



# CREATING **Changing Criterion** and **Parametric Analysis**

**SINGLE-SUBJECT DESIGN**

**GRAPHS IN MICROSOFT EXCEL**

**2007**



# Step 1: Set up the Variables (X & Y-Axes)

## Changing Criterion design

Book1 - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Acrobat

Clipboard Calibri 11 A A Alignment General Number Conditional Formatting as Table Styles Cell Styles Insert Delete Format as Table Styles Cells Sort & Find & Filter Select Editing

A1 f<sub>x</sub>

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															
26															

Sheet1 Sheet2 Sheet3

Ready 100%

Use the second row of cells to Label the variables that will be displayed on both the X and Y-Axes of the graph



# Step 1: Set up the Variables (X-Axis)

# Changing Criterion design

**Enter X-axis label in this cell**

**For example:**

- If you are graphing data for each day enter, “Date” in this cell
- If you are graphing data for each trial, enter “Trial” in this cell
- If you are graphing data for each session, enter “sessions”



# Step 1: Set up the Variables (X-Axis)

## Changing Criterion design

Three screenshots of Microsoft Excel are shown, each highlighting a specific cell in row 1:

- Top Screenshot:** The first sheet is titled "Book1 - Microsoft Excel". Cell A1 contains the text "Date". This cell is highlighted with a red oval.
- Middle Screenshot:** The second sheet is titled "Sessions". Cell A1 contains the text "Sessions". This cell is highlighted with a red oval.
- Bottom Screenshot:** The third sheet is titled "Trials". Cell A1 contains the text "Trials". This cell is highlighted with a red oval.

The Excel interface includes standard toolbars and ribbon tabs like Home, Insert, Page Layout, Formulas, Data, Review, View, and Acrobat.



# Step 1: Enter the data (X-Axis) Changing Criterion design

	A	B	C	D	E	F	G
1	Sessions						
2	1st						
3	2nd						
4	3rd						
5	4th						
6	5th						
7	6th						
8	7th						
9	8th						
10	9th						
11	10th						
12	11th						
13	12th						
14	13th						
15	14th						
16	15th						
17	16th						
18	17th						
19	18th						
20	19th						
21	20th						
22	21st						
23	22nd						
24	23rd						

Session number

	A	B	C	D	E	F	G
1	Date						
2	10-Nov						
3	11-Nov						
4	12-Nov						
5	13-Nov						
6	14-Nov						
7	15-Nov						
8	16-Nov						
9	17-Nov						
10	18-Nov						
11	19-Nov						
12	20-Nov						
13	21-Nov						
14	22-Nov						
15	23-Nov						
16	24-Nov						
17	25-Nov						
18	26-Nov						
19	27-Nov						
20	28-Nov						
21	29-Nov						
22	30-Nov						

Date (Month/Day)

	A	B	C	D
1	Trials			
2	1			
3	2			
4	3			
5	4			
6	5			
7	6			
8	7			
9	8			
10	9			
11	10			
12	11			
13	12			
14	13			
15	14			
16	15			
17	16			
18	17			
19	18			
20	19			
21	20			
22	21			
23	22			
24	23			

Trial Number

Enter the dates, or trial or session numbers in the column below the “X-Axis” label



# Step 1: Set up the Variables (Y-Axis)

## Changing Criterion design

Book1 - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Acrobat

Paste Clipboard Calibri 11 A Alignment General Number Conditional Formatting as Table Cell Styles Insert Delete Format Format Cells Sort & Find & Filter Select

B11

	A	B	C	G	H	I	J	K	L
1			Intervention						
2	Date	Baseline	Level 1	Level 2	Level 3	Level 4	Level N		
3	10-Nov								
4	11-Nov								
5	12-Nov								
6	13-Nov								
7	14-Nov								
8	15-Nov								
9	16-Nov								
10	17-Nov								
11	18-Nov								
12	19-Nov								
13	20-Nov								
14	21-Nov								
15	22-Nov								
16	23-Nov								
17	24-Nov								
18	25-Nov								
19	26-Nov								
20	27-Nov								
21	28-Nov								
22	29-Nov								
23	30-Nov								
24	1-Dec								
25	2-Dec								

For Changing Criterion designs, Enter Y-Axis labels for Baseline and the levels of the Intervention (levels of IV). For example, the intervention is centered on top of the levels of the IV

Sheet1 Sheet2 Sheet3

Ready 100%



# Step 1: Set up the Variables (Y-Axis)

## Changing Criterion design

Book1 - Microsoft Excel

A26

	A	B	C		G	H	I	J	K	L
1				DRH for on task						
2	Date	Baseline	3 min	4 min	5 min	6 min	8 min	10 min	15min	
3	10-Nov									
4	11-Nov									
5	12-Nov									
6	13-Nov									
7	14-Nov									
8	15-Nov									
9	16-Nov									
10	17-Nov									
11	18-Nov									
12	19-Nov									
13	20-Nov									
14	21-Nov									
15	22-Nov									
16	23-Nov									
17	24-Nov									
18	25-Nov									
19	26-Nov									
20	27-Nov									
21	28-Nov									
22	29-Nov									
23	30-Nov									
24	1-Dec									
25	2-Dec									

For example, we are using DRH (Differential Reinforcement of Higher Rates of Behavior) to increase “On Task” behavior of a student. DRH has 7 levels that represent the amount of time the student must remain on task. The levels are 3, 4, 5, 6, 8, 10 and 15 min. Thus, we label cells (C2 –I2) so that they represent the levels of DRH

Sheet1 Sheet2 Sheet3

Ready

100%



## Step 2: Enter the Data (Y-Axis) Changing Criterion design

Book1 - Microsoft Excel

A26

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2	Date	Baseline	3 min	4 min	5 min	6 min	8 min	10 min	15min			
3	10-Nov		3									
4	11-Nov		2									
5	12-Nov		3									
6	13-Nov		3									
7	14-Nov		2									
8	15-Nov											
9	16-Nov											
10	17-Nov											
11	18-Nov											
12	19-Nov											
13	20-Nov											
14	21-Nov											
15	22-Nov											
16	23-Nov											
17	24-Nov											
18	25-Nov											
19	26-Nov											
20	27-Nov											
21	28-Nov											
22	29-Nov											
23	30-Nov											
24	1-Dec											
25	2-Dec											
26												

**Underneath the “Baseline” phase (cell B2) enter the data that correspond to the dates (or session/trial #s). For example, the following is baseline data for duration of “On task” in min. before DRH (IV) was implemented**

10-Nov | 3  
11-Nov | 2  
12-Nov | 3  
13-Nov | 3  
14-Nov | 2

Sheet1 Sheet2 Sheet3

Ready 100%



## Step 2: Enter the Data (Y-Axis) Changing Criterion design

Book1 - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Acrobat

PivotTable Table Picture Clip Art Shapes SmartArt Column Line Pie Bar Area Scatter Other Charts Hyperlink Text Box Header & Footer WordArt Signature Object Symbol Links

A1 f<sub>x</sub>

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2	Date	Baseline	3 min	4 min	5 min	6 min	8 min	10 min	15min			
3	10-Nov		3									
4	11-Nov		2									
5	12-Nov		3									
6	13-Nov		3									
7	14-Nov		2									
8	15-Nov			2								
9	16-Nov			3								
10	17-Nov			3								
11	18-Nov			3								
12	19-Nov			3								
13	20-Nov			3								
14	21-Nov			3								
15	22-Nov			3								
16	23-Nov											
17	24-Nov											
18	25-Nov											
19	26-Nov											
20	27-Nov											
21	28-Nov											
22	29-Nov											
23	30-Nov											
24	1-Dec											
25	2-Dec											

2. Set criterion is met. We are ready to move to 4 min

1. Enter the data for the first level of the intervention starting from cell (C8) until the criterion we set is met (in this case 3 days in a row remaining on task for 3 min)

15-Nov	2
16-Nov	3
17-Nov	3
18-Nov	3



## Step 2: Enter the Data (Y-Axis) Changing Criterion design

Book1 - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Acrobat

PivotTable Table Picture Clip Art Shapes SmartArt Column Line Pie Bar Area Scatter Other Charts Hyperlink Text Header & Footer WordArt Signature Object Symbol

A1 f<sub>x</sub>

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2	Date	Baseline	3 min	4 min	5 min	6 min	8 min	10 min	15min			
3	10-Nov		3									
4	11-Nov		2									
5	12-Nov		3									
6	13-Nov		3									
7	14-Nov		2									
8	15-Nov			2								
9	16-Nov			3								
10	17-Nov			3								
11	18-Nov			3								
12	19-Nov				3							
13	20-Nov				4							
14	21-Nov				4							
15	22-Nov				4							
16	23-Nov					19-Nov	4					
17	24-Nov					20-Nov	4					
18	25-Nov					21-Nov	4					
19	26-Nov					22-Nov	4					
20	27-Nov											
21	28-Nov											
22	29-Nov											
23	30-Nov											
24	1-Dec											
25	2-Dec											

2. Set criterion is met. We are ready to move to 5 min

3  
4  
4  
4

1. Enter the data for the second level of the intervention starting from cell (D12) until the criterion we set is met (in this case 3 days in a row remaining on task for 4 min.)

