Scaling Systems Spreadsheet

How To Use

1. Enter grades:
   - Enter each student's name, period, and their raw score in columns B, C & D.
   - If the student did not make a "fair attempt" to do well on the test (*e.g.,* handed it in blank or mostly blank without trying), change column F ("Fair Attempt?") to FALSE. This removes their score from the statistics used to determine the scaling.
   - If the student cheated, enter "Z" for points. This reminds you that it was a zero for cheating, not a zero because the student simply did not earn any points. It also sets "Fair Attempt"?" to FALSE.

2. Look at the statistics and choose a scaling method. Type the column for that scaling method in cell A12. This will set the values in column F to the scaled score from your scaling method of choice.

3. The Conversion Charts tab lists the translations from raw scores to scaled scores, in case that is useful.

The scaling methods in this spreadsheet are:

Raw %: This method calculates a strict percentage, with no scaling.

Linear Ave. = xx: This method allows you to set the desired class average. The spreadsheet gives back a percentage of points missed. This is useful if you have a few high grades and want kids who missed more questions to get a larger number of points back. (This is the method I use most often.)

Std. Dev. = 10 pts.: This method allows you to set the desired class average and fits grades to a normal distribution (bell curve) with a standard deviation of 10 points (one letter grade). This is the method that many college professors use.

Linear Max = 100: This is the classic "add the same number of points to everyone's score so that the maximum grade is 100" method.

10√(x): This is a popular scaling formula, especially with AP® Chemistry and AP® Physics teachers.

***mx* + *b*:** This method takes a fraction of the raw score and adds a fixed offset.

Based on typical AP® Physics and AP® Chemistry exam scores, setting m = 50% and b = 50 points results in scaled grade that is close to 90−100 for a 5 on the AP exam, an 80−90 for a 4, a 70−80 for a 3, a 60−70 for a 2, and 50−60 for a 1.

Based on the NY Regents exams, setting m = 80% and b = 20 gives fairly good agreement with the Physics exam, and m = 70% and b = 30 gives fairly good agreement with the Biology exam.

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The parameters, which are entered in column A in the top left section of the "**Grades**" tab, are:

Total points: the maximum number of points as initially graded (maximum raw score)

Desired mean (%): what you want class average to be (affects the **Linear Ave. = xx** and **Std. Dev. = 10 pts.** scales)

***mx* + *b* percentage:** the percentage (*m*) of the raw score in the formula *mx* + *b*

***mx* + *b* offset:** the number of points to add (*b*) in the formula *mx* + *b*

min is raw score? if TRUE, any scaled score that would otherwise be lower than the raw percentage will be changed to the raw percentage. If FALSE, the scaled score is not raised, even if it is lower than the raw percentage.

max is 100? if TRUE, any scaled score that comes out above 100 is reduced to 100. If FALSE, the scaled score is not lowered, even if it is greater than 100.

Column for scaling method: chooses which column is used for scaling.

Grade Cutoff: the minimum score (percentage) for each letter grade. This is used in calculating the grade distribution tables and pie charts.

Once you have entered the parameters, just enter each student's name and raw score.

I always look at the grade distributions and choose based on whichever method gives me the distribution that I think is most appropriate given the difficulty of the test and how well I think my students should have been able to do.

I find that I most often use **Linear Ave. = xx**, followed by **Std. Dev. = 10 pts.**, and then **mx + b**.

Once I've entered the students' grades, I print the "**Conversion Tables**" sheet, which gives me a lookup table that translates from raw scores to final grades.