



Basic Spreadsheet Guide

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Basic Spreadsheet Guide

The purpose of the document is to provide guidance around common uses for spreadsheet functions and pivot tables; and to apply and use spreadsheet functions and pivot tables to summarize, sort, reorganize, and group data. Many of the features and concepts explained in this guide are illustrated in a [companion example spreadsheet](#). Users of this guide may want to interact with a copy of the spreadsheet.

Spreadsheet Introduction and Organization

The Bad and the Good

- Spreadsheets, for all of their mundane rectangularness, have been the subject of angst and controversy for many decades.
- Spreadsheets are a valuable tool that can improve productivity and workflow, but...
- Educators should be aware of common errors and design spreadsheets that are tidy, consistent, and as resistant to mistakes.
 - 88% of spreadsheets contain errors!
 - [Panko, R. \(2008\), "What We Know About Spreadsheet Errors"](https://www.researchgate.net/publication/228662532_What_We_Know_About_Spreadsheet_Errors):
https://www.researchgate.net/publication/228662532_What_We_Know_About_Spreadsheet_Errors.

Uses

- Reflect on how you are currently using spreadsheets and ways you may want to use spreadsheets differently in the future.
- Spreadsheets are often used as a multipurpose tool for data entry, storage, analysis, and visualization.
- Educators can create spreadsheets that are less error-prone, easier for computers to process, and easier to share with collaborators and the public.
- Teachers use the Student Risk Screening Scale-Internalizing and Externalizing (SRSS-IE) spreadsheet tool to identify possible risk factors for each student in their classroom. The spreadsheet uses conditional formatting to make data analysis more visual, functions to automate tasks like calculations, and notes to improve fidelity of administration. Examples are below:
 - Conditional Formatting: color formatting (i.e., red, yellow, green) for cells that indicate a student's level of risk (i.e., low, moderate, high).
 - Functions: sum, countif, if, iferror, isblank
 - Notes: provides directions for administration (e.g., rate one student at a time), how to use the rating scale (e.g., 0 = never), and what information is needed in specific cells (e.g., student name, grade).
- Schools and districts use an Early Warning System (EWS) spreadsheet tool to automate the universal screening process of collecting and analyzing early warning indicators (EWIs) to help identify students in grades 5-12 who are at-risk for leaving school before graduation. The spreadsheet uses pivot tables to reliably pull specific data points for quick analysis and functions to automate tasks like turning data (e.g., Y, N) into binaries

(i.e., 0, 1) and combining student names with birthdays to create unique IDs. Examples are below:

- Pivot Tables: sum of total indicators by grade, count of attendance by grade, and count of course fails by grade.
- Functions: sum, countifs, if, concatenate, and, vlookup

Security and Confidentiality

Electronic spreadsheets give us the ability to protect our work, whether it's to prevent someone from opening a workbook without a password, granting Read-Only access, or even just protecting a worksheet so you don't inadvertently delete any formulas. The following are the different options available for protecting your data via Google Sheets. If you would like a higher level of security and confidentiality, you may want to download your sheets to Excel and follow the directions at the support link provided.

Google Sheets Protection Levels

- File Level: This refers to what rights you provide other users when you share the sheet. Options for sharing with other users are viewer, commenter, or editor. The share button is green button at the top right of the screen. One layer of security that can be added to the file when sharing is to limit downloading, printing, or copying. This can be found by clicking on Share then Advanced then Disable options to print, copy or download for your commenters and views. For more information, see [Collaborate in Sheets: https://support.google.com/docs/answer/9331169?hl=en](https://support.google.com/docs/answer/9331169?hl=en)
- Sheet Level: This refers to the ability to protect the entire sheet so that users cannot modify and of the data. For more information see [Protect content in a spreadsheet: https://support.google.com/a/users/answer/9308980](https://support.google.com/a/users/answer/9308980)
- Range Level: This refers to the ability to protect a specific area in your sheet such as a formula, pivot table or chart. Other users can modify raw data but calculations and functions would not be affected. For more information see step 5 in [Protect content in a spreadsheet: https://support.google.com/a/users/answer/9308980](https://support.google.com/a/users/answer/9308980)

