How to Make the Most of Excel Spreadsheets

Analyzing data is often easier when it's in an Excel spreadsheet rather than a PDF—for example, you can filter to view just a particular grade, sort to view which students need the most attention, or hide data that you don’t want to see. And that’s just a start.

This guide will cover these skills and more using the Comprehensive Student Data Roster, one of the most powerful yet potentially daunting reports available at OUSD. Read on to become a pro at Filtering, Sorting, Freezing/Unfreezing, Hiding/Unhiding, Inserting/Deleting, Printing, and, for users eager to do even more analysis, Conditional Formatting and Pivot Tables.

Throughout this guide, we will use the following scenario: A school leader wants to understand Grade 9 attendance better so she can do something to improve attendance. How can she use the CSDR and the power of Excel to make the most of the data?

Begin by downloading the CSDR from your school’s Google Drive. Go to the Protected Student Level Data folder and then the Comprehensive Student Data Roster folder, as shown below:

After you have downloaded the file, open it in Excel. This tutorial is based on MS Excel 2007. It is not suitable for Chromebooks, which have Google Spreadsheets.

1. Filtering

Sometimes you just want to look at a subset of the data in a spreadsheet. In our example, we may want to begin by asking how many and which students in Grade 9 have attendance rates below 90%.

This is known as filtering. Begin by locating the row that labels the columns. In the CSDR, it’s row 4—that’s where you see the column titles like Name, ID, and Grade. Go ahead and select row 4 by clicking on the number 4 all the way on the left.
Once you see that the row has been highlighted, go to the top right corner of the Home tab and click on the Sort & Filter button. When you click on the button, a menu will come up with options. Click on the Filter option.

Take a close look at row 4—you should now see small drop-down buttons with a down arrow in each cell, as shown in this picture:
Let's start by filtering so we only see students in Grade 9. Click on the arrow button on the Grade cell. You'll see a menu come up with some options. Excel shows you all the values that the Grade field contains. Our sample school is a high school, so the numbers 9, 10, 11 and 12 appear. Go ahead and unselect 10, 11 and 12. Doing so will leave you with just Grade 9 students. Click OK.

Review the data. You should see only students in Grade 9. We’re now halfway to our goal of just seeing 9th graders with attendance rates below 90%.

To complete the next step of filtering to just students with attendance rates below 90%, go over to the Attendance Rate column. Click on the arrow button to bring up the sorting and filtering options as before. This time, because attendance rates take on many different values (unlike grades, which only take on a few values), we will select the Number Filters option. Click on that.
Take a look at the options that now appear: you could select students with attendance rates equal or not equal to a number, greater than or less than a number, between two numbers, and more. In our case, we want to select attendance rates less than 90% so click on Less than…

The following window will pop up:

![Custom AutoFilter dialog box](image)

Enter the value 0.9 into the blank space on the top right. Why not 90? Attendance rates are percentages so we have to use a decimal so Excel understands. Now click OK.

![Custom AutoFilter dialog box with value 0.9](image)

At our sample school, there are 31 students in Grade 9 who had attendance rates lower than 90%. An easy way to tell how many students there are without having to count the rows is to look to the bottom left-hand corner of the spreadsheet:
This tells us that out of 2115 students in our school, 31 are 9th graders with attendance rates below 90%.

If we want to unfilter, we just repeat the same steps. You'll know there's a filter on a column because you'll see the following funnel symbol, as on Grade:

Click on the button and select “Clear filter from “Grade”” to remove the 9th grade only filter.
Remember that we still have a filter on Attendance. To remove ALL the filters in a spreadsheet, go to the Sort & Filter button at the top right hand corner, under the Home tab, and select “Clear.”

2. Sorting

Let’s continue with the same example, so practice putting your filters back on.

Though we could look at the 31 students one by one to identify which ones need the most attention, we can find out which ones had the lowest attendance rates by sorting. To sort (also known as ranking or ordering) students according to some rule (for example, largest to smallest or alphabetically), click on the same arrow button we used to filter on the column name you’re interested in.

Since we want to see students with the lowest attendance rates at the top, click on Sort Smallest to Largest.
Once we click on that button, we see that at the top of the list of 31 students is a student with an attendance rate of 68.3%—the lowest attendance rate among all 9th graders.

You'll know if a column is being sorted if you see an arrow symbol on the filter/sort button on that column. In this example, because the Attendance Rate is both sorted and filtered, we see the funnel and the arrow appear.

To remove all sorting, follow the same steps as for removing all filtering. Go to the Sort & Filter button at the top, under the Home tab, and select “Clear.”