Sheet1 Sheet2 Sheet3

Ready 100%



## Step 2: Enter the Data (Y-Axis) Changing Criterion design

Book1 - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Acrobat

Normal Page Layout Full Screen Workbook Views

Ruler Formula Bar Gridlines Headings Message Bar Show/Hide Zoom 100% Zoom to Selection New Window Split Arrange All Hide Freeze Panes Unhide Save Workspace Switch Windows Macros Macros

A1

Date	Baseline	3 min	4 min	5 min	6 min	8 min	10 min	15min
10-Nov	3							
11-Nov	2							
12-Nov	3							
13-Nov	3							
14-Nov	2							
15-Nov		2						
16-Nov		3						
17-Nov		3						
18-Nov		3						
19-Nov			3					
20-Nov			4					
21-Nov			4					
22-Nov			4					
23-Nov			5					
24-Nov			5					
25-Nov			5					
26-Nov			5					
27-Nov			6					
28-Nov			6					
29-Nov			6					
30-Nov				9				
1-Dec				8				
2-Dec				8				
3-Dec					9			
4-Dec					10			
5-Dec					10			
6-Dec					10			
7-Dec						11		
8-Dec						14		
9-Dec						15		
10-Dec						15		
11-Dec						20		
12-Dec								

Enter Data points for the remaining levels of IV

Sheet1 Sheet2 Sheet3

Ready



# Creating the line Graph



## Step 3: Create the Line Graph **Changing Criterion Design**

Screenshot of Microsoft Excel showing a data table for "Baseline" and "3 min" through "15min" intervals from November 10 to December 12, 2010.

	Date	Baseline	3 min	4 min	5 min	6 min	8 min	10 min	15min
1									
2	Date	Baseline	3 min	4 min	5 min	6 min	8 min	10 min	15min
3	10-Nov	3							
4	11-Nov	2							
5	12-Nov	3							
6	13-Nov	3							
7	14-Nov	2							
8	15-Nov		2						
9	16-Nov		3						
10	17-Nov		3						
11	18-Nov		3						
12	19-Nov			3					
13	20-Nov			4					
14	21-Nov			4					
15	22-Nov			4					
16	23-Nov				5				
17	24-Nov				5				
18	25-Nov				5				
19	26-Nov					5			
20	27-Nov					6			
21	28-Nov					6			
22	29-Nov					6			
23	30-Nov						9		
24	1-Dec						8		
25	2-Dec						8		
26	3-Dec							9	
27	4-Dec							10	
28	5-Dec							10	
29	6-Dec								10
30	7-Dec								11
31	8-Dec								14
32	9-Dec								15
33	10-Dec								15
34	11-Dec								
35	12-Dec								20
36									
37									
38									
39									
40									

A blue callout box on the right side of the screen contains the following instructions:

- Position the mouse on cell A3
- Click and hold the left mouse button
- Move the mouse until all the data points are highlighted
- Release the left button



## Step 3: Create the Line Graph

The screenshot shows a Microsoft Excel spreadsheet titled "Book2 - Microsoft Excel". The data is organized into columns A through E. Column A contains dates from November 10, 2010, to December 12, 2010. Column B is labeled "Baseline" and contains values ranging from 2 to 6. Columns C, D, and E contain additional data points. The "Insert" tab is selected in the ribbon. A callout box highlights the "Line" icon in the chart section of the ribbon, which is further expanded to show a "2-D Line" category. Within this category, the first chart, labeled "Line with Markers", is circled with a red circle. A detailed description of this chart is provided in a tooltip: "Display trend over time (dates, years) or ordered categories. Useful when there are only a few data points." A large blue callout box contains the following instructions:

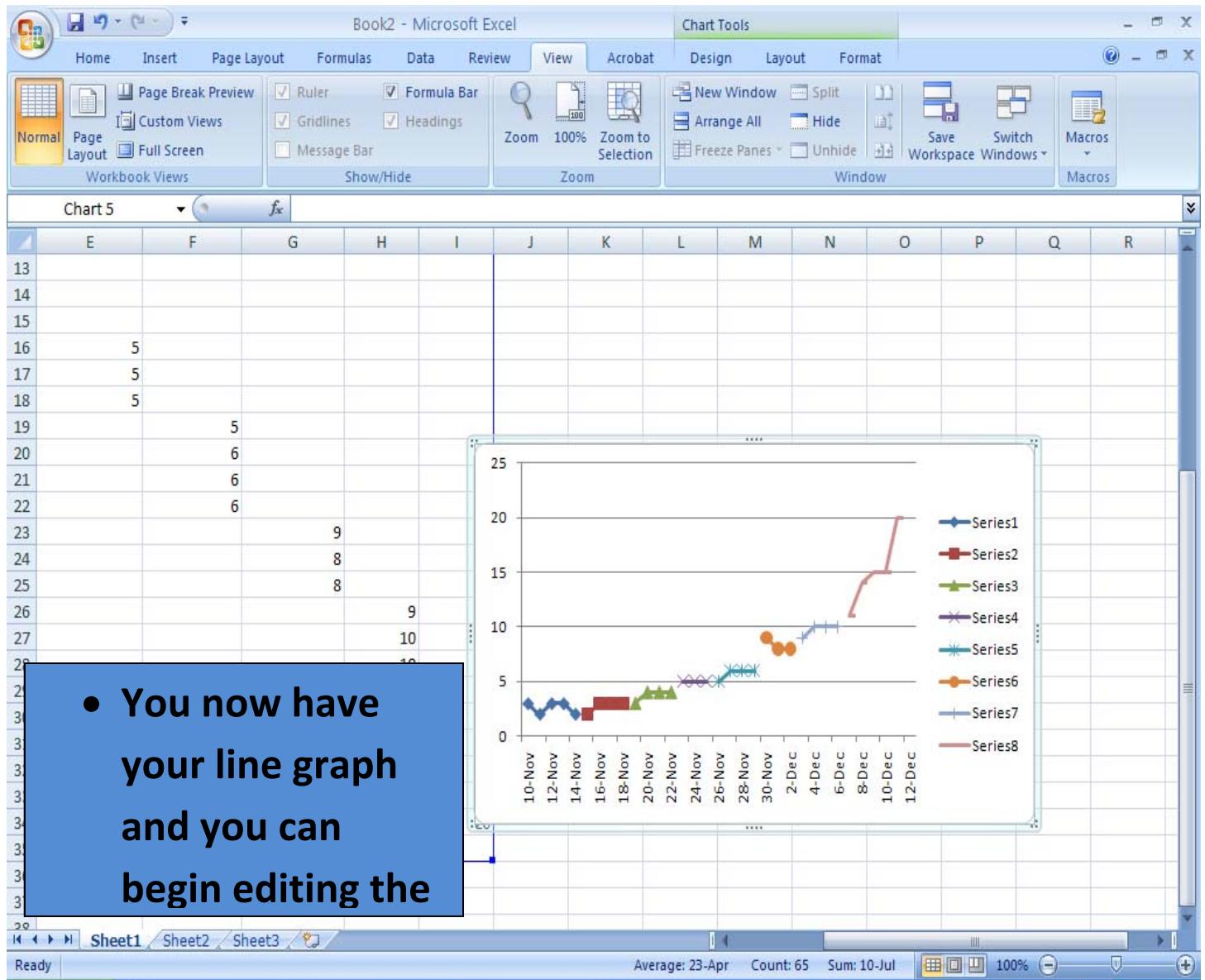
- Click on Insert
- Line
- Chose the circled line graph above