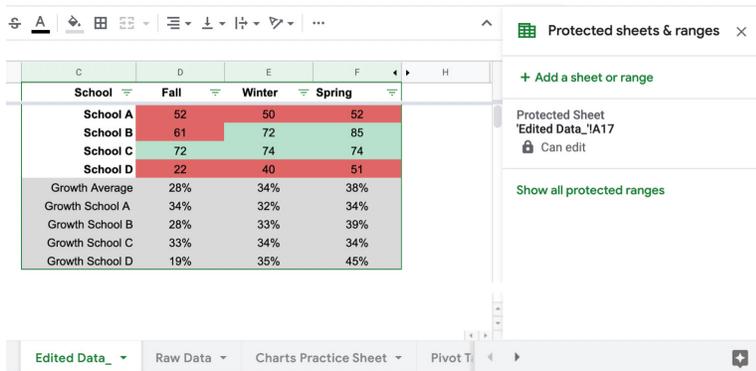
Excel Spreadsheet Protection Levels

- File-level: This refers to the ability to lock down your file by specifying a password so that users can't open or modify it. For more information, see [Protect a File: https://support.office.com/en-us/article/protect-an-excel-file-7359d4ae-7213-4ac2-b058-f75e9311b599](https://support.office.com/en-us/article/protect-an-excel-file-7359d4ae-7213-4ac2-b058-f75e9311b599)
- Workbook-level: Locking (i.e., password) the workbook structure to prevent other users from viewing hidden worksheets, adding, moving, deleting, or hiding worksheets, and renaming worksheets. For more information, see [Protect a Workbook: https://support.office.com/en-us/article/protect-a-workbook-7e365a4d-3e89-4616-84ca-1931257c1517](https://support.office.com/en-us/article/protect-a-workbook-7e365a4d-3e89-4616-84ca-1931257c1517)
- Worksheet-level: With sheet protection, you can control how a user can work within worksheets. You can specify what exactly a user can do within a sheet, thereby making sure that none of the important data in your worksheet are affected. For example, you might want a user to only add rows and columns, or only sort and use AutoFilter. Once sheet protection is enabled, you can protect other elements such as cells, ranges, and

formulas. For more information, see [Protect a Worksheet](https://support.office.com/en-us/article/protect-a-worksheet-3179efdb-1285-4d49-a9c3-f4ca36276de6): https://support.office.com/en-us/article/protect-a-worksheet-3179efdb-1285-4d49-a9c3-f4ca36276de6

How is this principle applied to the companion example spreadsheet?

The [companion example spreadsheet](#) has eight sheets in total, four sheets are protected, and four sheets can be edited for practice opportunities. For instance, the Edited Data sheet cannot be edited unless access is granted, which would inadvertently affect the display of the example pivot tables and graphs. Below is a screenshot:



Be Organized

- Use sheets to organize your data
 - Example: Separate your raw data sheet from your edited data sheet.
- Use descriptive column labels to identify data
- Consider removing gridlines
- Shade or bold any important information
- Add comments

How is this principle applied to the companion example spreadsheet?

The spreadsheet is organized as four example sheets that provide raw data, edited data, tables, and charts. Each sheet offers unique ways of viewing the data and is set up in a way that reduces cognitive overload for anyone accessing the spreadsheet. In addition to organizing the sheets, they are also consistently color formatted to differentiate between them. Below is a screenshot:



Be Consistent

- Whatever you do, do it consistently. Entering and organizing your data in a consistent way from the start will prevent you and your collaborators from having to spend time harmonizing the data later.
 - Use consistent codes for categorical variables
 - Example: Yes and No
 - Use a consistent data layout in multiple files.
 - Use consistent file names

- Use a consistent format for all dates

How is this principle applied to the companion example spreadsheet?

The spreadsheet utilizes a pivot table that displays each school's fall, winter, and spring fidelity data. Conditional formatting is applied to color the cell red or green based on whether the scores met the 70% threshold or not. The same color formatting is applied to two adjacent tables. On one of the tables, if a score is above or below the threshold, the score changes from green to red. On the other table, if the score is above or below the threshold, a red x or a green checkmark appears next to the score.

