

Session Description: Learn how to automate the creation of interactive data visualizations using Microsoft Excel to make it easier to access data to help inform important decisions at your school or district. This is a "How to" example of test data analysis using Aeries's query results and Microsoft Excel. We will cover how to collect, join, format, display and refresh data using MS Excel's Get Data, Power Query Editor, Pivot Tables, Pivot Charts and Slicers.

- **1. Export query results from Aeries into Microsoft Excel** Automate using Get Data
- **2. Use Power Query to join and format the data.** *Pivot Columns to create one row per student Merge multiple queries*
- **3. Use MS Excel to Analyze Data** *PivotTables PivotCharts Slicers*

Step 1: Export query results from Aeries into MS Excel

This example will use two queries from Aeries. Follow the steps below to run each query and save to MS Excel.

Login to Aeries > navigate to the Query Screen

Copy **Query 1** and paste directly into the Query screen.

Query 1 - Student Demographic

LIST STU LOC STU.SC LOC.NM STU.GR STU.ID STU.NM STU.SX STU.LF? STU.HL? STU.ETH? STU.RC1?

Be sure to check Include Inactive Students

After pasting the query text into Aeries Query, run your Query in Aeries by **Clicking** on the **Excel** Button.



When the query results are ready to be viewed, you will see the dialog box below.

Click on the **View Report** Button to open results using MS Excel. When prompted to open the file **Click** the **Open** Button.



After opening MS Excel workbook, **Click** on the **Enable Editing** Button at the top. (In Yellow)

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1	Schoo	School r	name		Grade	Student ID	Student Name	Sex	Description_STU_LF	Description_STU_SP	Description_STU_HL	Description_STU_ETH
2	990	Golden E	agle Elementary Scho	loc	6	99000001	Aadasian, Robert	M	English Only	Regular Program	English	No, not Hispanic or Latino
3	990	Golden E	agle Elementary Scho	loc	1	99000002	Aadasian, Ruben	M	English Only	SDC	English	No, not Hispanic or Latino
4	992	2 Hawk Ele	mentary - Elem Sche	duling	6	99200002	Aadasian, Saul	M	Redesignated	Regular Program	Filipino (Tagalog)	No, not Hispanic or Latino
5	992	2 Hawk Ele	mentary - Elem Sche	duling	1	99200001	Aadasian, Thomas	s M	English Only	SDC	English	No, not Hispanic or Latino
6	993	Bald Eagl	le Intermediate Schoo	bl	6	99300001	Abbott, Alan	M		Regular Program		No, not Hispanic or Latino
7	894	Flex Soar	ing Eagle High Schoo	ol with ATT	12	89400001	Abbott, Alex	M	English Learner	Regular Program	Spanish	No, not Hispanic or Latino
8	993	Bald Eagl	le Intermediate Schoo	bl	8	99300002	Abbott, Alice	F		Regular Program		Yes, Hispanic or Latino
9	994	Screamin	ig Eagle High School		12	99400001	Abbott, Allan	M	English Learner	Regular Program	Spanish	No, not Hispanic or Latino
10	995	Aeries Co	ontinuation School		11	99500001	Abbott, Allan	M	English Only	Regular Program	English	No, not Hispanic or Latino
11	884	Mountain	Eagle High School SI	EC STF	12	88400001	Abbott, Andrew	M	English Learner	Regular Program	Spanish	No, not Hispanic or Latino
12	884	Mountain	Eagle High School SI	EC STF	12	88401949	Abbott, Davon	M	English Only	Regular Program	English	No, not Hispanic or Latino
13	894	Flex Soar	ing Eagle High Schoo	I with ATT	12	89400637	Abbott, Dominique	F	English Only	Regular Program	English	No, not Hispanic or Latino
14	894	Flex Soar	ing Eagle High Schoo	ol with ATT	12	89400356	Abbott, Israel	M	English Only	Regular Program	English	Yes, Hispanic or Latino
15	894	Flex Soar	ing Eagle High Schoo	I with ATT	9	89400416	Abbott, Quincy	M	English Only	Regular Program	English	No, not Hispanic or Latino

Click on **File** > **Save As** > (Choose desired location) & name the file **Demographics.** Click **Save** & close the workbook.

Query 2 - SBAC query for a specific school year

LIST STU TST CST CSN CTL STU.ID TST.ID TST.TA TST.GR CTL.NM ((IIF (TST.PL = 1, "1 - NOT MET", IIF (TST.PL = 2, "2 - NEARLY MET", IIF (TST.PL = 3, "3 - MET", IIF (TST.PL = 4, "4 - ABOVE", "No Test Data"))))) IF (TST.ID = SBAC AND (TST.TA = "**SPRG22**"))

*Note if you get an error you may need to remove a space at the end of a line & then click the spacebar after the end of the query as cut/paste may insert a space.

This Nested IIF statement query will convert Proficiency Levels 1,2,3,4 to the phrases, 1 - NOT MET, 2 - NEARLY MET, 3 - MET, 4 – ABOVE, and "No Test Data" to indicate that there is no value for the test for both ELA and Math Proficiency Levels.

