

Data Analysis Tips and Tricks

2018 Colorado Charter Schools Conference

Presented by Aislinn Walsh, CSI School Performance Analyst

Presentation Outline

- Looking at state files in Microsoft Excel
- Applying a filter
- Navigating filters/columns
- Finding counts and averages
- Entering formulas
- Using a VLookup formula to add in additional student information
- Using Pivot Tables to summarize data

Mirror my Screen

Please open the Excel file called "Sample State Data File for Data Analysis Presentation".

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	StateAbbr	TestingDist	TestingScore	Responsibility	Responsibility	StateStudentID	LocalStudentID	PARCCStudentID	LastOrSurname	FirstName	MiddleName	Birthdate	Sex	StateFile	GradeLevel	Hispanic	American	Asian	BlackOrAfricanAmerican	NativeHawaiian	White	FillerField	TwoOrMore
2	CO	8001	1111	8001	1111	1822639544	1822639544	73824573348	Curtis	Melissa	Dean	#####	F	#####	6 Y	N	N	N	N	N	Y		N
3	CO	8001	1111	8001	1111	4157934291	4157934291	47492744233	Hubbard	Paityn	Izabella	#####	F	#####	6 Y	N	N	N	N	N	Y		N
4	CO	8001	1111	8001	1111	4358130590	4358130590	94176300142	Garrison	Chana	Cullen	#####	M	#####	7 N	N	N	N	N	N	Y		N
5	CO	8001	1111	8001	1111	3495783982	3495783982	78561300773	Mcdaniel	Christoph	Justine	#####	F	#####	8 N	N	N	N	N	N	Y		N
6	CO	8001	1111	8001	1111	8501653286	8501653286	26620881035	Duarte	Brooks	Eileen	#####	F	#####	8 Y	N	N	N	N	N	Y		N
7	CO	8001	1111	8001	1111	7456651708	7456651708	61544659958	Harmon	Nola	Elizabeth	#####	F	#####	8 N	N	N	N	N	N	Y		N
8	CO	8001	1111	8001	1111	6902991457	6902991457	14832086229	Curry	Seth	Remingto	#####	M	#####	8 N	N	N	N	N	N	Y		N
9	CO	8001	1111	8001	1111	6146902072	6146902072	48810992891	Chung	Manuel		#####	M	#####	8 N	N	N	N	N	N	Y		N
10	CO	8001	1111	8001	1111	4447229261	4447229261	5868044080	Lane	Harrison	Carson	#####	M	#####	8 N	N	N	N	N	N	Y		N
11	CO	8001	1111	8001	1111	1823088299	1823088299	42051036052	Griffith	Casey	Terry	#####	M	#####	8 Y	N	N	N	N	N	Y		N
12	CO	8001	1111	8001	1111	3903407833	3903407833	30429851159	Bradley	Beckett	Jaycee	#####	F	#####	8 N	N	N	N	Y	N	N		N
13	CO	8001	1111	8001	1111	7746790482	7746790482	10716853359	Matthews	Kiara	Danny	#####	F	#####	8 N	N	N	N	Y	N	N		N
14	CO	8001	1111	8001	1111	5344705626	5344705626	25095908154	Golden	Aryana	Lizeth	#####	M	#####	8 N	N	N	N	N	N	Y		N
15	CO	8001	1111	8001	1111	6765872319	6765872319	66979824561	Velez	Marco	Deacon	#####	F	#####	8 N	N	N	N	N	N	Y		N
16	CO	8001	1111	8001	1111	2160453641	2160453641	30877852966	Hanna	Craig	Lena	#####	M	#####	8 N	N	N	N	N	N	Y		N
17	CO	8001	1111	8001	1111	6033616137	6033616137	10816343747	Dawson	Morgan	Quentin	#####	M	#####	8 N	N	N	N	Y	N	N		N
18	CO	8001	1111	8001	1111	3057586641	3057586641	93453370169	Sharp	Pamela	Belinda	#####	M	#####	8 N	N	N	N	Y	N	N		N
19	CO	8001	1111	8001	1111	2955683848	2955683848	24953750159	Stein	Aylin	Luz	#####	F	#####	8 Y	N	N	N	N	N	Y		N
20	CO	8001	1111	8001	1111	1323506732	1323506732	95683332535	Mccoy	Marlee	Celia	#####	M	#####	8 N	N	N	N	N	Y	N		N
21	CO	8001	1111	8001	1111	9490645086	9490645086	86951393476	Bullock	Rebecca	Asa	#####	M	#####	3 N	N	N	N	Y	N	N		N
22	CO	8001	1111	8001	1111	9622258400	9622258400	33180769899	Hahn	Edward	Layton	#####	F	#####	3 N	N	N	N	Y	N	N		N
23	CO	8001	1111	8001	1111	8437636651	8437636651	15050272281	Miller	Caiden	Makena	#####	F	#####	3 N	N	N	N	N	N	Y		N
24	CO	8001	1111	8001	1111	4912117130	4912117130	65365123751	Moody	Averi	Journey	#####	M	#####	3 N	N	N	N	N	Y	N		N
25	CO	8001	1111	8001	1111	4466107575	4466107575	20887473261	Shepherd	Alyson	Myla	#####	F	#####	3 Y	N	N	N	N	N	Y		N
26	CO	8001	1111	8001	1111	5075914127	5075914127	41169839534	Johns	Marlon	Micah	#####	F	#####	3 Y	N	N	N	N	N	Y		N
27	CO	8001	1111	8001	1111	9151702940	9151702940	3033902792	Yu	Davian		#####	F	#####	3 Y	N	N	N	N	N	Y		N
28	CO	8001	1111	8001	1111	1559380003	1559380003	48078144738	Le	Nicolas		#####	M	#####	3 N	N	N	N	N	N	Y		N
29	CO	8001	1111	8001	1111	8751965046	8751965046	54024159844	Hansen	Iliana	Brayan	#####	M	#####	3 Y	N	N	N	N	N	Y		N
30	CO	8001	1111	8001	1111	1934998406	1934998406	24999506755	Harris	Lennon	Kimberly	#####	F	#####	3 N	N	N	N	N	N	Y		N
31	CO	8001	1111	8001	1111	3299058843	3299058843	28949116902	Chan	Ronan	Hope	#####	M	#####	3 Y	N	N	N	N	N	Y		N
32	CO	8001	1111	8001	1111	7946659306	7946659306	23684521774	Barnett	Triston	Sasha	#####	F	#####	3 N	N	N	N	N	N	Y		N
33	CO	8001	1111	8001	1111	3947968853	3947968853	35848569297	Murillo	Tate	Damaris	#####	F	#####	3 N	N	N	N	N	N	Y		N
34	CO	8001	1111	8001	1111	9168384470	9168384470	3014857789	Phelps	Shania	Damian	#####	F	#####	3 N	N	N	N	N	N	Y		N
35	CO	8001	1111	8001	1111	6842132048	6842132048	50551910126	Vance	Peyton	Jaqueline	#####	M	#####	3 N	N	N	N	N	N	Y		N
36	CO	8001	1111	8001	1111	5688849565	5688849565	6831837088	Rich	Dario	Abdullah	#####	F	#####	3 N	N	N	N	N	N	Y		N
37	CO	8001	1111	8001	1111	8212718049	8212718049	69398393105	Dixon	Daphne	Isabel	#####	F	#####	3 Y	N	N	N	Y	N	N		N
38	CO	8001	1111	8001	1111	1016788569	1016788569	96530394855	Leonard	Joe	Jeffery	#####	M	#####	3 N	N	N	N	Y	N	N		N
39	CO	8001	1111	8001	1111	7635256922	7635256922	16337147445	Hughes	Kamari	Mike	#####	F	#####	3 Y	N	N	N	N	N	Y		N