Date	Baseline	3 min	4 min	5 min	6 min
10-Nov	3				
11-Nov	2				
12-Nov	3				
13-Nov	3				
14-Nov	2				
15-Nov		2			
16-Nov		3			
17-Nov		3			
18-Nov		3			
19-Nov			3		
20-Nov			4		
21-Nov			4		
22-Nov			4		
23-Nov				5	
24-Nov				5	
25-Nov				5	
26-Nov				5	
27-Nov				6	
28-Nov				6	
29-Nov				6	
30-Nov				6	
1-Dec					
2-Dec					
3-Dec					
4-Dec					
5-Dec					
6-Dec					
7-Dec					
8-Dec					
9-Dec					
10-Dec					
11-Dec					
12-Dec					

Average: 23-Apr Count: 65 Sum: 10-Jul 65% Sheet1 Sheet2 Sheet3

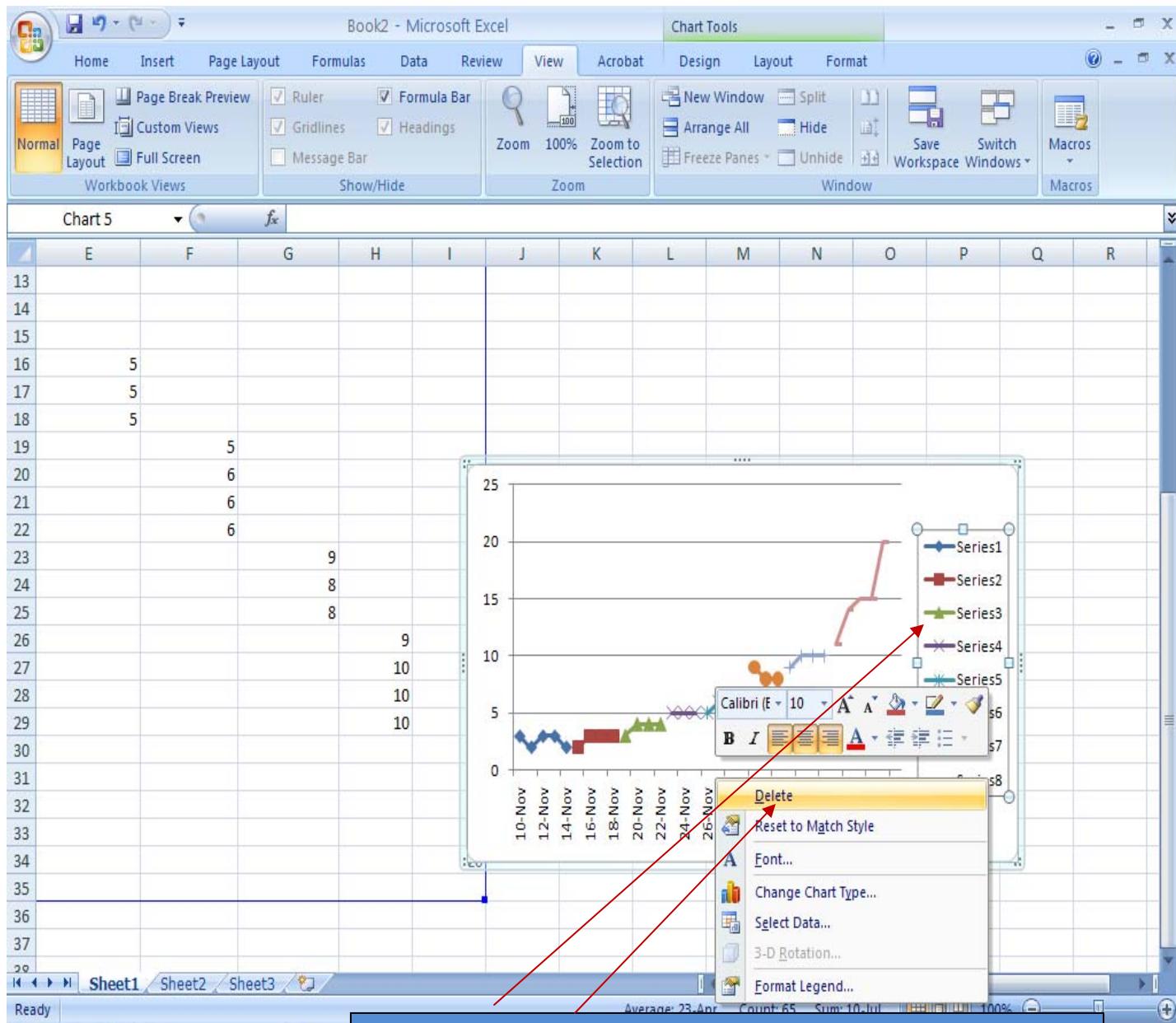


## Step 3: Create the Line Graph





## Step 4: Formatting Line Graph



- Begin by deleting the legend (right click and push delete)



## Step 4: Formatting Line Graph

The screenshot shows a Microsoft Excel window titled "Book2 - Microsoft Excel". The ribbon is visible at the top with tabs like Home, Insert, Page Layout, Formulas, Data, Review, View, Acrobat, Design, Layout, and Format. The "Format" tab is currently selected. In the center of the screen is a line graph with two data series. The first data series is represented by a blue line with square markers, and the second by a red line with circular markers. The x-axis shows dates from November 10 to December 12. The y-axis ranges from 0 to 20. A callout box with a blue background and black border points to the "Shape Outline" dropdown in the "Shape Styles" group of the ribbon. Inside the callout box, the text "Format" and "Shape outline" is displayed. Below the ribbon, a blue callout box contains the following instructions:

- Select the first data series (baseline) by clicking on one of the data points (first line graph)
- Then go to Format and select Shape Outline to change the color to black (see above)

The data series are summarized in the following table:

Date	Blue Series (Baseline)	Red Series
10-Nov	~4	-
11-Nov	~2	-
12-Nov	~4	-
13-Nov	~2	-
14-Nov	~4	~2
15-Nov	~4	~4
16-Nov	~4	~4
17-Nov	~4	~4
18-Nov	~4	~4
19-Nov	~4	~4
20-Nov	~4	~4
21-Nov	~4	~4
22-Nov	~4	~4
23-Nov	~4	-
24-Nov	~4	-
25-Nov	~4	-
26-Nov	~4	-
27-Nov	~4	-
28-Nov	~4	-
29-Nov	~4	-
30-Nov	~4	~9
1-Dec	~4	~9
2-Dec	~4	~9
3-Dec	~4	~9
4-Dec	~4	~9
5-Dec	~4	~9
6-Dec	~4	~9
7-Dec	~4	~9
8-Dec	~4	~9
9-Dec	~4	~9
10-Dec	~4	~9
11-Dec	~4	~9
12-Dec	~4	~9



## Step 4: Formatting Line Graph

The screenshot shows a Microsoft Excel spreadsheet titled "Book2 - Microsoft Excel". The "Format" tab is selected in the ribbon. A context menu is open over a line graph, with the "Shape Fill" option highlighted. The graph displays data points from November 10 to December 10, with values ranging from 0 to 20. A callout box at the bottom right contains the following instructions:

- Then go to Shape Fill to make the data points black
- Repeat these steps for the other data series

Date	Value
10-Nov	4
11-Nov	2
12-Nov	3
13-Nov	2
14-Nov	1
15-Nov	3
16-Nov	3
17-Nov	3
18-Nov	3
19-Nov	5
20-Nov	6
21-Nov	6
22-Nov	9
23-Nov	8
24-Nov	8
25-Nov	5
26-Nov	5
27-Nov	6
28-Nov	7
29-Nov	7
30-Nov	9
1-Dec	9
2-Dec	8
3-Dec	10
4-Dec	10
5-Dec	10
6-Dec	12
7-Dec	15
8-Dec	15
9-Dec	20
10-Dec	20



## Step 4: Formatting Line Graph

The screenshot shows a Microsoft Excel spreadsheet titled "Book2 - Microsoft Excel". A line graph is displayed on the right side of the screen, showing data points from November 10 to December 12. The graph has a black line with square markers and a light gray grid. The ribbon at the top is set to "Chart Tools" with the "Format" tab selected. On the far left, there is a vertical list of items under "Plot Area": "Plot Area", "Chart Area", "Horizontal (Category) Axis", "Plot Area", "Vertical (Value) Axis", "Vertical (Value) Axis Major Gridlines", "Series 1", "Series 2", "Series 3", "Series 4", "Series 5", "Series 6", "Series 7", and "Series 8". The item "Series 1" is highlighted with a yellow background. A red arrow points from this highlighted area down towards the graph. A blue callout box with a black border and white text is positioned in the lower-right area of the graph, containing the following instructions:

