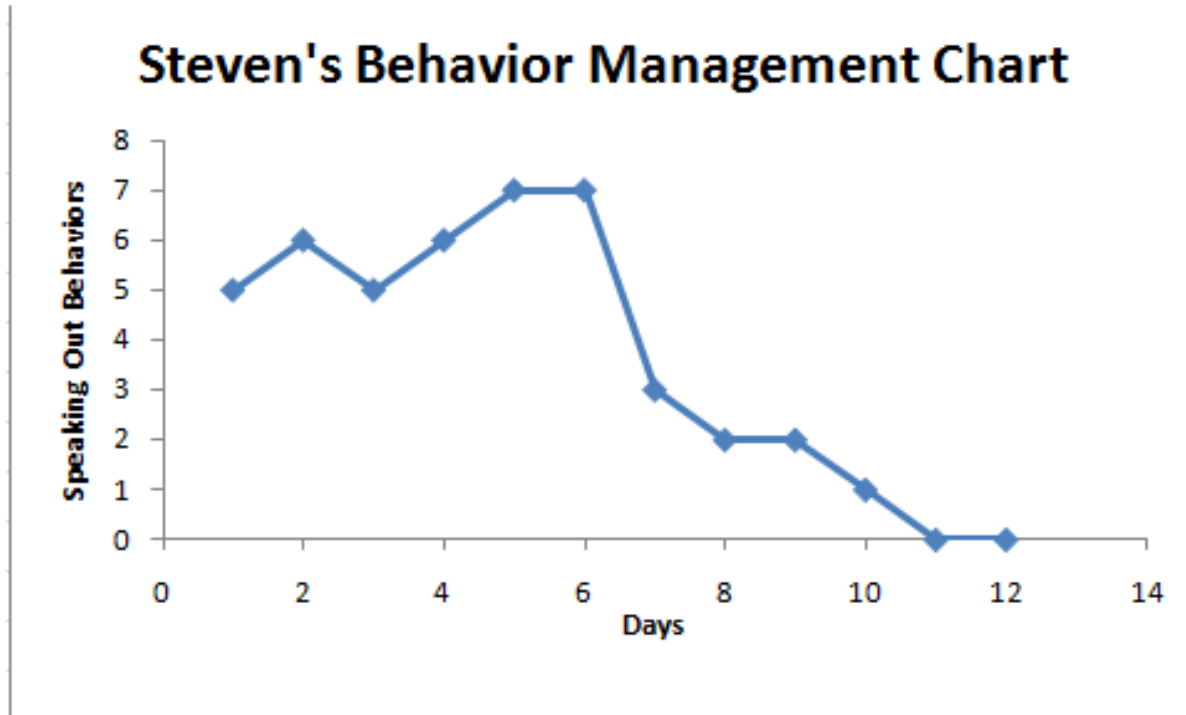
Add a text box below Days and type your figure legend. Here is an example of a figure legend: **“A baseline to treatment graph of Steven’s speaking out of turn behavior.”**



1 From B.W. Lavay, R. French, and H.L. Henderson. 2016, *Positive behavior management in physical activity settings web resource*, 3rd ed. (Champaign, IL: Human Kinetics).

### Step 12: Move axis labels

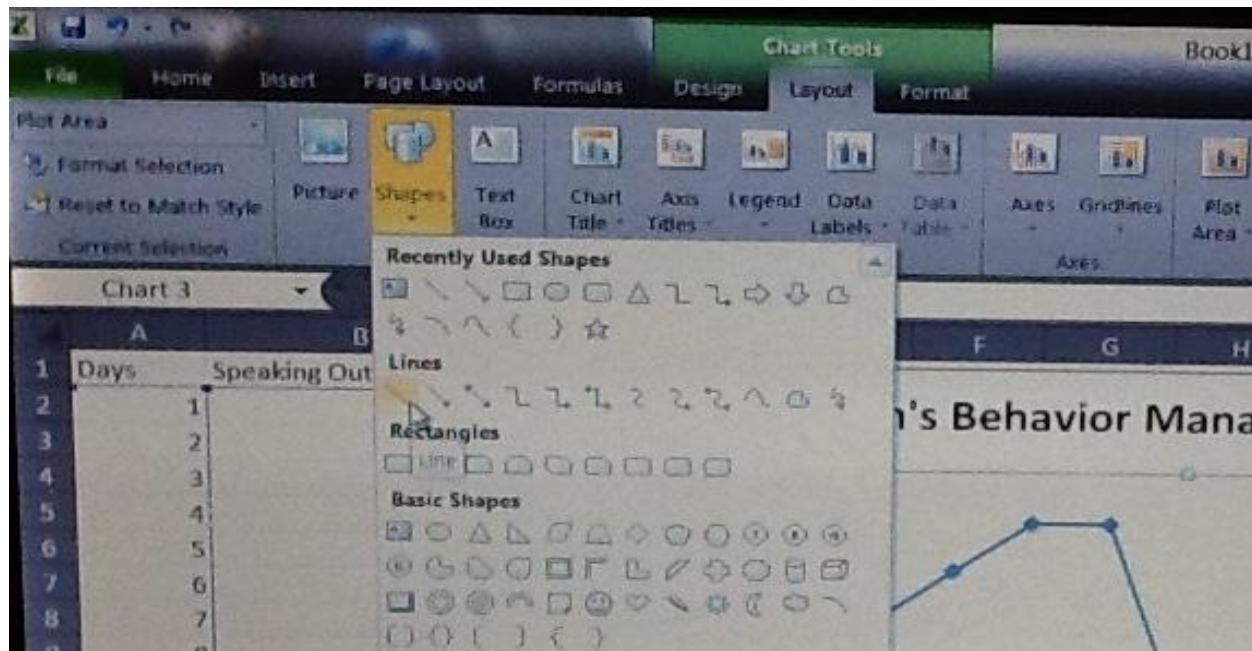
To format your x- and y-axis labels and title, click them and you may adjust the font type and font size and move them around. Before continuing to the next step, move the x-axis title **Days** up. This will give you room for the figure legend.



- 1 From B.W. Lavay, R. French, and H.L. Henderson. 2016, *Positive behavior management in physical activity settings web resource*, 3rd ed. (Champaign, IL: Human Kinetics).
- 2

### Step 13: Phaseline pt.1

Click on the **Layout** tab, click on **Shapes**, and select Line.



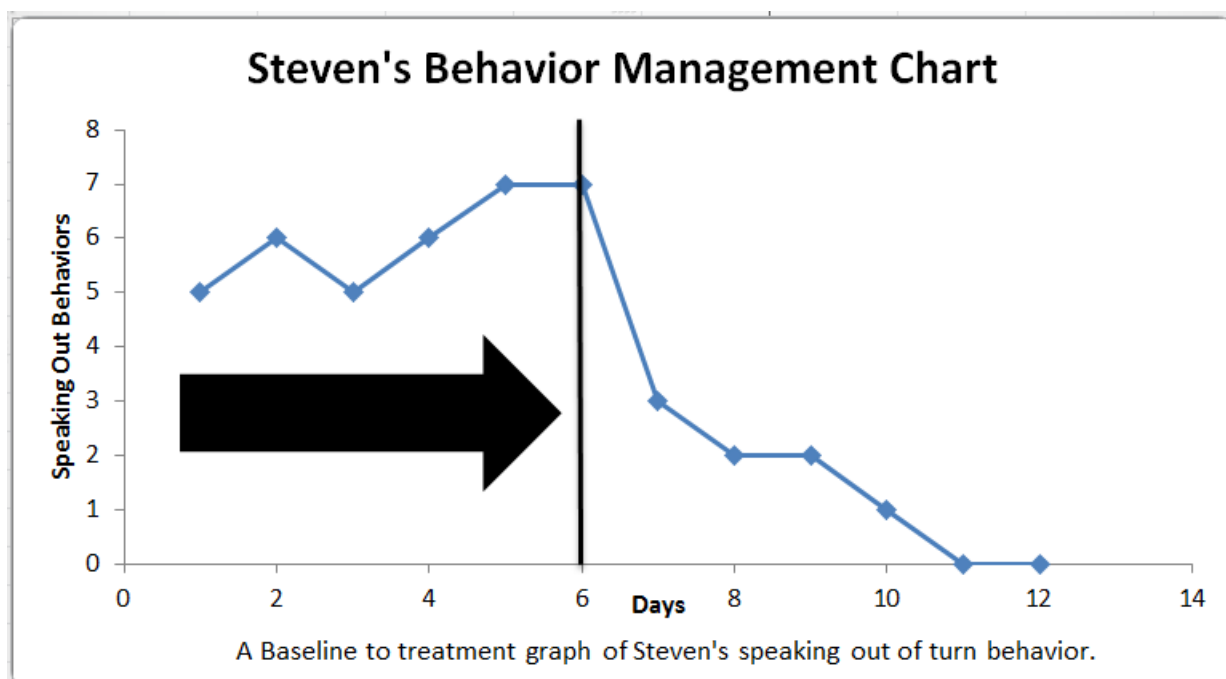
- 1 From B.W. Lavay, R. French, and H.L. Henderson. 2016, *Positive behavior management in physical activity settings web resource*, 3rd ed. (Champaign, IL: Human Kinetics).
- 3