Pivot Tables

School	AVERAGE of Fall	AVERAGE of Winter	AVERAGE of Spring
School A	52	50	52
School B	61	72	85
School C	72	74	74
School D	22	40	51

Tables with Formulas

SWPBIS-TFI Total Score		
School B	Fall	61
	Winter	72
	Spring	85

Met Fidelity by Spring		
School A	52	x
School B	85	✓
School C	74	✓
School D	51	x

Bonus Feature: History

Meet the Inventory of the Electronic Spreadsheet: Ted.com: [Dan Bricklin](http://Dan.Bricklin): shorturl.at/mrCY0

Spreadsheets Basics

Data

Each worksheet contains a grid of cells arranged into rows and columns. Each cell can contain a single data value.

- Example: number, text, function

Functions

Spreadsheet functions allow you to automate common tasks such as calculations.

- Example: MIN, MAX, AVG

Formulae

Spreadsheet functions are stored mathematical calculations.

- Example: =SUM (A1:A4)

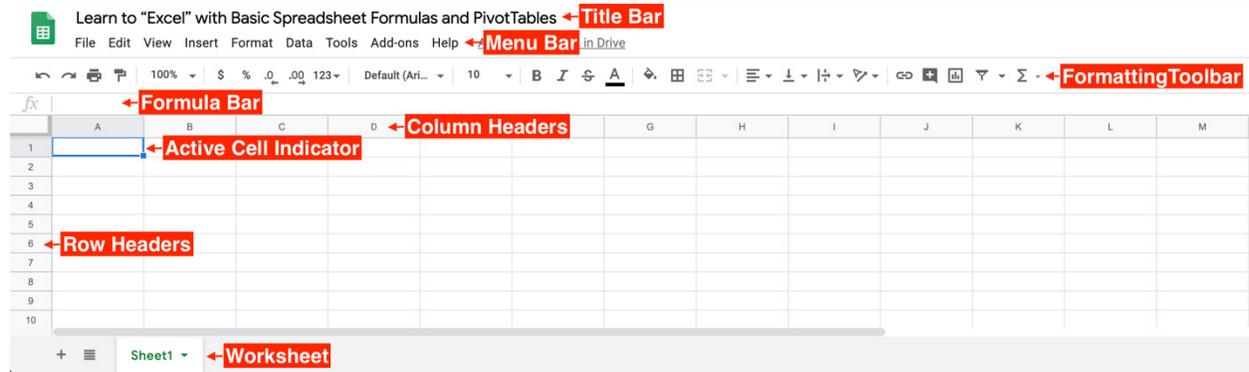
Charts

When a spreadsheet contains a set of data organized within worksheets, you can represent the data visually.

- Resource: [Effective Data Visualization](https://stephanieevergreen.com/books/): <https://stephanieevergreen.com/books/>

Spreadsheets Navigation

To help you view and select cells in different parts of your spreadsheet, spreadsheets offer various ways to navigate using the mouse and keyboard. See below for a screenshot of various navigation options:



Sharing

Sharing a Google Sheet is an easy way to collaborate with others. You have the choice of providing various levels of access: edit, comment, or view options.

- Directions: File menu + Share

Share: Force a Copy

There are times when you want to share a spreadsheet, but you want to force your recipients to make a copy. Oftentimes this is done when a template is created for others to use by populating their own data. The SRSS-IE and EWS templates are good examples of this work.

- Directions: File menu + Share + Click "Anyone with Link can Edit" + Copy Link + Edit link (remove "/edit" at end of link and replace with, "/copy")

Basic Functionality

Create New Sheets

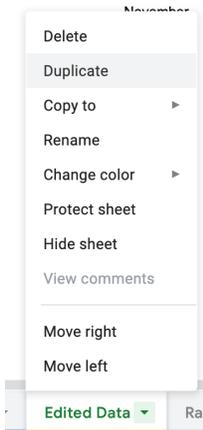
Sheets allow you to organize your data and analysis. You can separate your data and analysis according to your liking. For example, you can include a sheet for: Raw Data, Edited Data, Pivot Tables, and Charts and Graphs. This improves clarity and navigation for the reader.

- Directions:
 - Insert menu + New Sheet
 - Click on the New Sheet symbol "+" on the bottom left of the spreadsheet

Duplicate Sheet

Making a copy of a sheet allows you to replicate and edit the data without making changes to the original or raw data set. It is often good practice to duplicate raw data sets, so you have the original source to refer back to once edits have been made.