Tabs, Columns, & Rows

Excel Vocab Review

- **Tabs:** Different windows in an Excel file
- **Columns:** Always letters of the alphabet
- **Rows:** Always a number

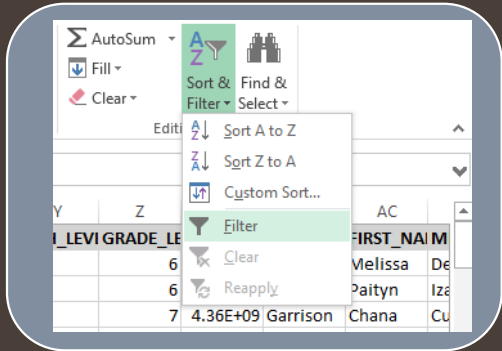
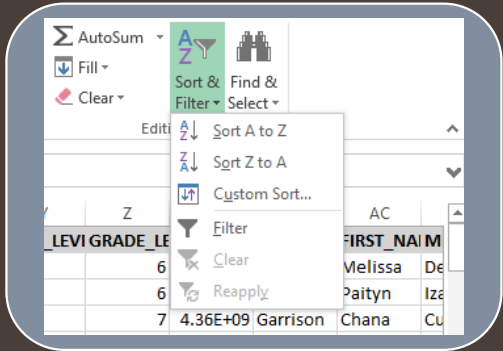
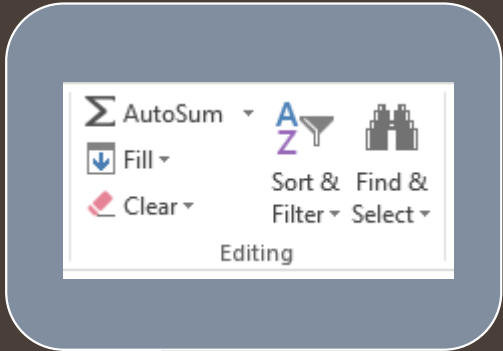
What are we using today?