#### Step 14: Add a phaseline pt. 2

Your phaseline goes at the arrow at the end of the day 6 of collecting baseline data.

You place a **phaseline** on your graph by clicking and holding as you drag your line down.

**Hint:** Hold Shift while dragging to keep the line perfectly straight from point (bottom) to point (top).

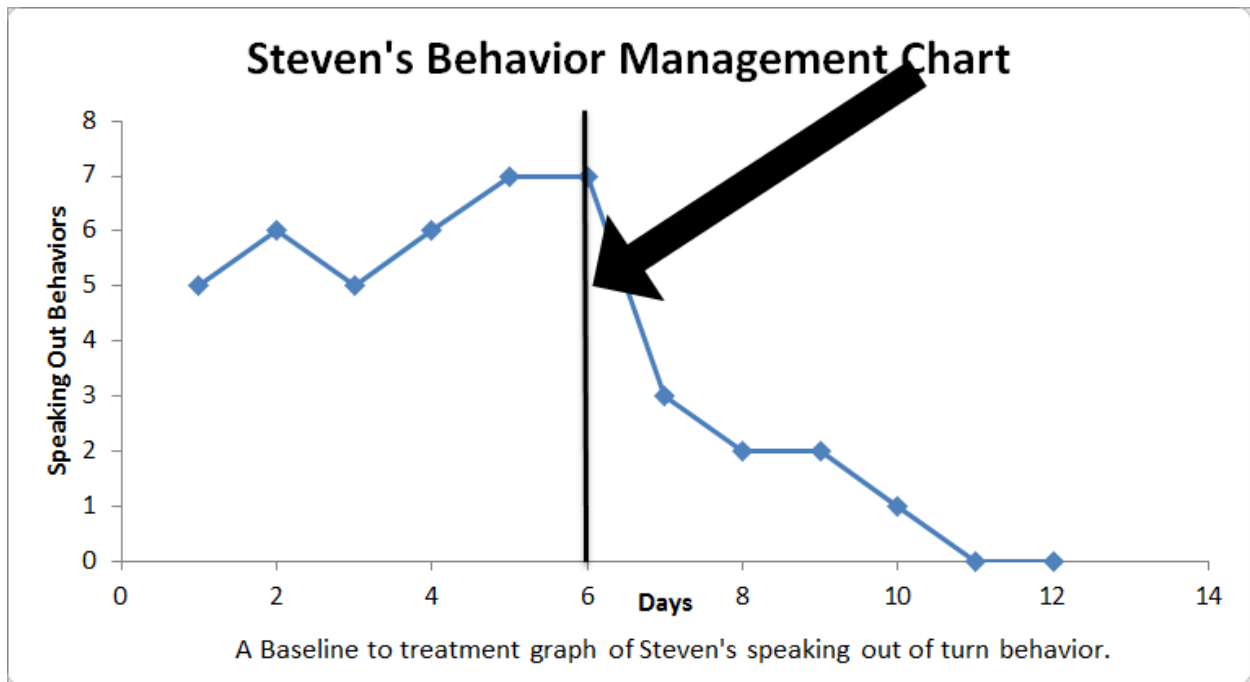




### Step 15: Phaseline pt. 3

Your phaseline should look like this.

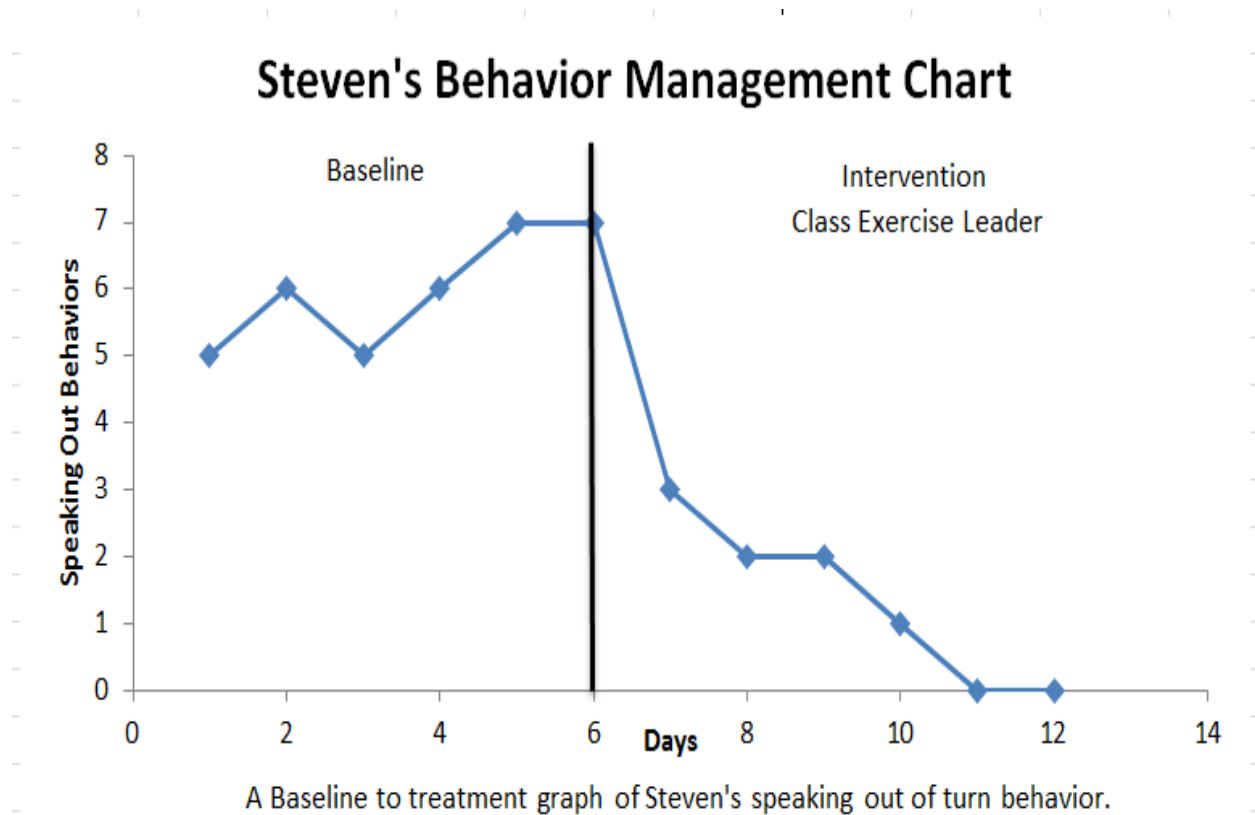
**Hint:** To add a trendline for baseline data, click on Trendline under the Layout tab and select Linear Trendline.



## Step 16: Phase labels

Using the Text Box icon on **Insert tab**, label each side of your **phaseline**; the left side should be **Baseline** and the right side should be the Intervention (e.g., **Class Exercise Leader**).

Congratulations! Your graph is now complete.