- Directions: Click on arrow next to sheet name + Duplicate



Select Entire Sheet

If you need to copy all cells in a sheet (i.e., all data in every column and row), there is an efficient way to do so without having to manually select every column and row.

- Directions: Click the Select All button on the far top left of the worksheet

	Select All	B	C	D
1	School	Fall	Winter	Spring
2	School A	52	50	52
3	School B	61	72	85
4	School C	72	74	74
5	School D	22	40	51

Select Entire Column or Row

If you need to copy all cells in a column or row, there is an efficient way to do so without having to manually select all the cells.

- Directions: Click the header cell (columns = letters, rows = numbers)

	A	B
1	School	Fall
2	School A	52
3	School B	61
4	School C	72
5	School D	22

Copy and Paste Options

- Directions: Edit Menu + Copy or Paste
- Keyboard Shortcut
 - PC: Ctrl + C and Ctrl + V
 - Mac OS: Command + C and Command + V

Paste Special Options

When using a spreadsheet, you may often find yourself needing to copy and paste values only, without formulas, and without formatting. Several options are available.

- Directions: Right-click cell + Paste special

Transpose

Let's say you have a table that would look better if the row and column data was switched around, in a spreadsheet you would copy and paste choosing the transpose method. In short, transpose rotates your data from rows to columns or vice versa.

- Directions: Edit Menu + Paste Special

There are many other paste special options to consider, below are a few examples:

- Formulas: Pastes only the formulas of the copied data as entered in the formula bar.
- Values: Pastes only the values of the copied data as displayed in the cells.
- Formats: Pastes only cell formatting of the copied data.
- Comments and Notes: Pastes only comments and notes attached to the copied cell.
- Formulas and number formats: Paste only formulas and all number formatting options from the copied cells.
- Values and number formats: Paste only values and all number formatting options from the copied cells.

Autofill Options

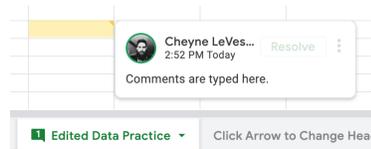
You can use autofill to create an incrementing series of numbers, dates, month, time, days, letters, and it can also be applied to functions. It is most often used to automatically create a series or list. For instance, you may want to type in a series of dates and by using autofill you are able to do so efficiently. There are several built-in lists (i.e., numbers, dates, month, time, and days) but in order to do letters, you need to use a formula.

- Examples: number (e.g., 1), date (5/30/2020), month (May), time (e.g., 2:30 PM), or days (Monday)
- Directions for date, month, time, or days: Type in a cell + fill handle (i.e., blue square on bottom right of selected cell) and drag down to down-fill.
- Directions for numbers:
 - Type two numbers in a cell, sequentially + drag down to down-fill
 - Type in a cell + keyboard "Option" (MacOS) or "Control" (PC) + fill handle and drag down to down-fill.
- Directions for letters:
 - Insert function "=char(row(A65))" into cell for "A" + fill handle or insert function "=char(row(A97))" into cell for "a" + fill handle
- EWS Example: When developing functions to make automatic calculations, you may need to copy the function from one cell to all cells in a specific column. In the EWS spreadsheet, the Total Indicators column uses a sum function (i.e., =IF(\$A2<>"", SUM(M2+O2+Q2+S2), FALSE)) to add the number of EWIs from four other columns. This function needs to be applied to all students, so autofill allows you to drag down to down-fill for all students with data.

Comments and Notes

Notes are simply little text boxes added to the cell which just add extra information. These are viewed by hovering over the cell.

Comments are also little boxes that are added to the cell with extra information, but these are usually used to make a comment to someone requesting some kind of response. You can also assign an individual to the comment, so they are notified, using the @ symbol + name. The number of comments per sheet are displayed next to the tab name and if clicked, can display all comments. An example, along with directions, are below:



- Directions: Right click + Comment or Insert Note
- Directions: Insert menu + Comment or Insert Note
- Directions for inserting comment:
 - PC: Ctl + Alt + M
 - MacOS: Cmd + Option + M

Advanced Functionality

Protect a Sheet or Range

Protecting individual cells is a great way to prevent data in your spreadsheet from getting changed—accidentally or intentionally—by anyone viewing the sheet.