- Now click anywhere on the graph and go to Format. On the left where it says Plot Area, select Series 1

Date	Value
10-Nov	3
11-Nov	2
12-Nov	4
13-Nov	3
14-Nov	2
15-Nov	3
16-Nov	4
17-Nov	3
18-Nov	4
19-Nov	3
20-Nov	4
21-Nov	5
22-Nov	5
23-Nov	5
24-Nov	5
25-Nov	5
26-Nov	5
27-Nov	6
28-Nov	6
29-Nov	7
30-Nov	9
1-Dec	8
2-Dec	9
3-Dec	10
4-Dec	10
5-Dec	10
6-Dec	10
7-Dec	15
8-Dec	15
9-Dec	20
10-Dec	12
11-Dec	25
12-Dec	0



## Step 4: Formatting Line Graph

The screenshot shows a Microsoft Excel window titled "Book2 - Microsoft Excel". The ribbon is visible at the top with tabs for Home, Insert, Page Layout, Formulas, Data, Review, View, Acrobat, Design, Layout, and Format. The "Format" tab is selected. On the left, there's a "Series 1" section with "Format Selection" and "Reset to Match Style" buttons, and a "Current Selection" dropdown set to "Chart 5". Below it is a table with data in columns E, F, and G. In the center, a "Format Data Series" dialog box is open, overlaid on the chart area. The dialog has a title bar "Format Data Series" and a "Series Options" tab selected. It contains several options: "Plot Series On" (radio buttons for "Primary Axis" and "Secondary Axis" with "Primary Axis" selected), "Marker Options", "Marker Fill", "Line Color", "Line Style", "Marker Line Color", "Marker Line Style", "Shadow", and "3-D Format". To the right of the dialog, a line graph is displayed with a stepped line and square markers. The chart has axes labeled O, P, Q, R. The bottom of the screen shows the Excel ribbon, a sheet tab bar with "Sheet1", "Sheet2", "Sheet3", and a zoom control set to 100%.

• Then go to Format Selection and click on it until the following window appears



## Step 4: Formatting Line Graph

• Select Marker Options, then select Built-in and choose the circle (marker size = aprox. 7-9)

• Repeat the steps for the

The screenshot shows a Microsoft Excel window titled "Book2 - Microsoft Excel". The ribbon tabs are Home, Insert, Page Layout, Formulas, Data, Review, View, Acrobat, Design, Layout, and Format. The "Format" tab is selected. In the foreground, the "Format Data Series" dialog box is open. The "Marker Options" tab is selected. Under "Marker Type", the "Built-in" option is selected. The "Type" dropdown menu shows several marker shapes, with a circle selected. The "Size" dropdown menu shows sizes 3, 5, and 7, with 7 selected. The background shows a line graph with data points and a legend entry "Series 1". The chart has a grid and a legend in the top right.

Date	Value
2-Dec	5
4-Dec	5
6-Dec	6
8-Dec	6
10-Dec	9
12-Dec	8



## Step 4: Formatting Line Graph

Then select Marker Line Color and select Gradient Line. Make sure to select the color WHITE

- Repeat the steps for the other data series

Format Data Series

Marker Line Color

- No line
- Solid line
- Gradient line
- Automatic

Preset colors:

Type: Linear

Direction:

Angle: 90°

Gradient stops

Stop position: 0%

Color:

Theme Colors

Standard Colors

More Colors...

Chart Tools

Format

Home Insert Page Layout Formulas Data Review View Acrobat Design Layout

Shape Fill Shape Outline

Bring to Front Align Send to Back Group Selection Pane Rotate

Arrange Size

Chart 5

E F G

	E	F	G
13			
14			
15			
16	5		
17	5		
18	5		
19		5	
20		6	
21		6	
22		6	
23			9
24			8
25			8
26			
27			

Sheet1 Sheet2 Sheet3

Ready

100%



## Step 4: Formatting Line Graph

The screenshot shows a Microsoft Excel window titled "Book2 - Microsoft Excel". The "Chart Tools" ribbon is selected, with the "Layout" tab highlighted. In the "Gridlines" section of the ribbon, a red box highlights the dropdown arrow next to "Primary Horizontal Gridlines". A second red box highlights the "None" option in the dropdown menu, which is described as "Do not display Horizontal Gridlines". A callout box at the bottom contains the following text:

- We now need to eliminate the gridlines from our graph. First, click anywhere on the graph and select Layout. Second, select Gridlines, then select Primary Horizontal Gridlines and select None

The chart area displays a line graph with data points plotted against an x-axis (labeled with letters L through R) and a y-axis (labeled with numbers 0 through 25). The data shows a general upward trend with some fluctuations.



## Step 4: Formatting Line Graph

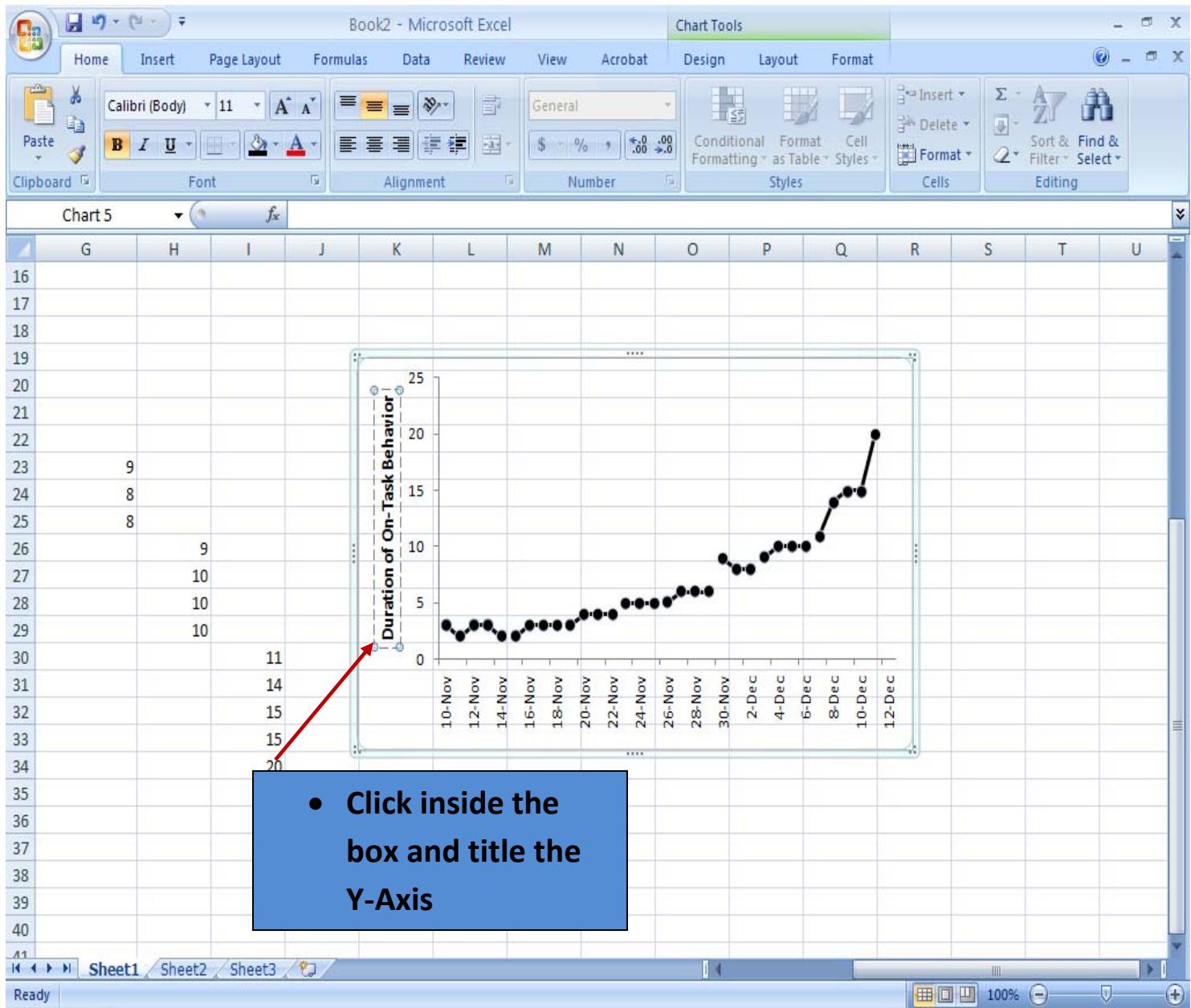
• We can now add the Axis Titles to the graph. We will begin with the Y-Axis.