3. Freezing Panes

The Comprehensive Student Data Roster has several columns of data. As we scroll right to look at all of the data available on these students, we may lose track of their names and other information we want to be able to see next to other data.

For example, let’s say we want to look at academic outcomes (found all the way on the right of the spreadsheet) for our 31 9th grade students with attendance rates below 90%, but we want to be able to see their names on the left-hand side. As we scroll down the list, we also want to continue to see the names of the columns. Without freezing panes, we might end up viewing something like this:
How do we know which rows correspond to which students or what the columns are? To fix this, we will freeze the column names and student names so they stay put even when we scroll down or right.

Begin by selecting the first cell **to the right and below** the column and row you want to freeze.

In this case, we want to freeze everything to the left of the Student ID and above the first row of data, so we click on the cell that meets that criteria—the first row with a student ID in it.
Now go to the toolbar in Excel and click on the View tab. This tab gives you options for viewing the data in different ways. Click on the Freeze Panes button.

You’ll see the following menu come up:

Click on Freeze Panes—this will keep the rows and columns visible while the rest of the worksheet scrolls based on which cell you selected. Compare the spreadsheet to how it looked before—even though we are scrolled to the right and to the bottom, the first four rows and first five columns stay put—because we froze them.
To unfreeze, repeat the same steps. After clicking on the “Freeze Panes” button, you will now see “Unfreeze Panes” where it once said “Freeze Panes.” Select that option.

4. Hiding Columns (or Rows)

Even though we have freezed the students' names, we are still seeing more columns than we wish to see. For example, we are not interested in seeing our Grade 9 chronically absent students’ PFT results for now. We want to focus on just a couple of key academic outcomes to understand how these students are doing in school and the PFT results are cluttering the spreadsheet!

To hide (rather than delete) these columns, begin by selecting all the columns you wish to hide. Click and drag across the column letter names to highlight several columns at once.
While the columns are still highlighted, right click anywhere on the highlighted area. You will see some options come up:

You could select Delete, but we may want to look at the PFT data later. Instead click Hide. You should no longer see the columns you selected.

If you come back to the spreadsheet later, you will notice that some columns are hidden because there will be a gap in the letter sequence of the columns. For example, notice below that the columns skip from DA to DH, meaning columns DB-DG are hidden.

To bring up that data again, right click on the space between the two columns, or highlight a few columns around the hidden area. In this example, I highlight columns DA and DH and then right click. The same menu comes up, but now with a new Unhide option. Click on Unhide.
5. Inserting and Deleting

To insert or delete a column or row, follow the same steps as for hiding and unhiding. Right click on where you want to add the column or row (right click on the area that names the columns with letters and the rows with numbers) to bring up the menu shown above. Now click on Insert. A new empty row will come up. To delete, highlight the column(s) or row(s), right click, and click Delete.

Note that you are now altering the spreadsheet. You may want to save a new version!

6. Printing

Printing in Excel is not that intuitive—especially if you want the printout to look a certain way. Let’s say you have now modified the spreadsheet so it only includes the key data points you want to focus on—you have hidden all the rest. You also have your filters on Grade and Attendance Rate turned on and you have sorted by Attendance Rate. You’re ready to share this with students' teachers so you can discuss these students with them, but when you click Print the output looks messy.

The Page Layout tab will help you make sure the table prints just as you’d like.

![Page Layout Tab](image)

Begin by telling Excel which part of the spreadsheet you’d like to print by highlighting everything you want printed and clicking on Print Area and then Set Print Area. Excel may think that even empty rows and columns need to be printed, so don't skip this step even if you want all of your data to print.
Excel now knows not to bother printing anything else. Now let’s tell Excel that we want all of the columns to fit in the width of one page. Still in the Page Layout tab, click on the dropdown menu next to Width—this tells Excel how many pages wide you want. Click on 1 page.
We don't want the data to look too small, so we're ok with the rows fitting on as many pages as Excel thinks is best given the Width we selected, so we'll leave Height on "Automatic."

![Page Setup](image)

However, it's important than on every page we be able to see the column names. Otherwise after page 1 we won't know which column is which. We also want to make sure we print Landscape, to make the most of the space on the paper. Click on Print Titles to change these options.

![Print Titles](image)

You'll see this window pop up:

![Page Setup](image)

We've already set the Print area, but we want the rows with the names of the columns to repeat on each page. Click on the button next to “Rows to repeat at top” and highlight the rows you want repeated.
It’ll look like this:

When you’re done, press Enter. You’ll return to the Page Setup window.

We also want to make sure we print in Landscape, so click on the Page tab and select landscape.
If you know where you want to break up the pages, rather than leaving it to Excel, you can highlight a row and click on the Breaks button in the Page Setup tab. Excel will start a new page at that row.