- Directions: Data menu + Protected sheets and ranges

Freeze Rows and Columns

If you freeze columns or rows in a spreadsheet it locks them into place. This is a good option for use with data-heavy spreadsheets, where you can freeze header rows or columns to make it easier to read your data.

- Directions: View menu + Freeze

Hide Rows, Columns, and Sheets

If you hide columns or rows in a spreadsheet it visually removes them. This is a good option for if you are using columns as a helper column: an additional column in a data set to use as a supporting column to simplify the use of some formulas.

- Example: concatenate to create unique identifier such as a name combined with a birthdate).
- Directions for hiding: Right click + Hide row/column/sheet
- Directions to unhide row/column: Click on the arrows that surround the hidden row/column.
- Directions to unhide sheet: Menu + View + Hidden sheets

Group Rows and Columns

Expand or collapse row and columns without losing any data. You can make groups and subgroups and only show the data that is most important.

- Directions: Right click + Group rows/columns

Named Ranges

A named range allows you to allocate a name for a range of cells and then simply refer to those cells by typing in the name you have assigned. Using named ranges helps you use a spreadsheet efficiently and allows you to manage large data sets easily

- Directions: Highlight the cells that you want to include in the range + Data menu + Named Ranges

Basic Analysis

Sorting and Filter

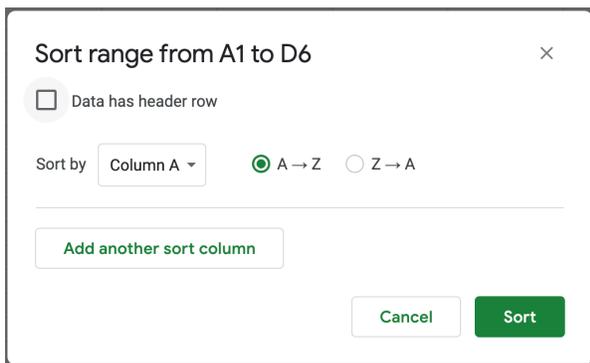
Spreadsheets allow you to analyze and work with a significant amount of data. As you add more content to your spreadsheet, organizing information in it becomes important. Spreadsheets allows you to reorganize your data by sorting and applying filters to it.

Sorting

You can sort your data by arranging it alphabetically or numerically, or you can apply a filter to narrow down the data and hide some of it from view. The sorting feature can help you organize your data to help your team answer questions.

Details to Consider

- Merged cells need to be removed in order to sort by a column.
- You can sort by a column (e.g., column A) or by header row. See screenshot below to indicate a column has a header row.
- Sorting is limited to a single column at a time unless you use additional sorting tool if you want to sort by multiple variables in a sequence. See screenshot below to add another sort column.



There are two ways to sort the data in a sheet.

Entire Sheet Sort

- This feature is used to sort all columns at once.
- Directions:

- Data menu + Sort Sheet by column (e.g., A to Z)
- Directions: Formatting Tool Bar + Create a filter 
- This will sort the column your cursor is currently in as the primary sort then column A, B, C and so on in order.

Sort Range

This feature is traditionally used to sort one column at a time. All other columns will stay static and not change.

- Directions: Select range of cells + data menu + sort range.
- A menu box will pop up. Click box data has header row and select which columns you would like the data sorted by and if you would like it from A to Z or Z to A. You can sort on more than one column.
- This will only sort in the defined area that you have selected. It allows for more control of what is sorted in your sheet.

Advanced Filtering

Filters are very useful to help drill down your data. It allows the user to look at specific data in a grouping without losing the whole data set.

Filter by Values

Uncheck any data points that you want to hide and click OK. If you want to choose all data points, click Select all. You can also uncheck all data points, by clicking Clear.

Filter by Condition

Choose from a list of conditions or write your own. For example, if the cell is empty, if data is less than a certain number, or if the text contains a certain letter or phrase.

Helpful Hints:

- You will know which column has been filtered when the  triangle changes to the  filter icon.
- Search: Search for data points by typing in the search box. For example, typing P will shorten your list to just the names that start with P.
- To turn the filter off, click Data + Turn off filter.