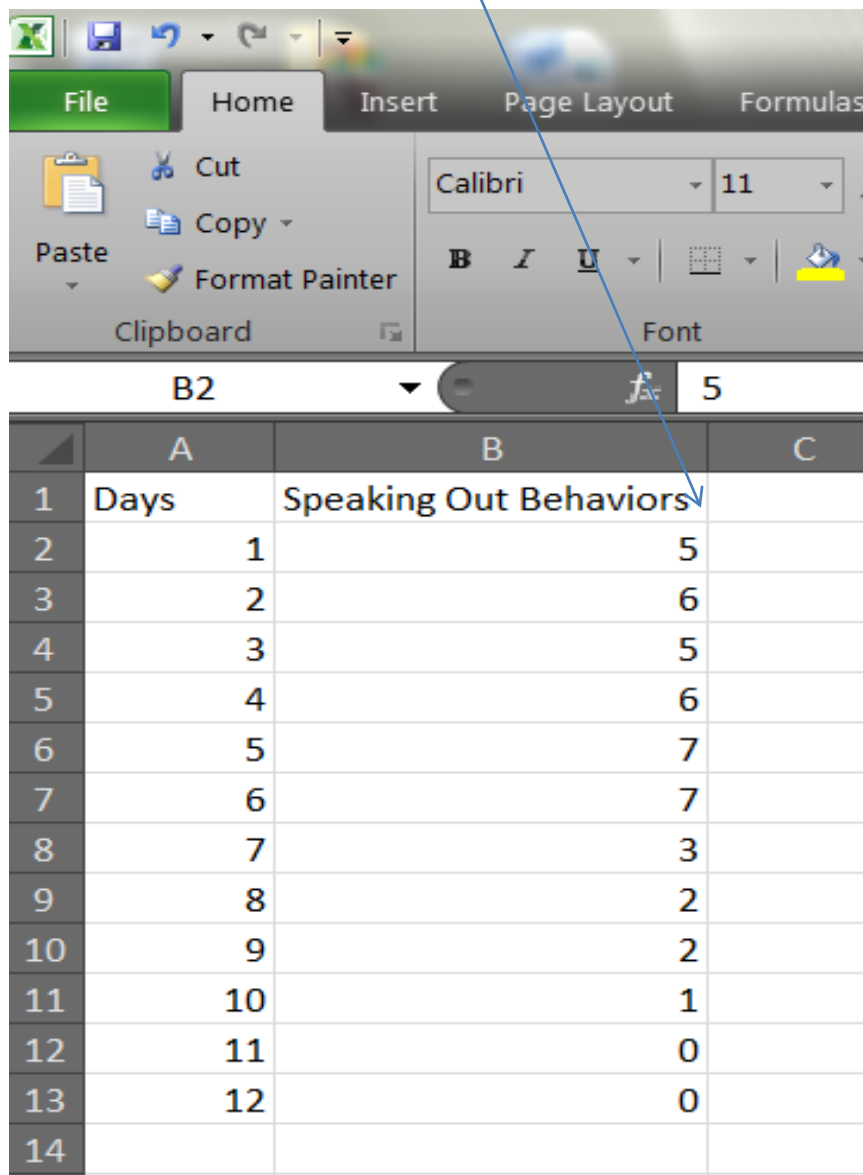
# Steps to Designing an ABA Graph Using Microsoft Excel 2011 on Apple

## Step 1: Open Excel

## Step 2: Enter data

In column A1 type the word Days and number down 1 to 12. In column B type in “Speaking out behaviors” and use the numbers you see listed.

**Hint:** To auto-size the column to fit all words in a title, hover the mouse on the line that is between column B and C. When you see two black arrows (one pointing to the left and one to the right), double-click and the column will adjust to the correct size.



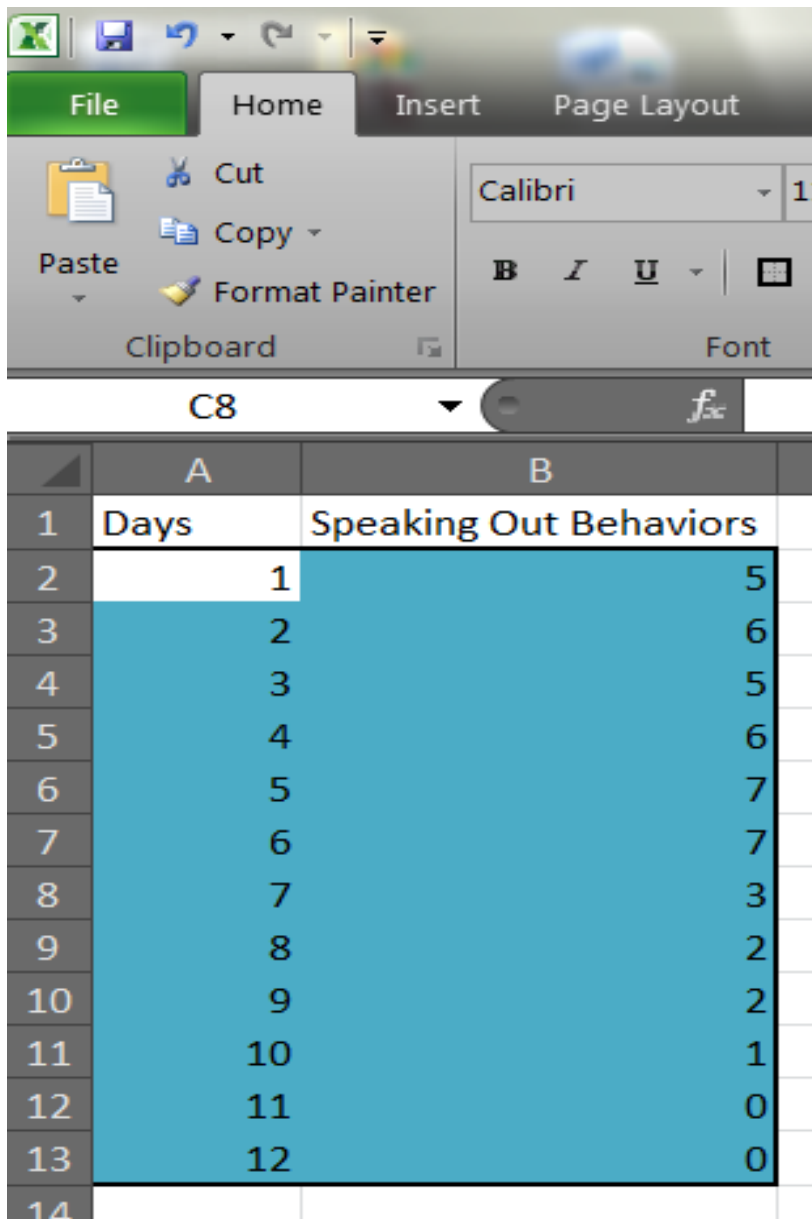
The screenshot shows the Microsoft Excel 2011 interface on an Apple system. The ribbon is visible with tabs for File, Home, Insert, Page Layout, and Formulas. The Home tab is active, showing the Clipboard group (Cut, Copy, Paste, Format Painter) and the Font group (Calibri font, size 11, Bold, Italic, Underline, and text color). Below the ribbon, the worksheet grid is displayed. The active cell is B2, containing the number 5. The table has columns A, B, and C, and rows 1 through 14. The data is as follows:

	A	B	C
1	Days	Speaking Out Behaviors	
2	1	5	
3	2	6	
4	3	5	
5	4	6	
6	5	7	
7	6	7	
8	7	3	
9	8	2	
10	9	2	
11	10	1	
12	11	0	
13	12	0	
14			

1 From B.W. Lavay, R. French, and H.L. Henderson. 2016, *Positive behavior management in physical activity settings web*  
7 *resource*, 3rd ed. (Champaign, IL: Human Kinetics).