• First, select Layout.

• Second, select Axis Titles and select Primary Vertical Axis Title, and then choose Rotated Title



## Step 4: Formatting Line Graph





## Step 4: Formatting Line Graph

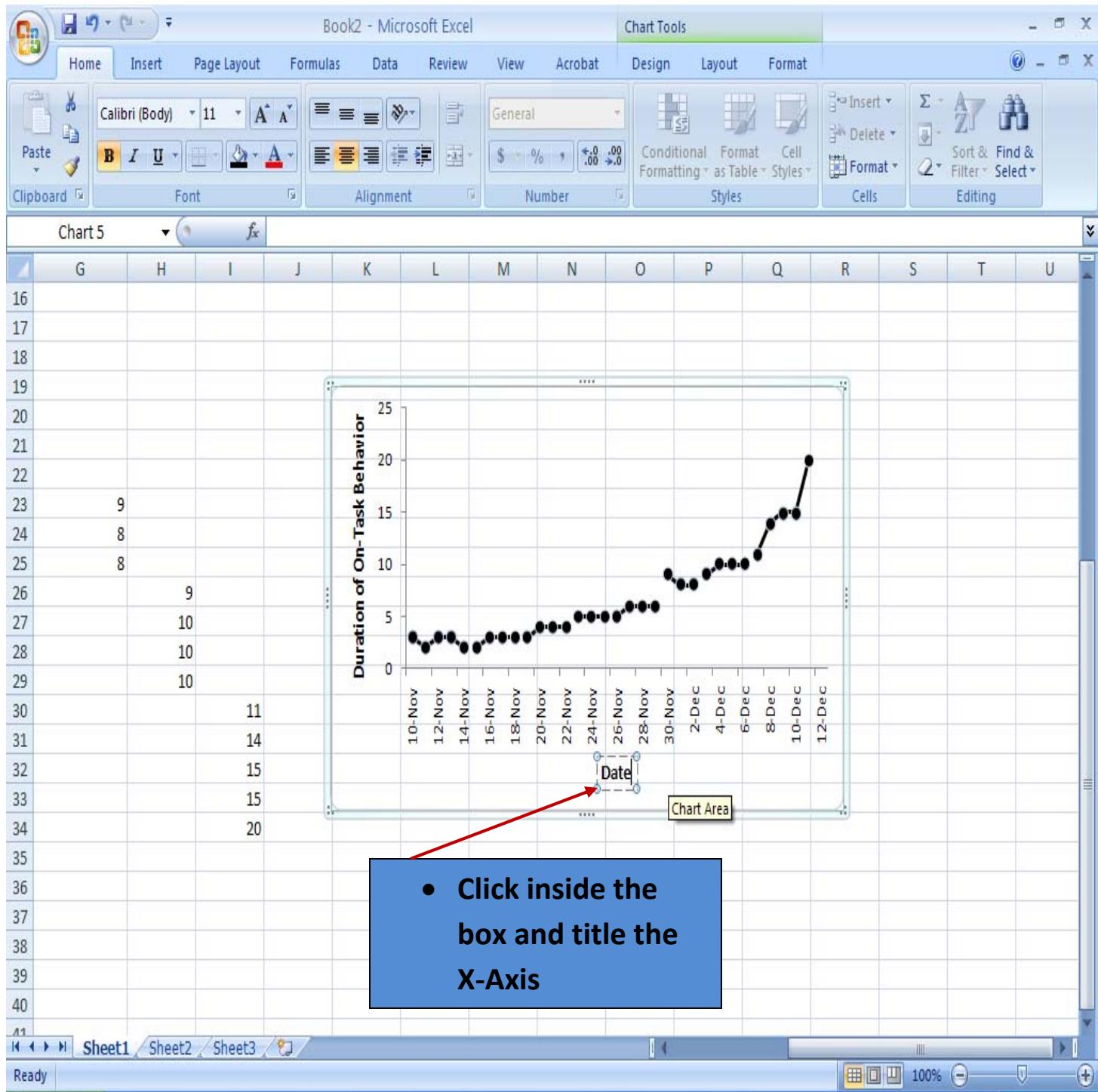
The screenshot shows a Microsoft Excel window titled "Book2 - Microsoft Excel". The "Chart Tools" ribbon is selected, with the "Layout" tab active. In the "Axis Titles" section of the ribbon, the "Primary Horizontal Axis Title" button is highlighted with a red arrow. A callout box with a yellow border and black text provides instructions: "We are now ready to label the X-Axis.", "First, select Layout.", "Second, select Axis Titles and select Primary Horizontal Axis Title, and then choose Title Below Axis". The main area of the Excel window displays a line graph titled "Duration of On-Task Behavior" with data points from November 10 to December 12.

• We are now ready to label the X-Axis.  
• First, select Layout.  
• Second, select Axis Titles and select Primary Horizontal Axis Title, and then choose Title Below Axis

Date	Duration (approx.)
10-Nov	11
11-Nov	9
12-Nov	8
13-Nov	10
14-Nov	8
15-Nov	10
16-Nov	10
17-Nov	10
18-Nov	10
19-Nov	10
20-Nov	10
21-Nov	10
22-Nov	10
23-Nov	10
24-Nov	10
25-Nov	10
26-Nov	10
27-Nov	10
28-Nov	10
29-Nov	10
30-Nov	10
1-Dec	10
2-Dec	10
3-Dec	10
4-Dec	10
5-Dec	10
6-Dec	10
7-Dec	10
8-Dec	10
9-Dec	10
10-Dec	10
11-Dec	10
12-Dec	10



## Step 4: Formatting Line Graph





## Step 5: Adjust the X-axis

The screenshot shows a Microsoft Excel spreadsheet titled 'Book2 - Microsoft Excel'. The ribbon at the top has the 'Chart Tools' tab selected, specifically the 'Layout' tab. In the 'Labels' section of the ribbon, the 'Axes' button is highlighted. A red arrow points from the bottom text box to the 'Primary Horizontal Axis' dropdown menu, which is open and displays several options: 'None', 'Show Left to Right Axis', 'Show Axis without labeling', 'Show Right to Left Axis', and 'More Primary Horizontal Axis Options...'. The 'More Primary Horizontal Axis Options...' option is highlighted with a yellow box. The main area of the screen shows a line chart with data points. The y-axis is labeled 'Duration of On-Task Behavior' and ranges from 0 to 25. The x-axis is labeled 'Date' and shows dates from 10-Nov to 12-Dec. A red box highlights the text box containing the steps.

• We can now change the format of the X-Axis  
• Click on Layout  
• Primary Horizontal X-Axis  
• And More Primary Horizontal X Options



## Step 5: Adjusting the X-Axis

Make sure of the following:

- Minimum = Fixed
- Maximum = Fixed
- Major Unit = 5 (reduces clutter on X-axis)
- Minor Unit = 1
- Major Tick Mark = None
- Minor Tick Mark = Outside
- Click Close

Book2 - Microsoft Excel

Chart Tools

Home Insert Page Layout Formulas Data Review View Acrobat Design Layout Format

Horizontal (Category) Axis

Format Selection Picture Shapes Text Box Chart Title Axis Titles Legend Data Labels Table Axes Gridlines Plot Area 3-D Rotation Trendline Up/Down Bars Error Bars Properties

Current Selection Insert Labels Axes Background Analysis

Chart 5 f<sub>x</sub>

G H I J K L M

16

17

18

19

20 25

Format Axis

Axis Options

Number Fill Line Color Style Shadow 3D Format Alignment

Axis Options

Minimum:  Auto  Fixed 11/10/2010

Maximum:  Auto  Fixed 12/12/2010

Major unit:  Auto  Fixed 5 Days

Minor unit:  Auto  Fixed 1 Days

Base Unit:  Auto  Fixed Days

Dates in reverse order

Axis Type:

Automatically select based on data

Text axis

Date axis

Major tick mark type: None

Minor tick mark type: Outside

Axis labels: Next to Axis

Vertical axis crosses:

Between dates

At date: 11/10/2010

At maximum date

Position Axis:

On tick marks

Between tick marks

Close

Sheet1 Sheet2 Sheet3

Ready 100%



## Step 6: Adjusting the Y-Axis

• Now we can change the format of the Y-Axis  
• Click on Layout  
• Primary Vertical Y-Axis  
• And More Primary Vertical Y Options

