

Excel Tutorial: When Zombies Attack!

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Tutorial learning objectives

- By the end of the tutorial, you should:
 - Understand the basics of worksheets and workbooks
 - Know how to create graphs from your data in excel
 - Be able to format your graphs in excel
 - Format your graphs for transfer into a word document
- Also: KNOW HOW TO CALCULATE THE END OF THE HUMAN RACE IN THE EVENT OF A ZOMBIE APOCALYPSE!

The Story/data



- It was a pleasant day in the top 25 cities (by pop) of the world.
- The citizens were going about their business unaware that somewhere in the middle of their cities, experiments were underway to create a new type of bioweapon
- Unfortunately, an absent minded scientist left his petridish open....and released the zombie pathogen to the world
- Now with months on the clock, humanity struggles to survive against the growing army of the undead
- Some urban studies students, being urban studies students decided to estimate the population change in cities over time
- And that is where our story begins...



Our cities (can you guess which is where?)



Basics of worksheets and workbooks

- Using the zombie data excel file
- Start with Sheet 1, rename the sheet 'population'
- [Worksheets vs. Workbooks](#)
- [Saving a Workbook](#)
- [Naming a Worksheet](#)
- Find more ways of managing worksheets on the [Worksheet Basics Tutorial page](#)



Examine the data: Zombies, mortality rates and population

- Familiarize yourself with the sheets in the Zombie and population worksheets. Look at headers, rows and columns and ask yourself the following:
 - What are the variables?
 - What measures are being used (percent, number etc)?
 - Where are the data from? Is it from a reliable source?



Generate a Hypothesis

- What do you know about the variables from your own intuition?
- What behaviors (in the data) do you expect? Can you formulate a prediction?
- Now let's visualize the data!

Line Graphs: population over time

- Line graphs are useful for seeing changes over time
- Fill in the data for the other years in the population sheet.
- Now select the data in the population sheet for the graph. We want to see the population in our cities over time.
- 'Insert' tab, 'Line' drop-down box to insert the line chart
- You can '[select data](#)' by right clicking on the chart and choosing 'Select data'. When do the zombies kill us all?
- Now we can add labels to our axes.



Scatter Plot

- Scatter plots are useful for looking at the relationship between 2 variables. For example do variables increase together or decrease together.
- What is the relationship between the mortality rate and the zombie growth rate?
- 'insert' tab. 'Scatter' drop-down box. Select the one with the bunch of dots
- You can do the same thing as last time to [select data](#). Which variable goes on the x-axis?
- Don't forget to format the chart!



Different ways of looking at the data

- Log transforming the data (Format axis, logarithmic scale)
- Zooming in to a particular time frame (looking at fewer decades than the total number provided) (Changing Axis min and max)
- Zooming out to a larger time frame (looking at more decades when available)
- Focusing on a subset of groups (including fewer groups in the graph)
- Try one of these.
- Do the data support your prediction?



Trendlines

- Linear trendlines are useful for showing linear relationships between variables. They can also be used to show the macro linear trend even though the data may have lots of peaks and troughs.
 - a. Select the scatter plot.
 - b. 'Layout' tab in Chart Tools, 'Trendline', 'Linear' or see it [here](#).
 - c. Format the trendline by right clicking on it and selecting 'Format Trendline' (also [here](#)).



Copying and Pasting into Word

- You can copy and paste your chart into a word document by::
- Select the chart. Copy (CTRL C) and paste (CTRL V) it. Double check the formatting of your chart.
- Did formatting change? Excel changes word and word changes excel if they're open
- You can also paste it as a picture in word to prevent formatting changes when you copy and paste. Right click the Word document and other 'paste options' select 'Picture'