### Step 3: Graph data pt. 1

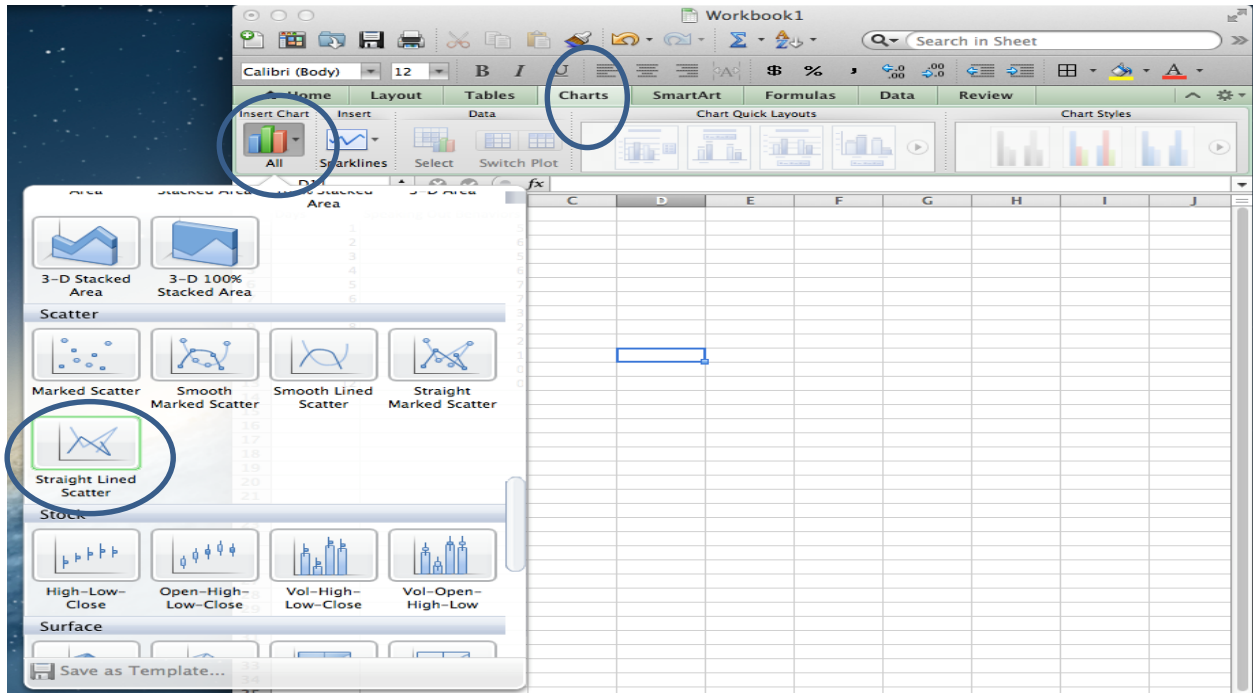
Highlight the data by left-clicking on cell A2 and dragging down and diagonal to B13.



	A	B
1	Days	Speaking Out Behaviors
2	1	5
3	2	6
4	3	5
5	4	6
6	5	7
7	6	7
8	7	3
9	8	2
10	9	2
11	10	1
12	11	0
13	12	0
14		

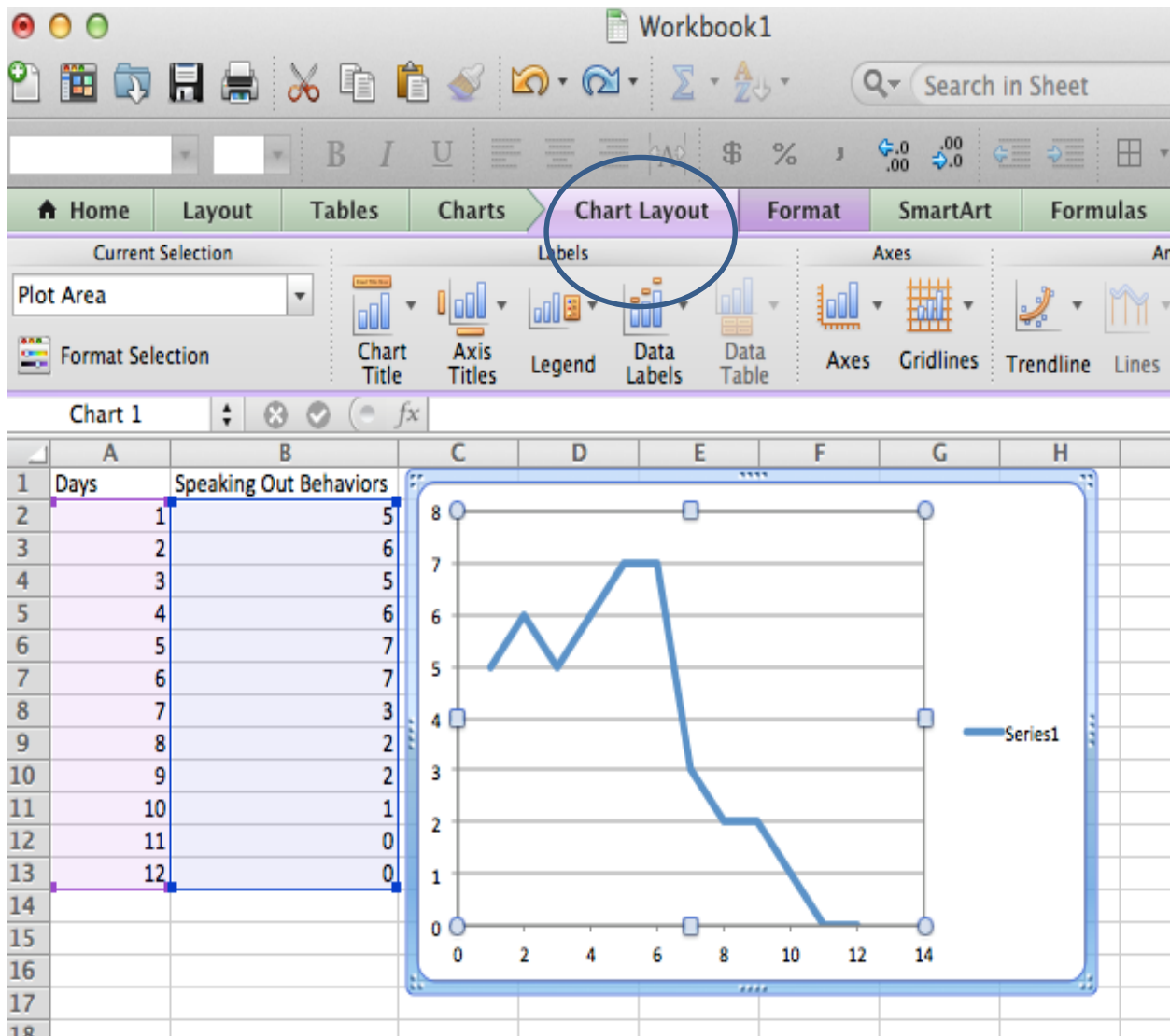
#### Step 4: Graph data pt. 2

Click on the **Chart** tab, then click on Insert Chart. Scroll down and click **Scatter** with Straight Lines and Markers graph option.



## Step 5: Edit chart

A graph like the one here should appear. Click on the **Layout** tab.