- **Tabs:**
 - CMAS Growth
 - CMAS Results
 - NWEA Results
 - VLookup Example
 - Teacher Names
 - Pivot Example
- “Cell A1” = Column A, Row 1

Scenario #1

I am a School Leader. I'm interested in a certain population of students in my school. How can I quickly see how they've performed?

Applying & Navigating Filters



Scenario #2

I've seen how students performed on CMAS, now I want to compare that to their interim performance. How can I pull in percentile ranks from their NWEA MAP data?

Using VLookup

As long as you have a matching value in two different files, you can pull anything you want from one file to another using VLookup.

The screenshot shows an Excel spreadsheet with the following data:

StateStudentIdentifier	CO Percentile Rank	NWEA Percentile Rank
1822639544	83	=VLOOKUP(A2,NWEA R
4157934291	89	
4358130590	87	
3495783982	59	
8501653286	26	
7456651708	62	
6902991457	43	
6146902072	43	
4447229261	13	
1823088299	33	
3903407833	19	
7746790482	11	
5344705626	66	
6765872319	7	
2160453641	35	
6033616137	45	
3057586641	23	
2955683848	45	
1323506732	8	
9490645086	90	
9622258400	82	
8437636651	55	
4912117130	11	
4466107575	45	
5075914127	87	
9151702940	93	
1559380003	69	
8751965046	59	
1934998406	74	
3299058843	45	

The formula bar shows the formula: `=VLOOKUP(A2,NWEA Results!G:AA,21,FALSE)`

Why SASIDs?

- Always consistent, always unique

Why Percentile Rank?

- Comparison value available with NWEA

Where do I begin?

- Cell C3
- Type “=VLOOKUP(“ into the cell

Scenario #3

I want to look at student level results by teacher.

Using VLookup Part 2

VLookup lets me pull values from other files. I can use it here.

Sample State Data File for Data Analysis Presentation.xlsx - Excel

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW DEVELOPER OFFCAT POWERPIVOT