![Page Setup breaks](image)

There are other ways to tweak printouts, but these are the basics. Don’t be afraid to try different things—you can click on Print Preview before actually printing to see how it’s going to look!

7. **Conditional Formatting**

The next two steps are not essential to exploring data in Excel—but they can come in very handy at times. With conditional formatting, it’s all about visualizing data at a glance through colors instead of reading the data one by one.

To continue with the same example, say we’re still looking at the 31 students in Grade 9 who are chronically absent. Is this a pattern or are these students just having a bad year? An easy way to look at students’ attendance patterns over three years is to use conditional formatting. We’ll make any year below 90% turn red.

Begin by highlighting the cells you want to format (three years of attendance rates). Now click on the Conditional Formatting button in the Home tab.

![Conditional Formatting](image)
Different options will come up. A good place to start is clicking on Highlight Cell Rules. From the options available, we will select Less Than because we want all attendance rates less than 90% to turn red.

The following window will pop up. Type in 0.9 and select the Light Red Fill with Dark Red Text option. Other options are available or you can select a Custom Format if you like. Notice that already we see the cells being formatted.

Once we take a look at the whole spreadsheet, it's clear right away that most students do not have a sustained pattern of chronic absence—in fact, most had high attendance rates the previous year! Rather than reading through each cell, we can detect a pattern and pinpoint the students for whom chronic absence has been a consistent problem over time.

There are many other ways to use conditional formatting. Next time you ask a question of the data, think about whether color coding could help.
8. Pivot Tables

“PivotTable” isn’t a very intuitive name for one of Excel’s most powerful tools for data analysis. A pivot table refers to the fact that we can pivot data to make tables that summarize the data in more meaningful ways, for example by summing, counting, or averaging data and looking at multiple data fields together.

The CSDR is a spreadsheet at the student level—it has a row per student. To better understand what 9th graders who are chronically absent look like, we may wish to build a pivot table that shows some key student characteristics against attendance categories.

Let’s begin with the original CSDR. Pivot tables work best when the top row has column names, so we will delete all the extra rows at the top of the document that we don’t need, until we are left with this as the top row:

Now click on the Insert tab and click on the PivotTable button all the way on the left.

Select PivotTable:
The following window will pop up:

If nothing appears in Table/Range, highlight the data you want to analyze and press Enter (however, if you made sure the top row has just field names, the Table/Range should automatically appear). Click OK.

You'll now be taken to a new sheet with a menu bar on the right. This is where you will build your PivotTable.
Earlier we said we wanted to understand Grade 9 attendance better. Let’s start by looking at the ethnicity of students and their attendance category. Perhaps we want to know how many students fall into each category in Grade 9. This is what the final product will look like:

<table>
<thead>
<tr>
<th>Count of ID</th>
<th>Column Labels</th>
<th>Row Labels</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This table tells us a lot. For example, we see we have 31 students under Moderate Chronic Absent, and almost half (14) are African American. Similarly, almost half of the 52 students at risk of becoming chronically absent are African American.

To build this table, use the PivotTable menu bar on the right. At the top of the menu bar you will see all of the columns in our source data appear. At the bottom you will see 4 options: Report Filter, Column Labels, Row Labels, and Values.

In our example, we want Grade as the Report Filter since we’re still only interested in Grade 9 attendance. The column headers are Ethnicity and the row headers are Attendance Rate Category. Let’s start by dragging and dropping these field names into the appropriate boxes:
You’ll now see an empty table:

The structure of the table is exactly what we want, so we should now select the values that will go into the cells. For now, we want to know how many students fall into each category. This is a count of students, so let’s drag Name or ID (anything that identifies each student in the data) into the Values box. Excel automatically turns it into “Sum of ID,” though we obviously don’t want to add up students’ ID numbers!

To fix this, click on the dropdown arrow next to Sum of ID and click on Value Field Settings.
The following window will pop up, giving you the option to produce the sum, count, average and more of student IDs. Select Count and click OK.

We’re almost there—to make sure we’re only looking at Grade 9 students only, go back to the table that appears. The Grade filter has been placed at the top. Click on the dropdown button next to Grade and select 9. Click OK.

You can drag and drop as many field names as you want—perhaps you want to add Gender. Simply drag and drop the Gender field name into Column Labels. Perhaps you want to look at attendance rates by teacher—drag teacher name into the pivot table menu instead. Answering a multitude of questions is as easy as dragging and dropping. If something doesn’t look right, try switching the column and row labels and make sure the Values option is the right one.

**Still not sure how to make the most of your Excel data?**

Contact us through ousddata.org/requests