More Primary Vertical Options

Date	Duration
10-Nov	3
11-Nov	4
12-Nov	2
13-Nov	3
14-Nov	2
15-Nov	3
16-Nov	2
17-Nov	3
18-Nov	2
19-Nov	3
20-Nov	4
21-Nov	3
22-Nov	4
23-Nov	3
24-Nov	4
25-Nov	5
26-Nov	4
27-Nov	5
28-Nov	6
29-Nov	5
30-Nov	8
1-Dec	7
2-Dec	9
3-Dec	8
4-Dec	9
5-Dec	10
6-Dec	9
7-Dec	10
8-Dec	10
9-Dec	11
10-Dec	10



## Step 6: Adjusting the Y-Axis

The screenshot shows a Microsoft Excel interface with the 'Chart Tools' tab selected. A 'Format Axis' dialog box is open, overlaid on the Excel window. The dialog box is titled 'Format Axis' and contains several tabs: 'Axis Options' (selected), 'Number', 'Fill', 'Line Color', 'Line Style', 'Shadow', '3-D Format', and 'Alignment'. The 'Axis Options' tab displays settings for the Y-axis:

- Minimum:  Auto  Fixed -5.0
- Maximum:  Auto  Fixed 50.0
- Major unit:  Auto  Fixed 5.0
- Minor unit:  Auto  Fixed 1.0
- Values in reverse order
- Logarithmic scale Base: 10
- Display units: None
- Show display units label on chart
- Major tick mark type: Outside
- Minor tick mark type: None
- Axis labels: Next to Axis
- Horizontal axis crosses:
  - Automatic
  - Axis value: -1.0
  - Maximum axis value

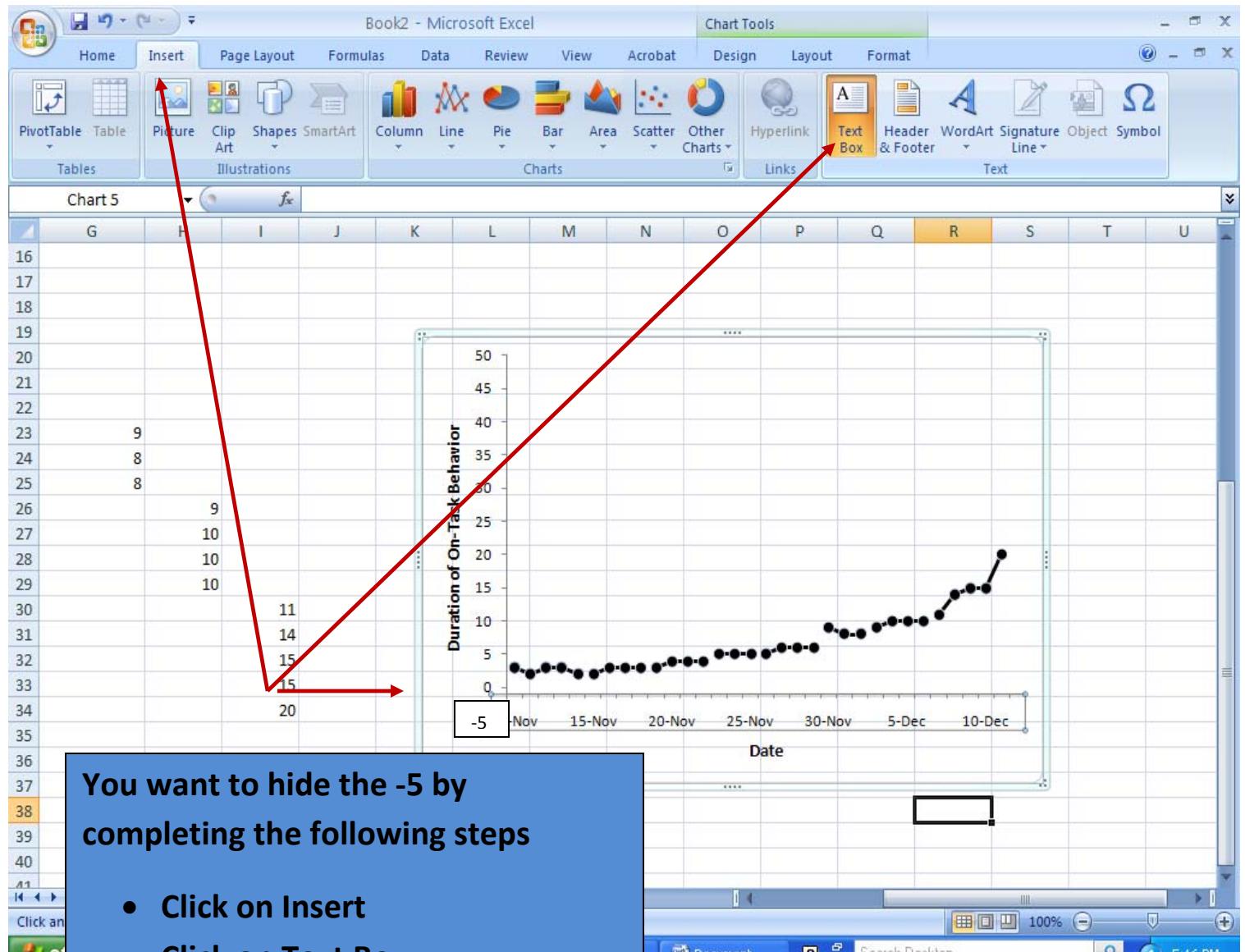
A large blue rectangular callout box is positioned on the left side of the screen, containing the following list of steps:

- Click on Fixed and change minimum to -5 (if you have a 0 data point you want to make sure that the 0 does not fall on the X-Axis)
- Click Fixed and change Maximum to 2 times the highest number in the data set. Except when Y-axis is a percentage. When Y represents Maximum = 100
- Click on Fixed and change Major and Minor Unit to a whole number
- Change Horizontal Axis Crosses to -1

Red arrows from the list in the callout box point to the corresponding settings in the 'Format Axis' dialog box.



## Step 6: Adjusting the Y-Axis



You want to hide the -5 by completing the following steps

- Click on Insert
- Click on Text Box
- Draw a small box around the -5



## Step 6: Adjusting the Y-Axis

The screenshot shows a Microsoft Excel spreadsheet titled "Book2 - Microsoft Excel". The worksheet contains a scatter plot with data points representing the duration of on-task behavior over time. A red line is drawn through the data points. A "Format Shape" dialog box is open, overlaid on the chart. The dialog box has "Fill" selected in the left pane. Arrows point from the text in the list below to the "Fill" tab and the "Line Color" option. The chart area is highlighted with a blue border.

Duration of On-Task Behavior

Date	Duration
8-Nov	2
9-Nov	3
10-Nov	4
11-Nov	5
12-Nov	3
13-Nov	4
14-Nov	3
15-Nov	4
16-Nov	5
17-Nov	4
18-Nov	5
19-Nov	4
20-Nov	5

Format Shape

- Right click on the border of the box and then click on Format Shape (at the bottom of the pop up box)
- Click on fill color and select white
- Click on line color and select no fill
- Click on Close