Filter View

Use a filter view when you want to save your filter and use it later. It is also helpful if you don't want to disrupt others' view of the data. Another use for filter view is when you want to share a specific filter with others.

- Directions: Click Data + Filter views + Create new filter view.
 - Sort and filter the data.
 - To close your filter view, go to the top right and click Close .
 - Your filter view is saved automatically.

- To delete or duplicate a filter view go to the top right and click Settings  + Delete or Duplicate.

Quick Summary Tool

Once you highlight a set of data, the status bar provides access to basic analysis

- Directions: Status bar (bottom right corner)
 - Numerical data: Sum, Avg, Min, Max, and Count
 - Text data: Count

Conditional Formatting

What is Conditional Formatting?

You can use pivot tables to summarize your data, but what if you want to gain some insight just by glancing at your sheet? Conditional formatting will give you that insight. Cells, rows, or columns can be formatted to change text or background color if they meet certain conditions. You can use this feature to automatically highlight specific cells in rows or columns that meet your condition. For example, you could use it to apply background colors to cells based on the value in the cell. You can go further and apply the formatting across an entire row, based on the value in a single cell.

Formatting Rules

The conditions are called formatting rules, which include many options such as:

- Greater than
- Less than
- Text contains
- Date is

For starters, you need to highlight the data range you are interested in formatting, which may include a column, row, or a range of columns/rows.

- Directions: Format menu + Conditional Formatting

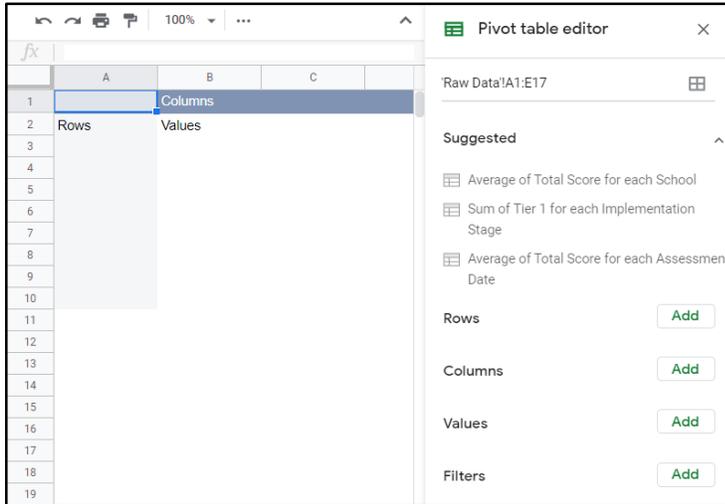
Pivot Tables

If you're using spreadsheets but don't use Pivot Tables, then you're missing out on one of the most powerful and useful features available. A pivot table takes a large set of data and summarizes it. Pivot Tables are unrivalled when it comes to analyzing your data efficiently, and best of all, it minimizes human error when exploring your data. For instance, Pivot Tables are generally much quicker than formulas for exploring your data and minimizes cognitive load since you do not need to formulate a function.

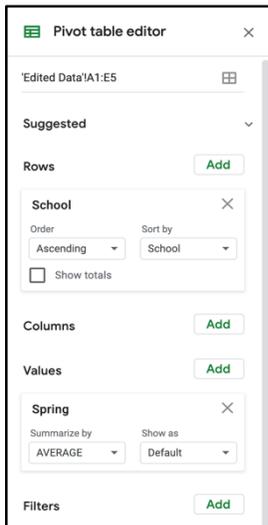
To start, select the cells with source data you want to use:

- Directions: Data menu + Pivot Table
- Select a destination for your pivot table. It is recommended that you create the pivot table in a new sheet.

- The new sheet will automatically open the pivot table editor.
- The pivot table editor will give you a suggested table based on the source data. If one of the suggested tables meets your needs, go ahead and click on it and google sheets will automatically add this pivot table to your sheet.



- If you want to create your own pivot table then you will need to start by adding a row, then add values.
- Typically, the row will be a title of something like a school or implementation stage. The values will be something that you can find the count, sum, average, etc.
- As an example, you can add “school names” as rows, “Spring Total Scores” data as a column, and then choose how you want to summarize the data (e.g., average, sum). Below is a screenshot of an example pivot table edit and the resulting pivot table:



Slicers

Slicers add functionality to pivot tables and charts that are created from raw or edited data. The slicer will allow you to filter data to get a closer look without toggling between sheets or creating multiple pivot tables. One way to make your data accessible to users is by creating a dashboard. Adding a slicer to a pivot table will help the audience be able to interact easily with

the data. Users will be able to look at the data from a wide lens or narrowed down to a specific attribute.