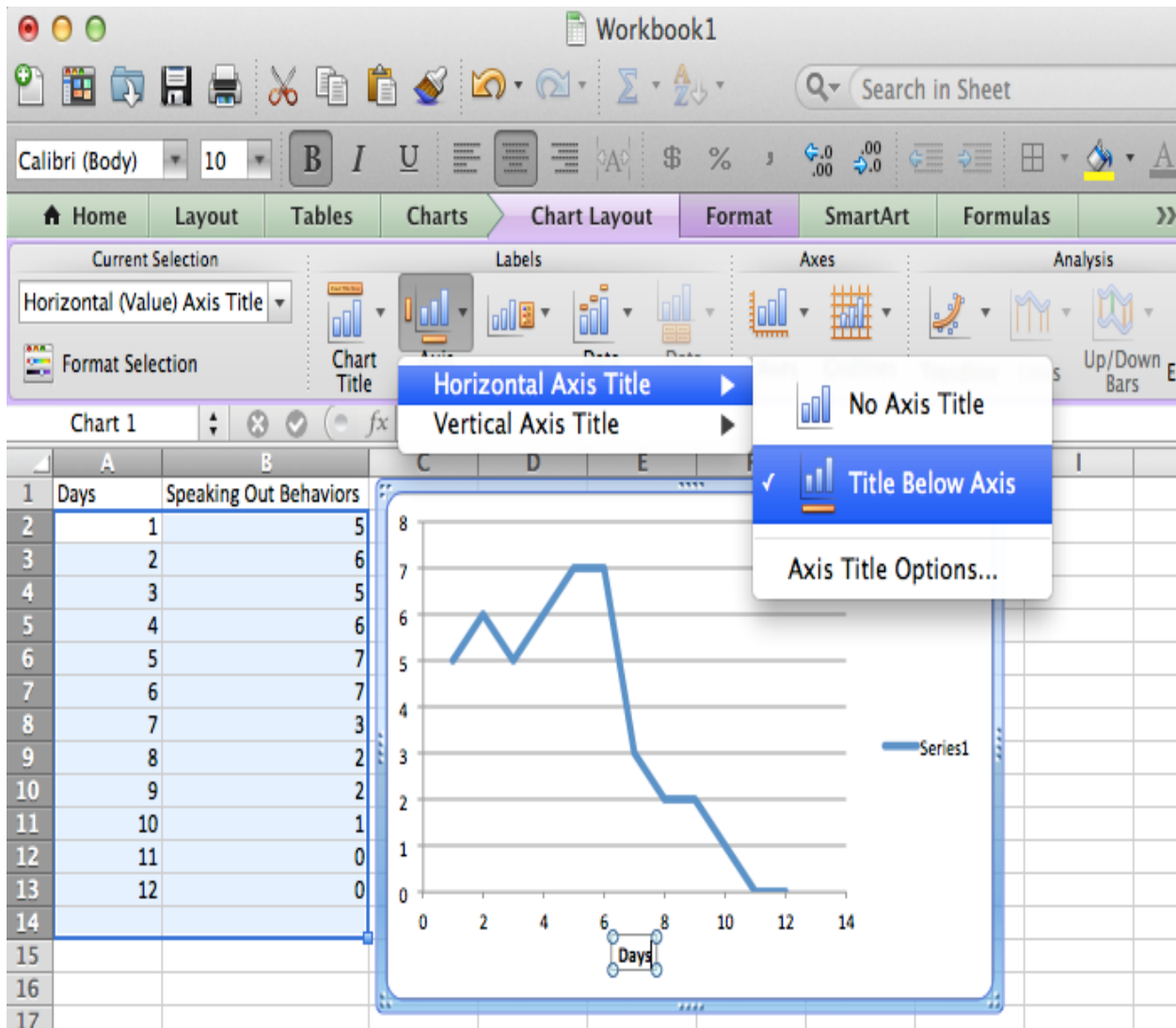




## Step 6: Horizontal axis title

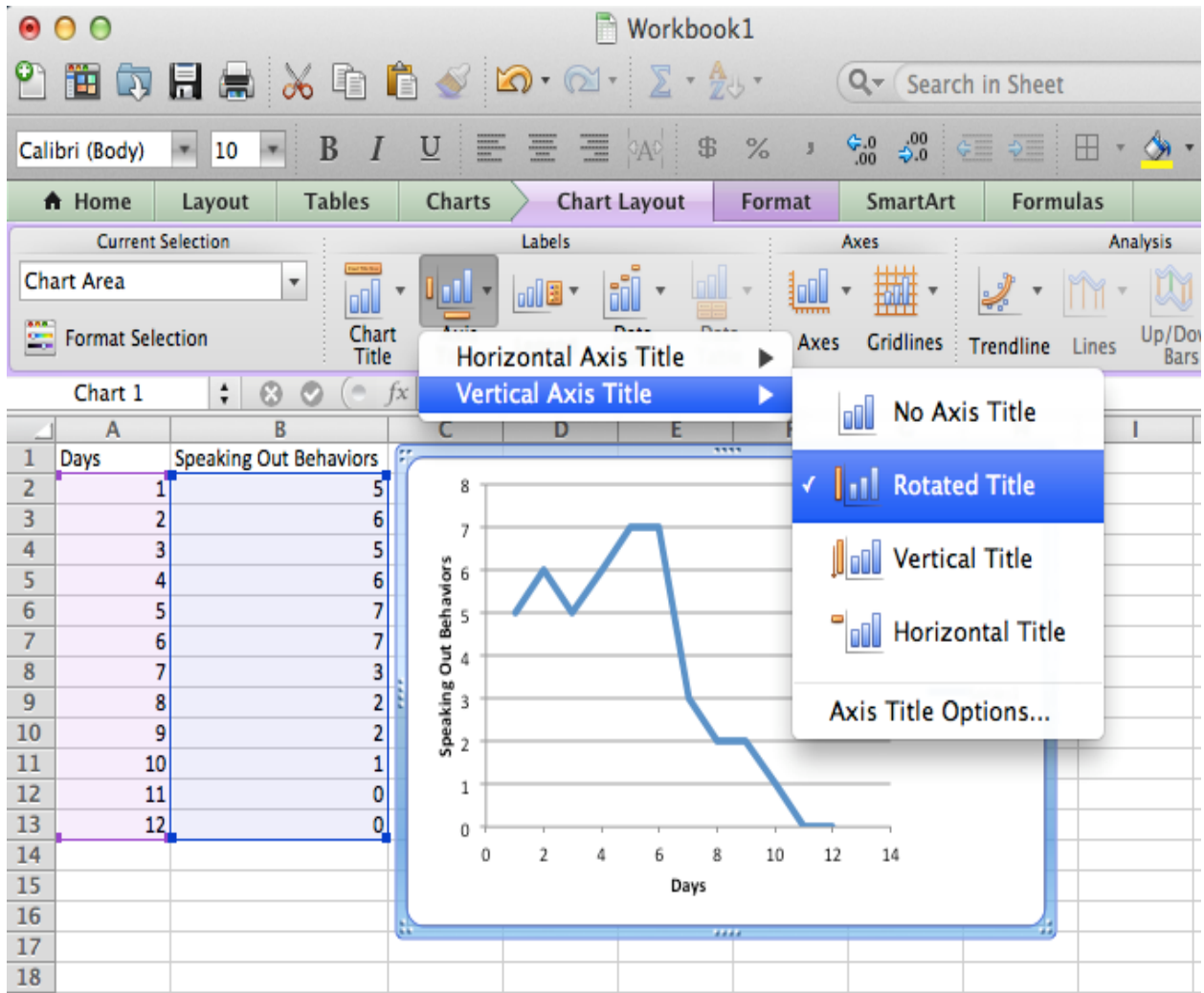
Click on **Axis Titles**, go to Horizontal Axis Title, and click Title below Axis. Type in the appropriate title (**Days**).

**Hint:** Adding titles (steps 6 to 9) can also be completed by clicking on the **Chart** tab and selecting Layout 1 under **Chart Quick Layouts**, then adding the appropriate titles.