## Step 7: Drawing Phase Change Lines

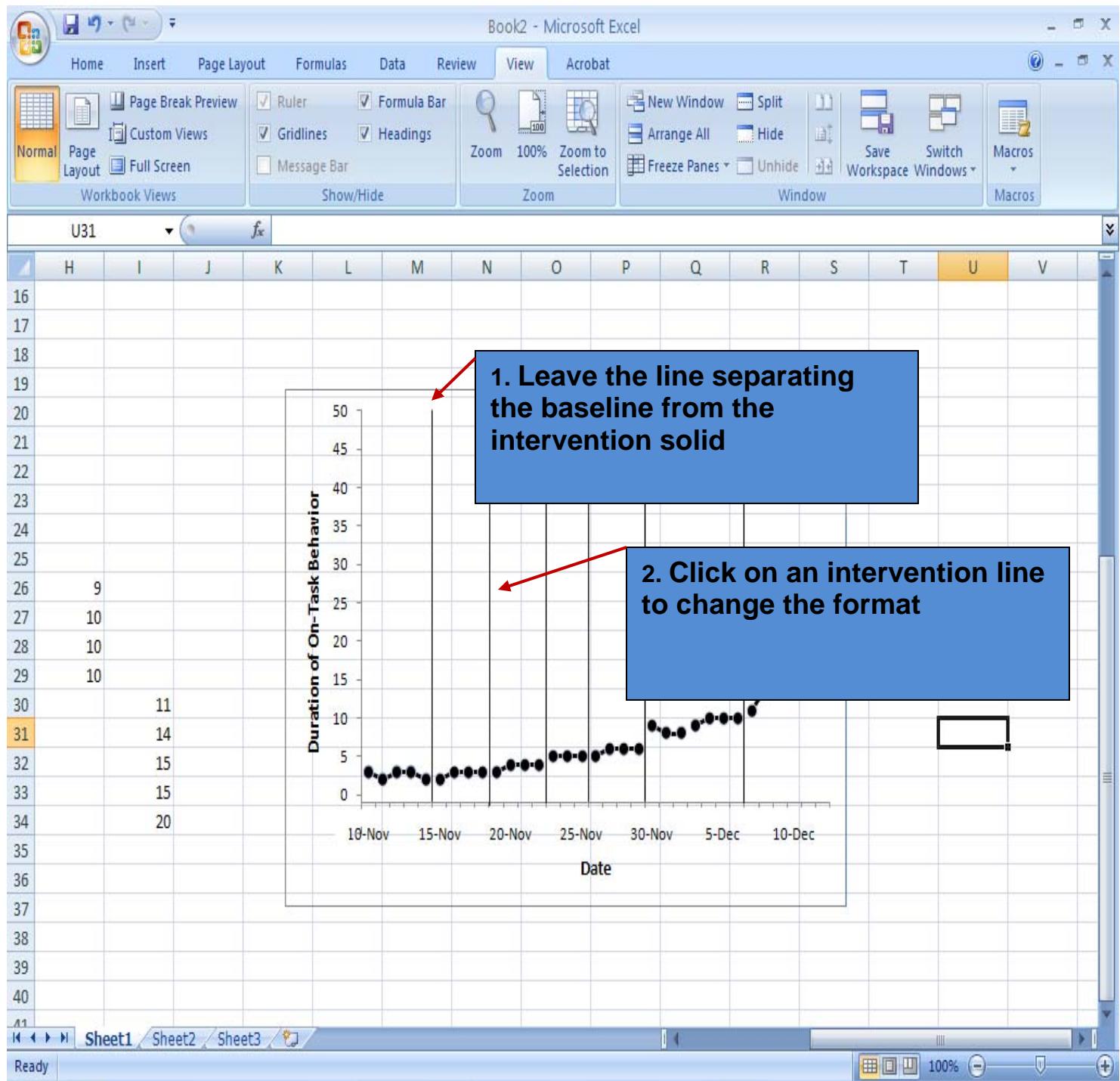
Book2 - Microsoft Excel

The screenshot shows a Microsoft Excel spreadsheet titled "Book2 - Microsoft Excel". The ribbon at the top has the "Insert" tab selected, which is highlighted in orange. Below the ribbon, there are several icons for different types of shapes: PivotTable, Table, Picture, Clip Art, Shapes, SmartArt, Column, Line, Pie, Bar, Area, Scatter, Other Charts, Hyperlink, Text Box, Header & Footer, WordArt, Signature, Object, Symbol, and Line. A callout box is pointing to the "Line" icon in the "Shapes" section. The main area of the spreadsheet shows a grid of data from row 16 to 31 and columns G to U. There are some numbers in the cells, and a series of data points is connected by a dashed line, representing phase change lines. The bottom of the screen shows the standard Excel ribbon bar with tabs like Home, Insert, Page Layout, etc., and a status bar indicating "Ready" and "100%".

- Click on Insert and then Shapes and choose the straight line
- First, hold down the shift key to ensure that the line remains straight. Next, hold the left side of the mouse and move the mouse upwards



## Step 7: Drawing Phase Change Lines





## Step 7: Drawing Phase Change Lines

Screenshot of Microsoft Excel showing a scatter plot titled "Duration of On-Task Behavior" with data points from November 10 to December 20. The Y-axis ranges from 0 to 50. The X-axis shows dates from Nov 10 to Dec 20. A series of vertical lines (intervention lines) are drawn across the chart, with one line being highlighted.

The "Format Shape" dialog box is open, with the "Line Style" tab selected. A red arrow points from the list of steps below to the "Line Style" tab in the dialog box.

**Format Shape Dialog Box (Line Style Tab):**

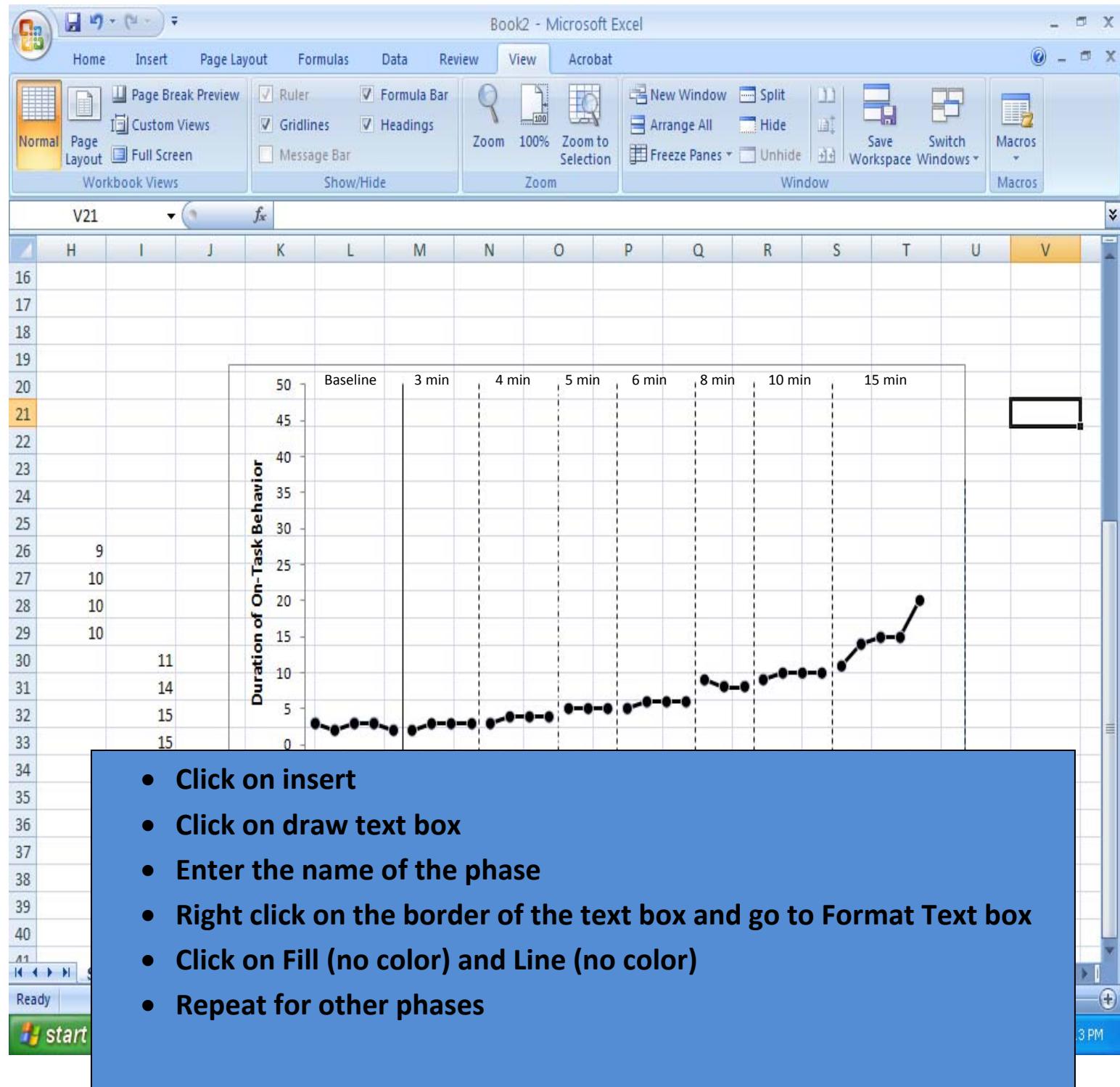
- Width: 0.75 pt
- Compound type: Solid
- Dash type: Dashed
- Cap type: None
- Join type: Miter
- Arrow settings: None
- Begin type: None
- Begin size: 0