Basic Functions

Functions/Formulas Description

Spreadsheet functions can be used to create formulas that manipulate data (e.g., text) and calculate numbers. In short, functions are stored formula that allow you to automate common tasks. A formula expresses a calculation mathematically and there are many types; common functions include:

Common Functions

- Sum, Count, Average, Median, Max and Min

Examples:

- =Sum (A1, A1, A3)
- =Count (A1:A3)
- =Average (\$A1:\$A3)
- =Median (\$A\$1:\$A\$3)

You can either access functions using the menu bar or type in a formula using “=”.

- Directions: Menu Bar
- Directions: Typing formula in cell using equal symbol (i.e., =) + type formula (e.g. sum)

Types of Functions/Formula

There are many types of functions, ranging from more common to advanced. You can access the various types by reviewing the [Google Sheets Function List](https://support.google.com/docs/table/25273?hl=en) website:
<https://support.google.com/docs/table/25273?hl=en>.

Formula Autofill Options: Copy or Drag

Formulas can be copied into multiple cells at a time by using the autofill feature, which can be used to fill cells with formulas to perform the same calculation on each cell. There are two types of cell references: relative and absolute. Relative and absolute references behave differently when copied and filled to other cells. Relative references change when a formula is copied to another cell (e.g., A2 to B2 to C2, etc.). Absolute references, on the other hand, remain constant no matter where they are copied (e.g., A2 to A2).

By default, all cell references are relative references. When copied across multiple cells, they change based on the relative position of rows and columns. For example, if you copy the formula =A1+B1 from row 1 to row 2, the formula will become =A2+B2. Relative references are especially convenient whenever you need to repeat the same calculation across multiple rows or columns.

Formula Cell Locking

There may be times when you do not want a cell reference to change when copying or filling cells. You can use an absolute reference to keep a row and/or column constant in the formula. An absolute reference is designated in the formula by the addition of a dollar sign (\$). It can precede the column reference, the row reference, or both (e.g., \$A2, A\$2, or \$A\$2).

- Directions: Type formula in a cell + fill handle (i.e., blue square on bottom right of selected cell) and drag down to down-fill.

Use "\$" to lock in a column, row, or both (e.g., \$A2, A\$2, or \$A\$2)

Advanced Functions

Concatenate

The concatenate function is a combining function. This is useful when you want to combine last names and first names together or names with student id numbers. With the concatenate function you can combine text strings from multiple columns into one cell. There are multiple ways you can combine text and data with this function. The basic combining feature is described below.

- Directions: Type the following formula in a cell for the combined result
 - = Concatenate (A1, A2, A3)
 - = Concatenate (A1, "@domain.edu")
- For more information about the [concatenate function](https://support.google.com/docs/answer/3094123?hl=en#) see the help center: <https://support.google.com/docs/answer/3094123?hl=en#>
- Examples of Use within MiMTSS TA Center resources
 - Create anonymous unique identifiers
 - Combining to columns of data such as last name and first name

Quartile

Using the quartile function will divide your data set into four roughly equal parts. This will help you see how your data is distributed. Think of the median as splitting your data in half. The quartile will split those halves again. Quartiles are useful in helping you determine if an outcome is an outlier (anomaly) or within the normal distribution. This function is typically used with large data sets.

Directions: Type the following formula in a cell for the value you are looking for in the data set.

- The smallest value = Quartile (range, 0)
- First quartile or 25th percentile = Quartile (range, 1)
- Second quartile or 50th percentile = Quartile (range, 2)
- Third quartile or 75th percentile = Quartile (range, 3)
- The largest value = Quartile (range, 4)
- Examples of Use within MiMTSS TA Center resources
 - Look for outlier data in EWS data such as absences.
 - Find the range of absences between the first and second quartile. This will help to identify outliers.

Vlookup

The VLOOKUP function is very useful when working with a large data set. This function allows you to search when you have known information to find unknown information. The related information must be present in the same row. The function is based on four arguments.