Clipboard Font Alignment Number Styles

AB1 LAST_NAME

	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF		
1	SUBJECT	TEST_NAN	TEST_REC	VENDOR	TEST_COD	INCLUDED	EXCLUDEE	EXCLUDEE	EXCLUDEE	EXCLUDEE	EXCLUDEE	EXCLUDEE	EXCLUDEE	EXCLUDEE	EXCLUDEE	EMH_LEVI	GRADE	LE	SASID	LAS			GENDER	ETHNICIT	
2	MATH	PARCC	2017	1	MAT06	Y	N	N	N	N	N	N	N	N	N	N	N	N	6	1.82E+09	Cur		F	04	
3	MATH	PARCC	2017	2	MAT06	Y	N	N	N	N	N	N	N	N	N	N	N	N	6	4.16E+09	Hul		F	04	
4	MATH	PARCC	2017	3	MAT07	Y	N	N	N	N	N	N	N	N	N	N	N	N	7	4.36E+09	Gar		M	05	
5	MATH	PARCC	2017	4	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	3.5E+09	Mcc		F	05	
6	MATH	PARCC	2017	5	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	8.5E+09	Dua		F	04	
7	MATH	PARCC	2017	6	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	7.46E+09	H		F	05	
8	MATH	PARCC	2017	7	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	6.8E+09	St		M	05	
9	MATH	PARCC	2017	8	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	6.15E+09	Chu		M	05	
10	MATH	PARCC	2017	9	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	4.45E+09	Lan		M	05	
11	MATH	PARCC	2017	10	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	1.82E+09	Grif		M	04	
12	MATH	PARCC	2017	11	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	3.9E+09	Bra		F	03	
13	MATH	PARCC	2017	12	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	7.75E+09	Mat		F	03	
14	MATH	PARCC	2017	13	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	5.34E+09	Gol		M	05	
15	MATH	PARCC	2017	14	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	6.77E+09	Vel		n	F	05
16	MATH	PARCC	2017	15	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	2.16E+09	Hanna	Craig	Lena	M	05
17	MATH	PARCC	2017	16	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	6.03E+09	Dawson	Morgan	Quentin	M	03
18	MATH	PARCC	2017	17	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	3.06E+09	Sharp	Pamela	Belinda	M	03
19	MATH	PARCC	2017	18	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	2.96E+09	Stein	Aylin	Luz	F	04
20	MATH	PARCC	2017	19	MAT08	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	1.32E+09	Mccoy	Marlee	Celia	M	06
21	MATH	PARCC	2017	20	MAT03	Y	N	N	N	N	N	N	N	N	N	N	N	N	8	9.49E+09	Bullock	Rebecca	Asa	M	03
22	MATH	PARCC	2017	21	MAT03	Y	N	N	N	N	N	N	N	N	N	N	N	N	3	9.62E+09	Hahn	Edward	Layton	F	03
23	MATH	PARCC	2017	22	MAT03	Y	N	N	N	N	N	N	N	N	N	N	N	N	3	8.44E+09	Miller	Caiden	Makena	F	05
24	MATH	PARCC	2017	23	MAT03	Y	N	N	N	N	N	N	N	N	N	N	N	N	3	4.91E+09	Moody	Averi	Journey	M	06
25	MATH	PARCC	2017	24	MAT03	Y	N	N	N	N	N	N	N	N	N	N	N	N	3	4.47E+09	Shepherd	Alyson	Myla	F	04
26	MATH	PARCC	2017	25	MAT03	Y	Y	N	N	N	N	N	N	N	N	N	N	N	3	5.08E+09	Johns	Marlon	Micah	F	04
27	MATH	PARCC	2017	26	MAT03	Y	Y	N	N	N	N	N	N	N	N	N	N	N	3	9.15E+09	Yu	Davian		F	04
28	MATH	PARCC	2017	27	MAT03	Y	Y	N	N	N	N	N	N	N	N	N	N	N	3	1.56E+09	Le	Nicolas		M	05
29	MATH	PARCC	2017	28	MAT03	Y	Y	N	N	N	N	N	N	N	N	N	N	N	3	8.75E+09	Hansen	Iliana	Brayan	M	04
30	MATH	PARCC	2017	29	MAT03	Y	Y	N	N	N	N	N	N	N	N	N	N	N	3	1.93E+09	Harris	Lennon	Kimberly	F	05
31	MATH	PARCC	2017	30	MAT03	N	Y	N	N	N	N	N	N	N	N	N	N	N	3	3.3E+09	Chan	Ronan	Hope	M	04

CMAS Growth CMAS Results NWEA Results Vlookup Example Teacher Names Pivot Example

Scenario #4

I want to display some of the information I learned. What can I do?

Sample Pivot Table/Pivot Chart/Slicers

Row Labels | Mean Scale Score

Third Grade	749
Fourth Grade	752
Fifth Grade	744
Sixth Grade	748
Seventh Grade	762
Eighth Grade	752
ALL STUDENTS	749

CMAS Mean Scale Score

Grade	Mean Scale Score
Third Grade	749
Fourth Grade	752
Fifth Grade	744
Sixth Grade	748
Seventh Grade	762
Eighth Grade	752

Academic Achievement: Mean Scale Score by Percentile Cut-Points
 The Academic Achievement Indicator reflects achievement as measured by the mean scale score on Colorado's standardized assessments. The presented targets for the Achievement Indicators have been established utilizing baseline year data.*

Percentile	English Language Arts & EBRW for CO PSAT				Mathematics				Science		
	Elem	Middle	CMAS g9	PSAT g10	Elem	Middle	CMAS g9	PSAT g10	Elem	Middle	High
15th percentile	722.3	724.1	724.6	433.3	719.1	716.5	717.3	426.3	531.9	527.7	564.4
50th percentile	739.5	740.1	739.6	475.2	734.3	731.2	729.8	458.9	601.7	591.4	609.2
85th percentile	755.9	757.3	753.3	518.8	751.9	746.2	746.0	504.6	655.9	643.3	651.3

Using Pivot Tables

Pivot Tables are easy ways to create data dashboards.

- **Pivot Table:** Takes a larger data file and compresses it into a table, using filters much like we did earlier.
- **Pivot Chart:** Can only be built from a Pivot Table, will change data automatically based on the results of the Pivot Table.
- **Slicers:** Can only be built from a Pivot Table/Pivot Chart, functions a lot like filters.

Finding Comparison Data

- CDE Resources (some examples):
 - [Schoolview Data Center](#)
 - [School/District Dashboard](#)
 - [Education Statistics \(Excel Flatfiles\)](#)