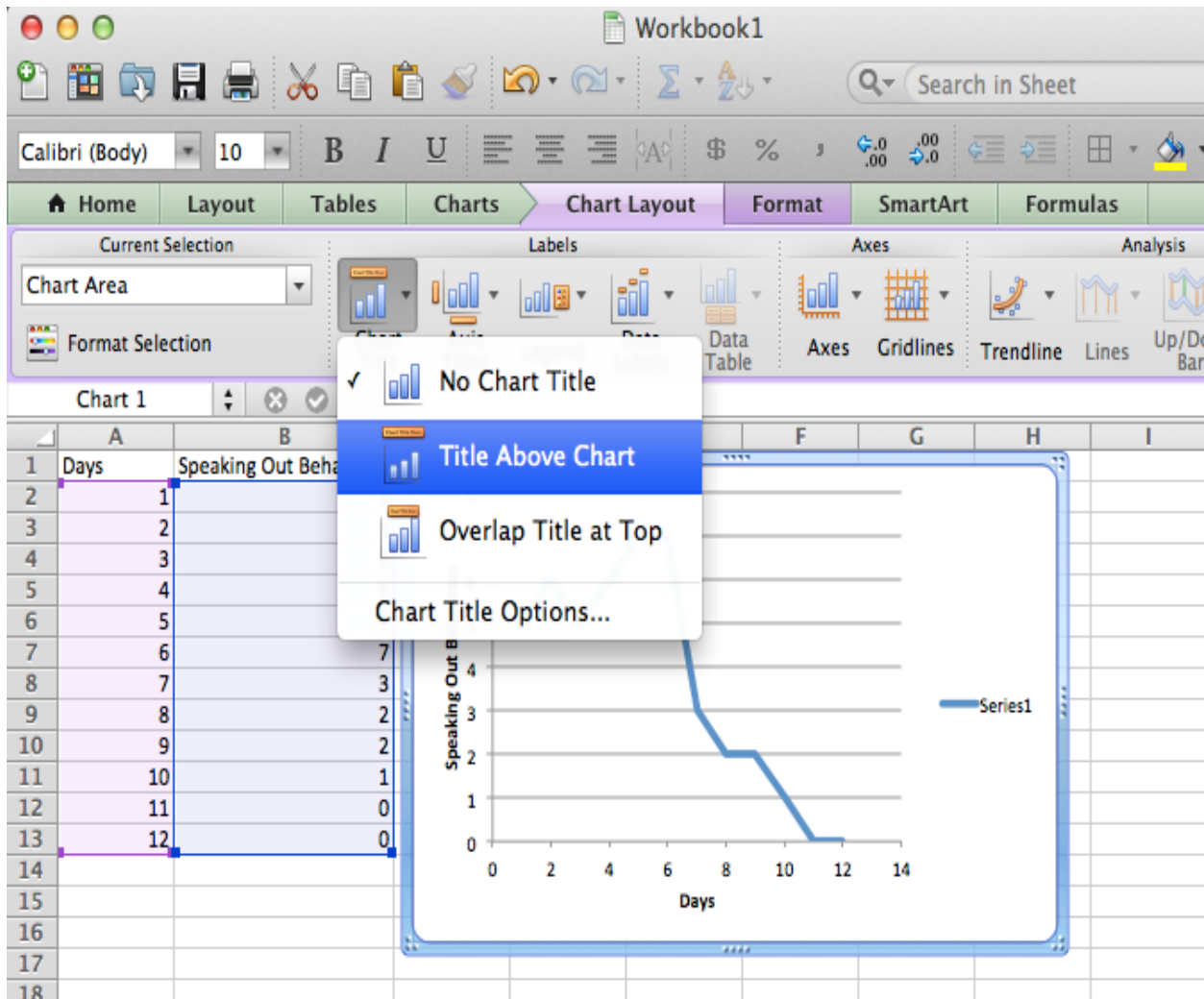
## Step 7: Vertical axis title

Click on **Axis Titles**, go to Primary Vertical Axis Title, and select Rotated Title. Type in the appropriate title (**Speaking Out Behaviors**).



## Step 8: Chart title

Click on **Chart Title**, select Above Chart, and type in the appropriate title.

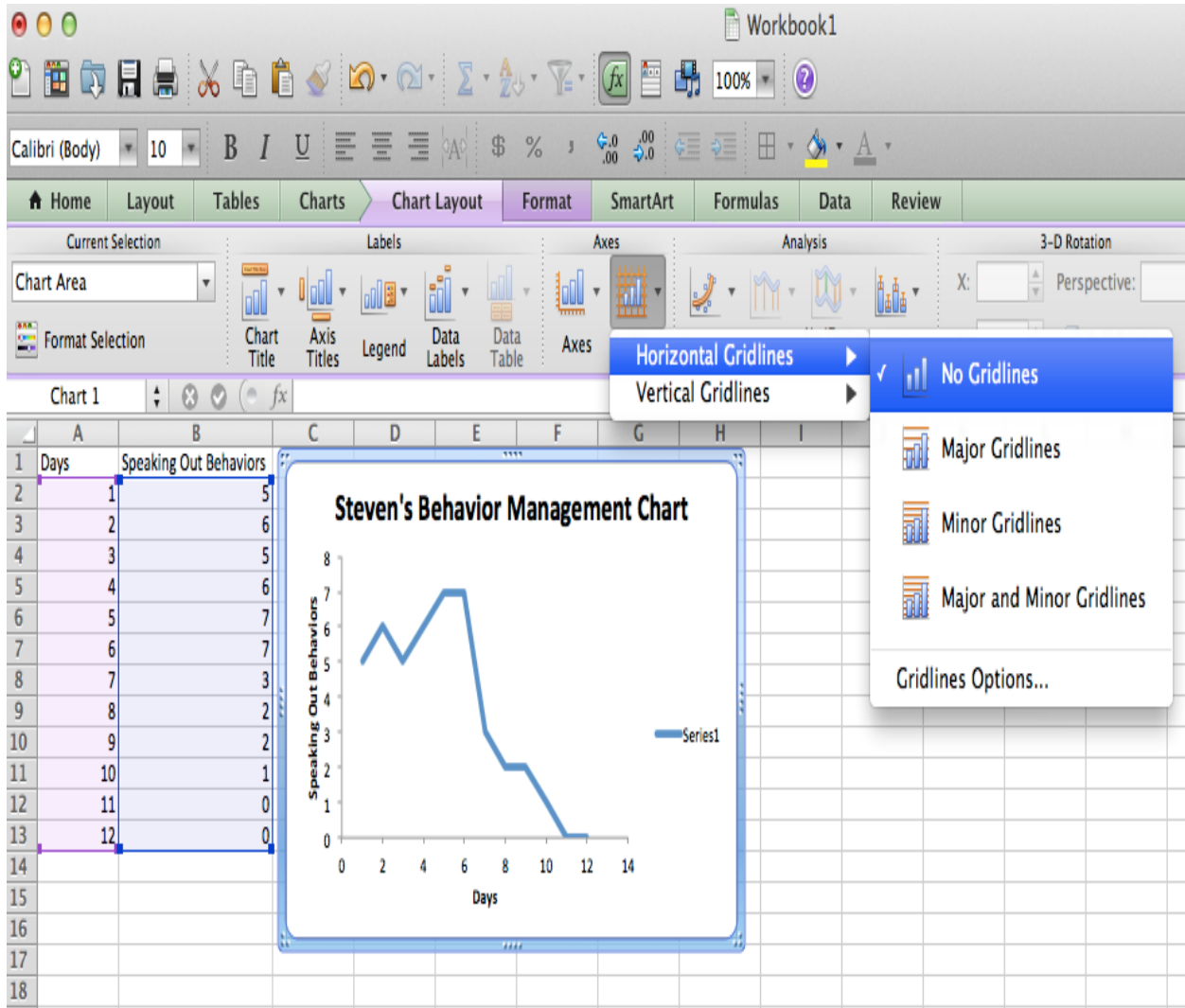


- 2 From B.W. Lavay, R. French, and H.L. Henderson. 2016, *Positive behavior management in physical activity settings web*
- 3 *resource*, 3rd ed. (Champaign, IL: Human Kinetics).

## Step 9: Remove gridlines

Click on **Gridlines**, go to Primary **Horizontal Gridlines**, and select **None**.

**Hint:** If you lose the **Chart Layout** options, click on the graph so that Excel highlights it; **Chart Layout** will appear in the program bar.