**List of Steps:**

- Right click on the first intervention line
- Click on format shape (at the bottom of the first pop up box)
- Click on line style (2<sup>nd</sup> pop up box)
- Click on the dashed line
- Repeat for all remaining lines
- Note: If you need to change these lines to black, click on Line Color and change to black
- Short cut: If you want to change all the lines at once, left click on your fist line and then hold down shift as you highlight the remaining lines

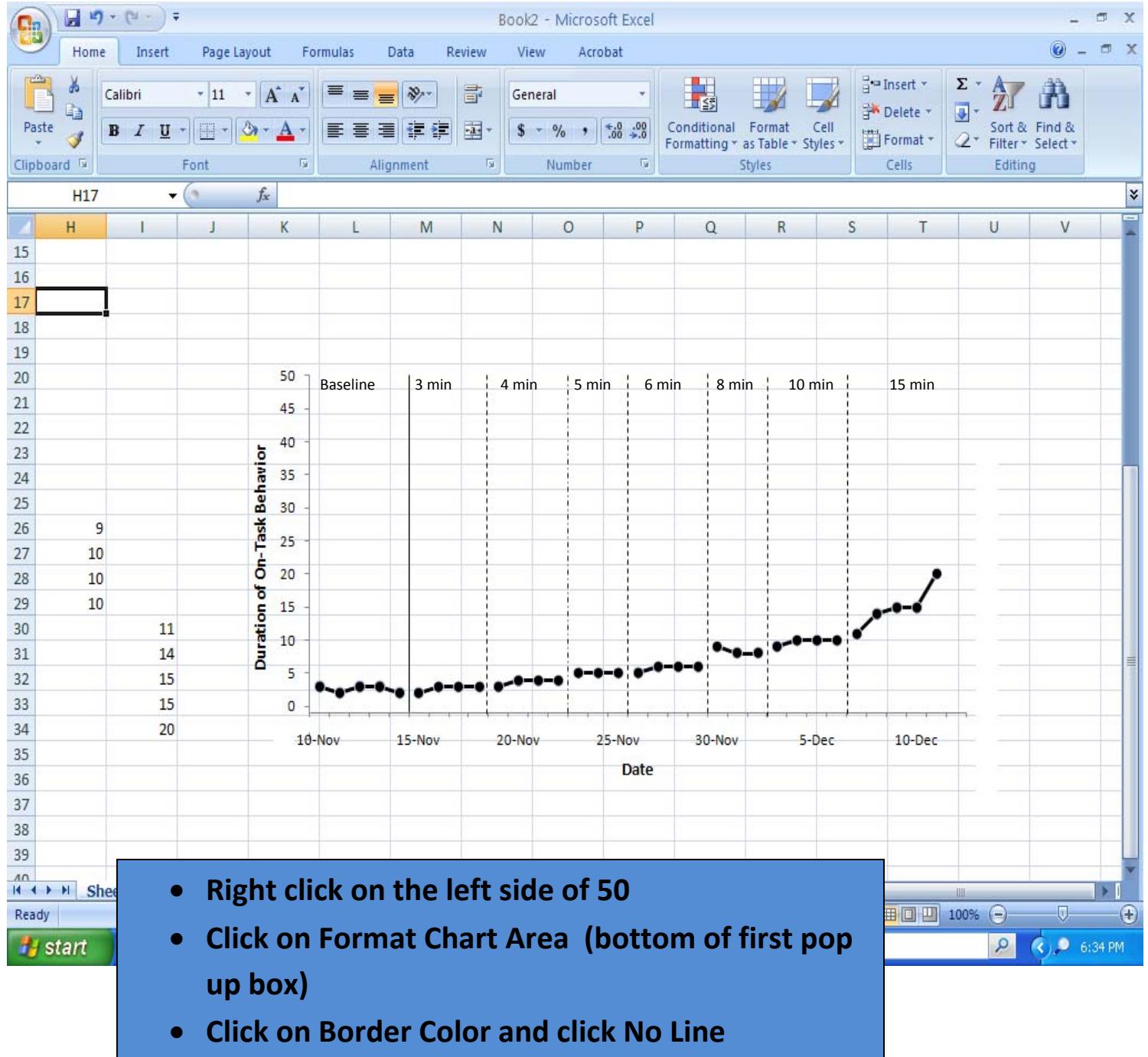


## Step 8: Label the phases



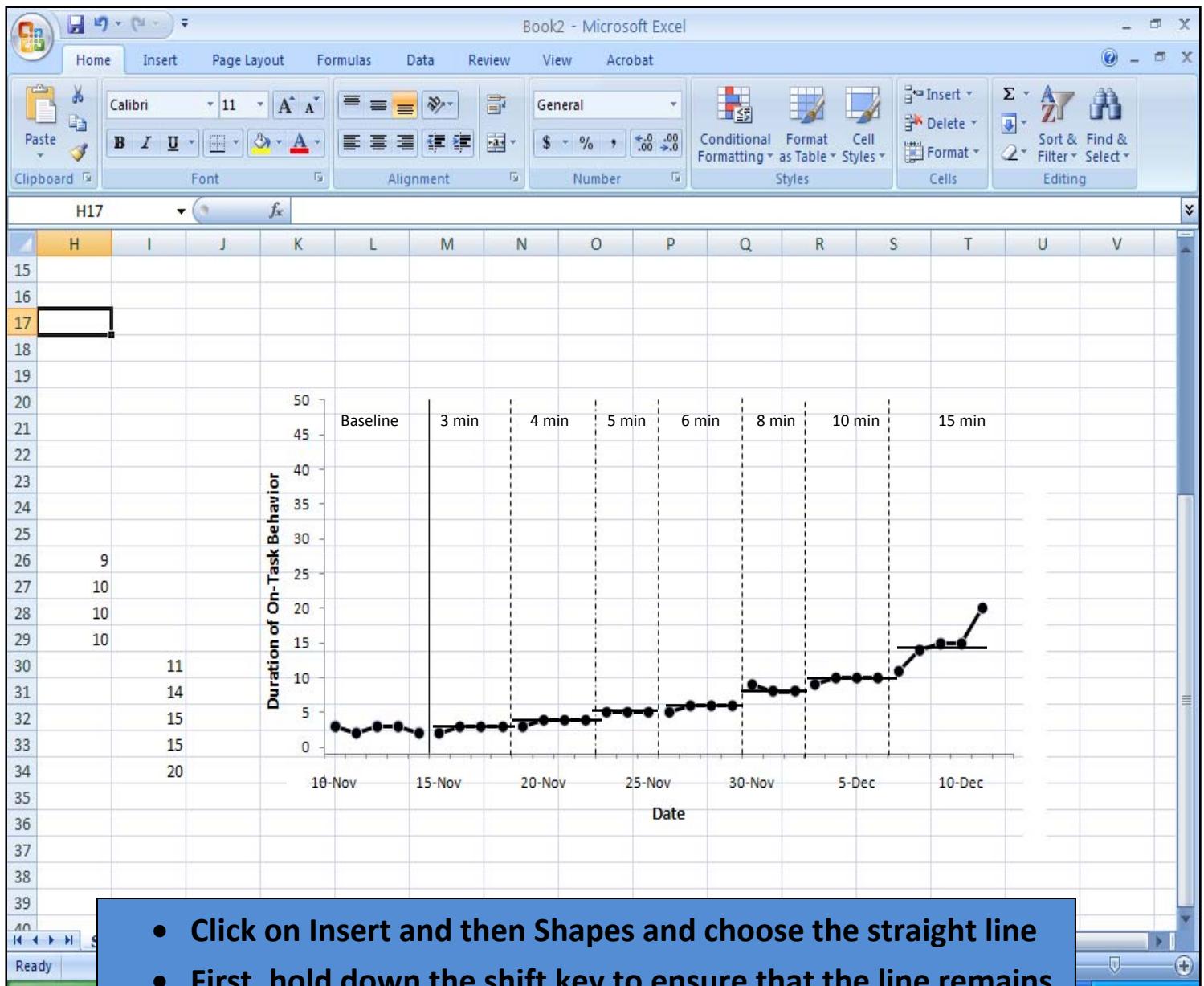


## Step 9: Remove graph border





# Step 10: Drawing Lines to Show Criteria Was Met



- Click on Insert and then Shapes and choose the straight line
- First, hold down the shift key to ensure that the line remains straight. Next, hold the left side of the mouse and move the mouse to the side
- The first line should correspond to the 3 min point on the Y-Axis. The second line at 4 min. Then 5 min and so forth.
- Hint: You can also left click on the line and move it with the arrow keys