1. The lookup value typically a cell name.
2. The range you would like the lookup to search.
3. The column you would like to search for the unknown data. The columns are numbered 1 through how many you defined in your range. The first column will be your known information by default.
4. Determines where or not you want an exact match or a partial match. Use TRUE for a partial match and FALSE for an exact match.

Here is an example of the formula: = VLOOKUP (H2, B3:E999, 3, FALSE). In this example I will enter what I know into cell H2 the formula will look in the 3rd column of the data array B3 through E999 to find an exact match. What results in your formula cell is the unknown you are looking for. An example of when you would use this function would be to verify a student number against a Last Name.

- Directions: Type the following formula in a cell. This is your result information.
 - =VLOOKUP (cell location, range, index, FALSE)
- For more information about [Vlookup](#) see the help center: <https://support.google.com/docs/answer/3093318?hl=en>
- Examples of Use within MiMTSS
 - The VLOOKUP function will be useful in data integrity. This can help if you have data issues like not knowing a UIC for a student, but you know a last name or vice versa.

Logic Statements (If-Then)

IF is one of the most popular features in Excel. Sometimes in a spreadsheet, something should be done if certain conditions are in place. What is known as an “if” statement can be solved with an “if-then” statement in Excel. The principle is the same: if a value is true, then do something, otherwise do something else.

Examples: If, countif, sumif, and iferror

If Statements

The IF logic statement will help you identify whether a value in a cell is true and what to do based on that cell status. IF statements calculate from left to right.

- Directions: Type the following formula in a cell for the value for which you are trying to test if it meets your criteria.
 - = If (A1>value, TRUE “Met”, FALSE “Not Met”)
- The conditional statements < less than, > greater than, = equal to, <= less than or equal to, >= greater than or equal to, <>, not equal to can be used to test your data set.
- Your formula can also dictate the output of the cell based on the true or false test. Text can be the output as indicated in the example above “Met” or “Not Met” what is in

quotations will be the output of the cell. Another option is a formula that can be applied to the initial data input to change the value.

- SRSS-IE Example
 - = If (isblank (\$J7)," ", sum (\$D7:\$J7))
 - The function is set to sum if there is a value in J7. If J7 is blank, then the cell will be left blank.
 - = If (P7<=3,"Low", if (P7<=8,"Moderate", if (P7<=21,"High","")))
 - The function is set to read the value of P7, then assign the appropriate categorical descriptor based on that value.
- For more information about [If statements](#) see the help center:
<https://support.google.com/docs/answer/3093364?hl=en>

Countif

This is a useful function if you need the count the number of times a text string or data point occurs in your data set. Countif will count on one criterion. If you want to count multiple criteria use the Countifs function instead.

- Directions: Type the following formula in a cell for which you are counting a specific text string or value.
 - =Countif (range, value or "text string")
- Example
 - Countif (A2:A75, <60)
 - Countif (A2:A75, "Passed")
- For more information about [Countif statements](#) see the help center:
<https://support.google.com/docs/answer/3093480?hl=en>

Sumif

This function is a great tool if you want to only sum certain data in your large data set. You will be able to write the formula to sum the data if it meets a certain criterion. If you want to sum from multiple criteria use the Sumifs function which works very similar to Sumif.

- Directions: Type the following formula into the cell you have selected.
 - = sumif (range, criterion_range, criterion)
- Example
 - = sumif (B2:B400, A2:A400, "Lincoln High")
 - This formula will sum all the values in range B2 through B400 that have Lincoln High in column A. The first range in your formula will be the values you want to sum. The criterion range can be a text string or a value.
- For more information about [Sumif statements](#) see the help center:
<https://support.google.com/docs/answer/3238496?hl=en>

Iferror

This formula helps clean up your data. Using this formula, you can tell the sheet what to display instead of the error message or to leave the cell blank.

- Directions: Type the following formula into the cell.
 - = iferror (A1, "check value")

- = iferror (A1)
- In the first example a prompt will appear for you to check your data. In the second example the cell will remain blank.
- For more information about [iferror statements](https://support.google.com/docs/answer/3093304?hl=en) see the help center:
<https://support.google.com/docs/answer/3093304?hl=en>

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