### Step 10: Resize chart

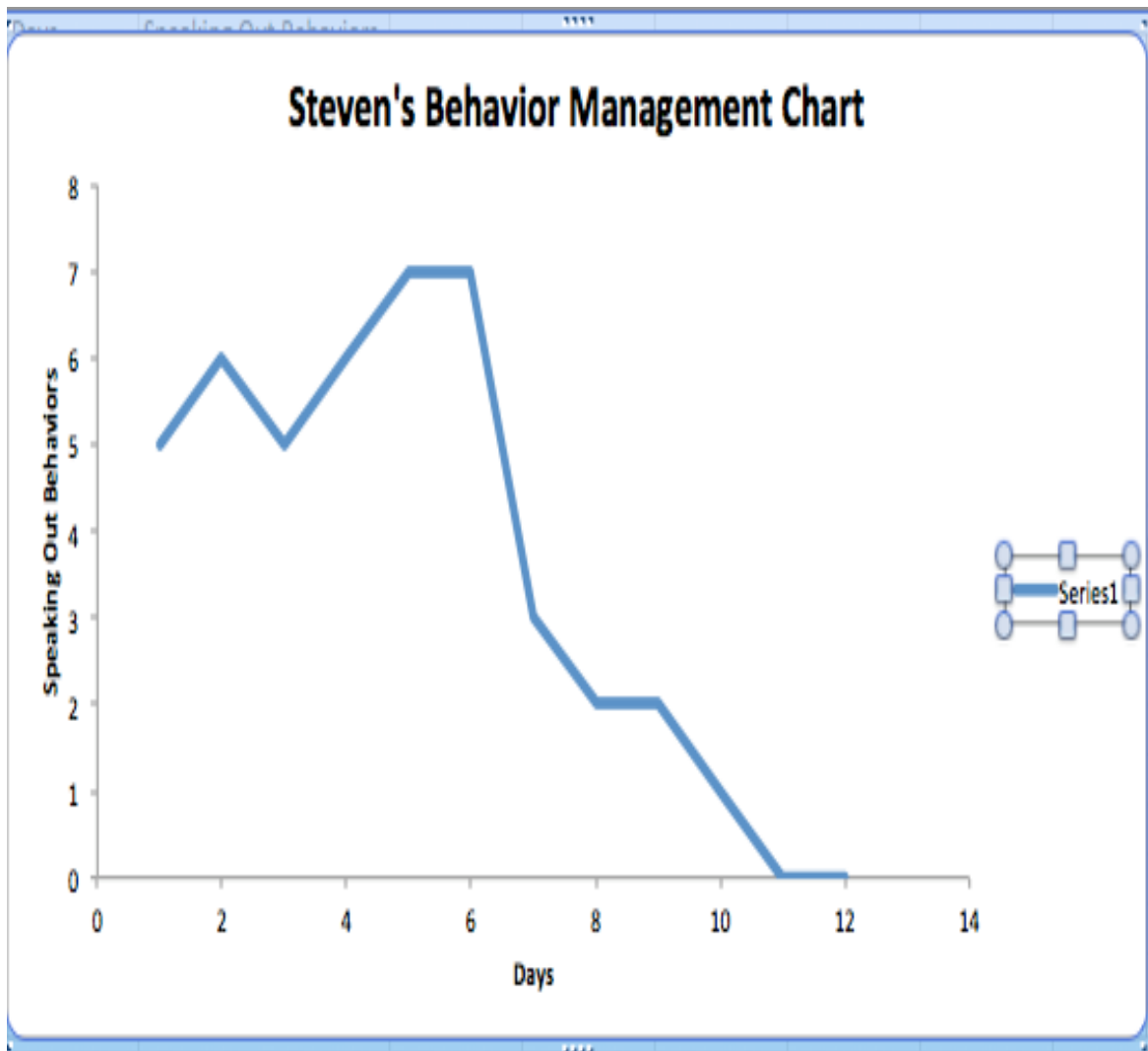
**Resize your chart** to fit the entire page by clicking and dragging the corners.

Your chart should look something like this and take up the entire sheet. Ensure that it does by going to File and then Print Preview.

If it takes up the page, then close the **print preview** and continue.

**Highlight the Series 1** box and delete it by using the Delete key on your keyboard.

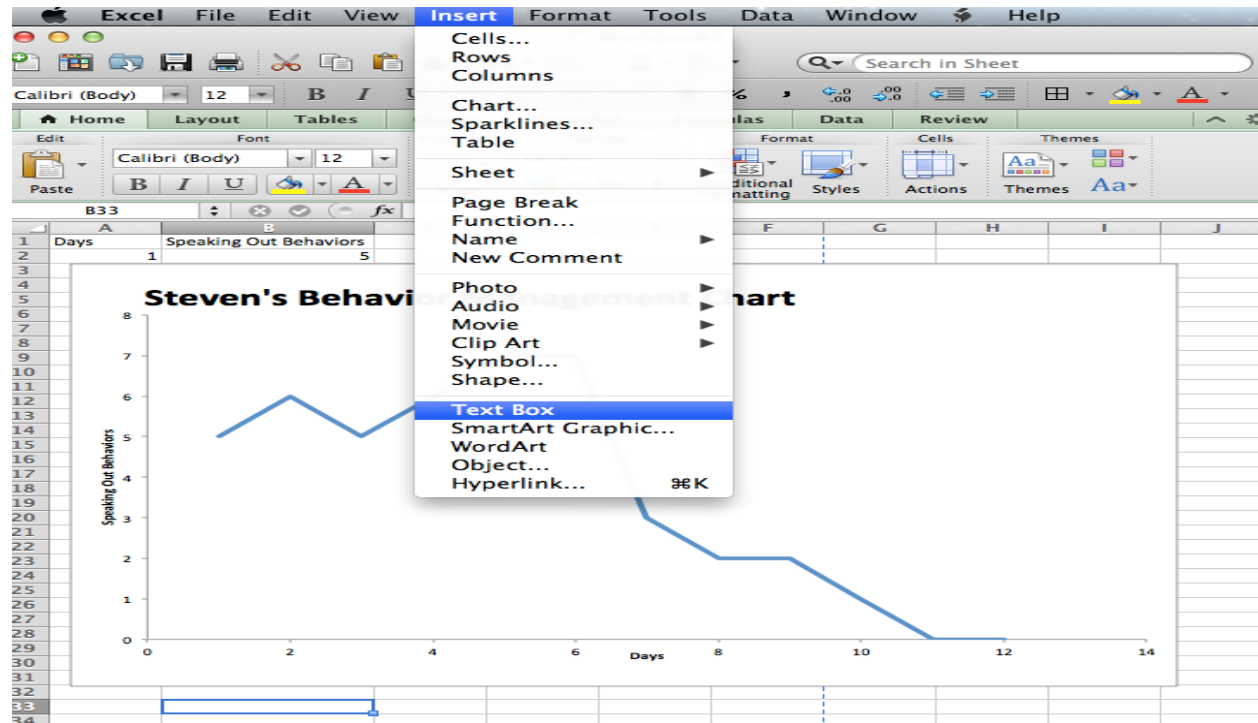
**Hint:** The legend can also be deleted by clicking **Legend** on the **Layout tab** and selecting None.



### Step 11: Add figure legend

Begin by clicking any blank cell off of the graph. Then click on the Insert tab and click on Text Box. The cursor will become the text box cursor. Click and drag with cursor and the text box will appear.

Add a text box below Days and type your figure legend. Here is an example of a figure legend: “A baseline to treatment graph of Steven’s speaking out of turn behavior.”





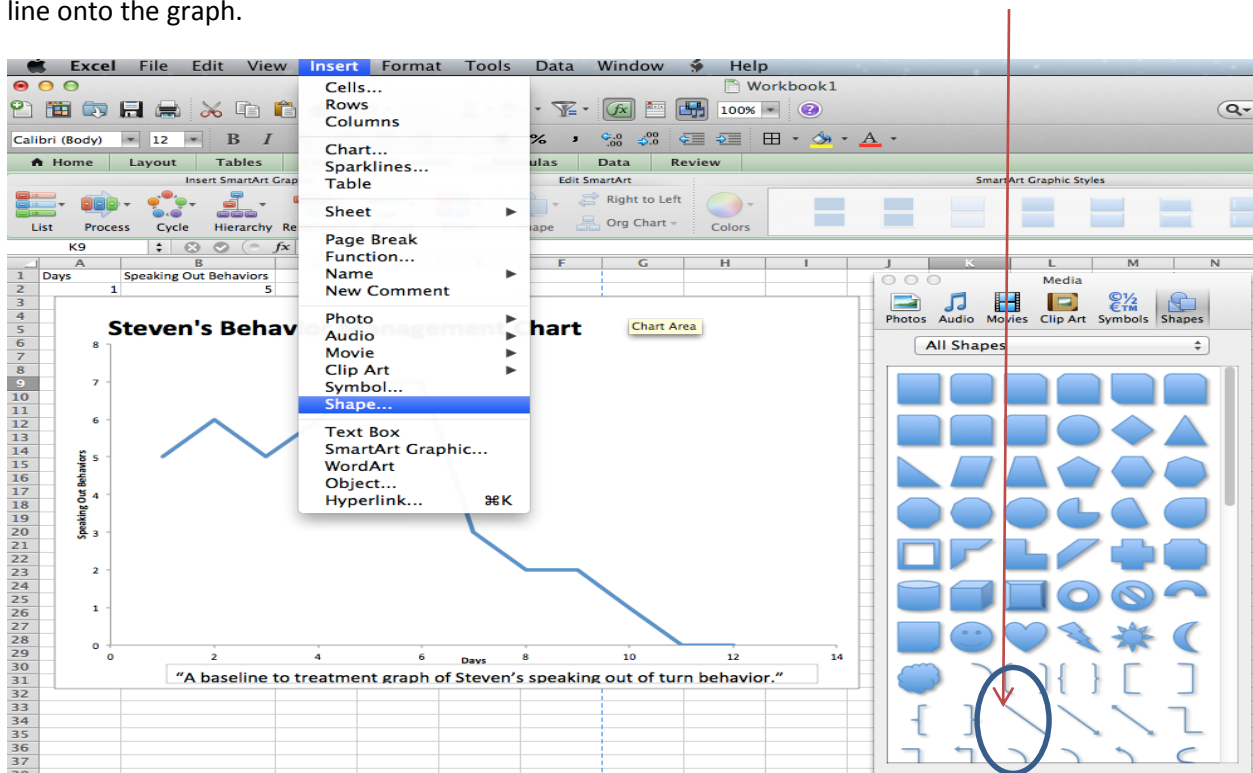
## Step 12: Move axis labels

To format your x- and y-axis labels and title, click them and you may adjust the font type and font size and move them around. Before continuing to the next step, move the x-axis title **Days** up. This will give you room for the figure legend.



### Step 13: Phase line pt. 1

Click on any blank cell off of the chart. Click Insert Tab, click on **Shapes**, and select Line. Click and Drag line onto the graph.

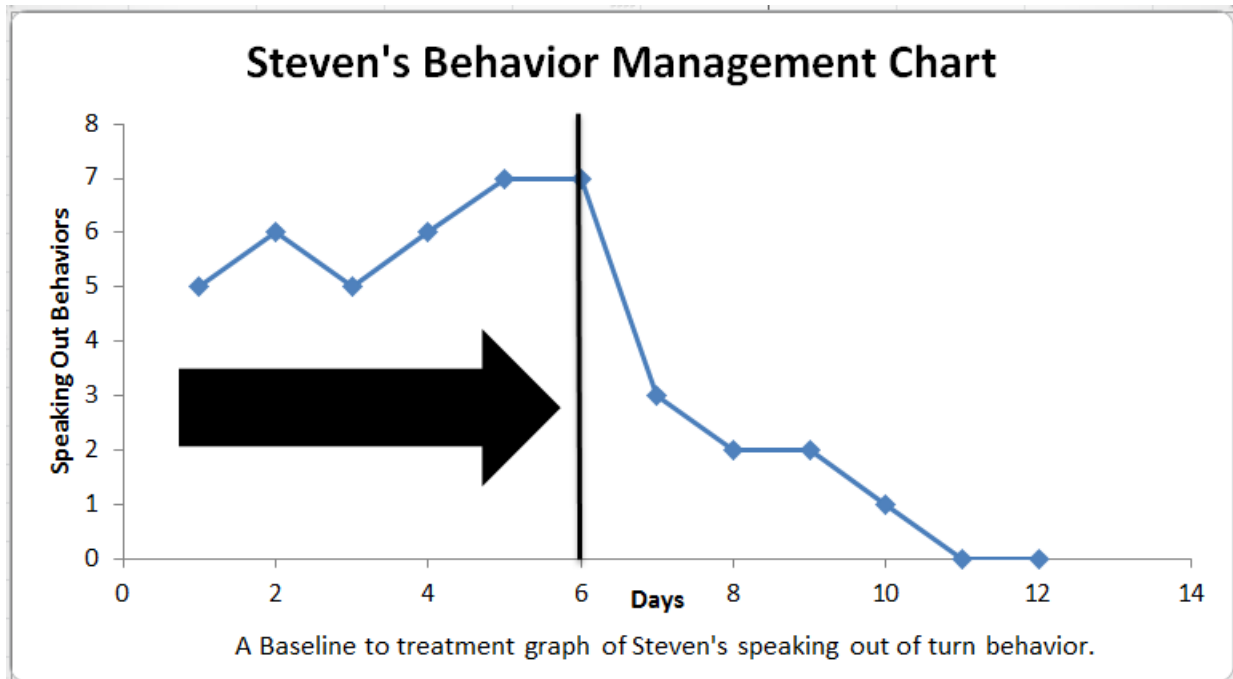


#### Step 14: Add a phase line pt. 2

You place a **phase line** on your graph by clicking Line Option on the shape screen. The cursor will turn into a cross drag cursor. Click on the desired area of graph and drag downward.

**Hint:** Holding down the Shift button while dragging downward will create a straight line.

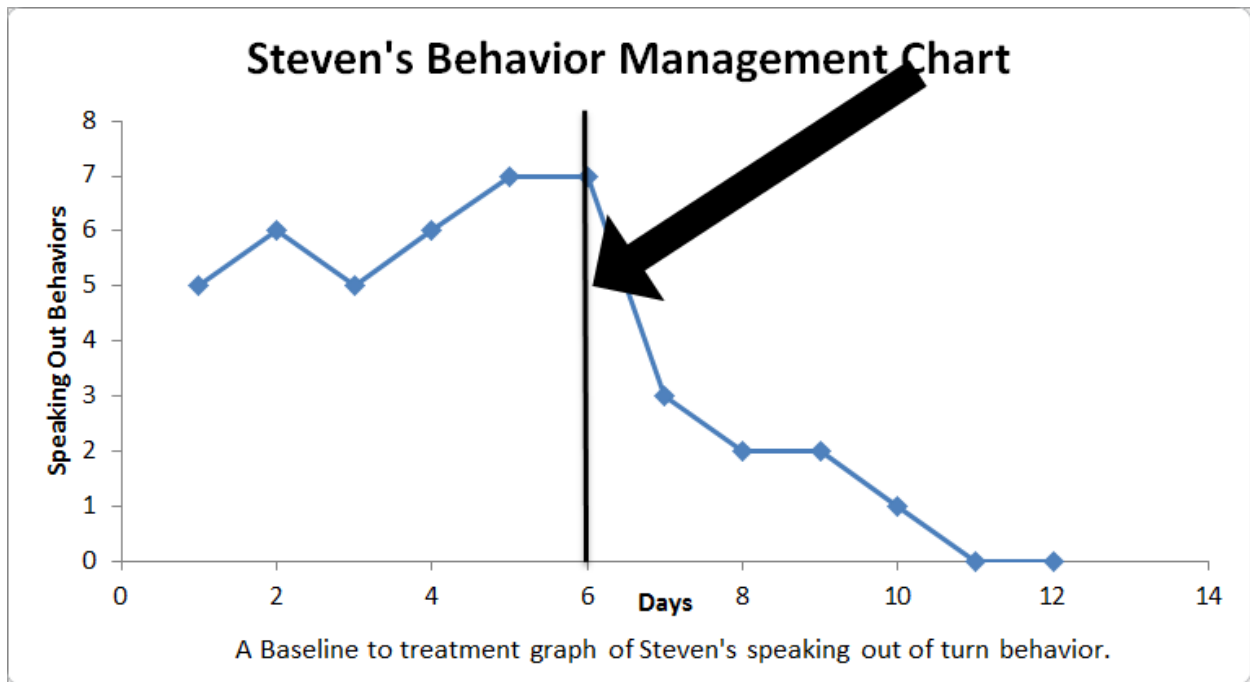
For example, your phase line goes here, at the end of day 6 of collecting baseline data.



### Step 15: Phase line pt. 3

Your phase line should look like this.

**Hint:** To add a trendline (for baseline data) click on Trendline under the Layout tab and select Linear trendline.



### Step 16: Phase labels

Click on blank cell off the chart and select Insert, then select Text Box Option. The cursor will turn into the text box cursor. Click and drag cursor to create text box on each side of your **phaseline**; the left side should be **Baseline** and the right side should be the Intervention (e.g., **Class Exercise Leader**).

**Congratulations! Your graph is now complete.**