A	В	C	D	E	F
Student ID	TESTID	Test Admin	Grade	Test Title	PerformLvI = 4, '4 - ABOVE', 'No Test Data')))
99000001	SBAC	SPRG22	50	English Lang Arts /Liter	2 - NEARLY MET
99000001	SBAC	SPRG22	50	Mathematics	1 - NOT MET
99200002	SBAC	SPRG22	50	English Lang Arts /Liter	3 - MET
99200002	SBAC	SPRG22	50	Mathematics	2 - NEARLY MET
99300001	SBAC	SPRG22	50	English Lang Arts /Liter	3 - MET
99300001	SBAC	SPRG22	50	Mathematics	2 - NEARLY MET
89400001	SBAC	SPRG22	110	English Lang Arts /Liter	3 - MET
89400001	SBAC	SPRG22	110	Mathematics	1 - NOT MET
99300002	SBAC	SPRG22	70	English Lang Arts /Liter	4 - ABOVE
99300002	SBAC	SPRG22	70	Mathematics	3 - MFT

Save the query results as a MS Excel spreadsheet with the name **SBAC**. Close this workbook.

Use Microsoft Excel Get Data

Open a new blank Excel workbook & save this workbook as SBAC Analysis.

If you haven't already, close the workbooks you created from the 2 queries above.

The next steps will create a connection to the 2 workbooks we saved containing our query data from Aeries. Using this **Get Data** feature in MS Excel will enable us to automate the refresh of our data & to utilize the **Power Query Editor** to join and format our data.

In MS Excel, click on the top menu item **Data** > **Get Data** Choose **From File** > **From Excel Workbook**



Navigate to the location where you saved the 2 query workbooks.

Select the **Demographics.xlsx** file and click the **Import** button. *Note:* you are only able to Import 1 file at a time.

From the **Navigator** window, select the Demograpics Sheet1 workbook. The data will then appear to the right. Click on the **Load** button

	Q	Sheet1				
Select multiple items		School	School name	Grade	Student ID	Student
Display Options *	De	990	Golden Eagle Elementary School	6	99000001	Aadasi
Domonrophics1 yes [1]		990	Golden Eagle Elementary School	1	99000002	Aadasi
Demographics LXISX [1]		992	Hawk Elementary - Elem Scheduling	6	99200002	Aadasi
Sheet1		992	Hawk Elementary - Elem Scheduling	1	99200001	Aadasi
		993	Bald Eagle Intermediate School	6	99300001	Abbott
		894	Flex Soaring Eagle High School	12	89400001	Abbott
		993	Bald Eagle Intermediate School	8	99300002	Abbott
		995	Aeries Continuation School	11	99500001	Abbott
		994	Screaming Eagle High School	12	99400001	Abbott
		884	Mountain Eagle High School SEC STF	12	88400001	Abbott
		884	Mountain Eagle High School SEC STF	12	88401949	Abbott
		894	Flex Soaring Eagle High School	12	89400637	Abbott
		894	Flex Soaring Eagle High School	8	89401706	Abbott
		894	Flex Soaring Eagle High School	12	89400356	Abbott
		894	Flex Soaring Eagle High School	8	89400151	Abbott
		894	Flex Soaring Eagle High School	9	89400416	Abbott
		894	Flex Soaring Eagle High School	8	89402488	Abbott
		884	Mountain Eagle High School SEC STF	9	88401782	Abbott
		994	Screaming Eagle High School	9	99400002	Abdelr
		993	Bald Eagle Intermediate School	8	99300003	Abdels
		994	Screaming Eagle High School	9	99400003	Abdo, i
		994	Screaming Eagle High School	10	99400004	Abdo,
		994	Screaming Eagle High School	12	99400005	Abea, /
		<				>

The data has now been loaded into MS Excel as a **Table.** Rename the table **Demographics** on the right side under Queries & Connections.

								Queries & Connections
								Queries Connections
School 🔽 School name	Grade 💌	Student ID 🔽 Student Name	💌 Sex 💌	Description_ST	U_LF 🔽 Description_STU_HL	Description_STU_ETH	- Descri	
990 Golden Eagle Elementary School	6	99000001 Aadasian, Robert	М	English Only	English	No, not Hispanic or Latino	Tahitia	2 queries
990 Golden Eagle Elementary School	1	99000002 Aadasian, Ruben	M	English Only	English	No, not Hispanic or Latino	Chines	
992 Hawk Elementary - Elem Scheduling	6	99200002 Aadasian, Saul	М	Redesignated	Filipino (Tagalog)	No, not Hispanic or Latino	Filipinc	Demographics
992 Hawk Elementary - Elem Scheduling	1	99200001 Aadasian, Thomas	M	English Only	English	No, not Hispanic or Latino	Hawaii	E Derriographies
993 Bald Eagle Intermediate School	6	99300001 Abbott, Alan	м			No, not Hispanic or Latino	Filipinc	13,066 rows loaded.

Follow the same steps to import the **SBAC** workbook & rename the Query to SBAC.

							Queries & Connections	~ X
0.	-	TEOTID					Queries Connections	
Stu	dent ID	IESIID Y	Test Admin	Grade	Test litle	PerformLvl = 4, 4 - ABOVE, No Test Data ()))	2 queries	
	88401949	SBAC	SPRG22	110	English Lang Arts /Liter	2 - NEARLY MET		
	88401949	SBAC	SPRG22	110	Mathematics	1 - NOT MET	12 OCC and located	
	89400637	SBAC	SPRG22	110	English Lang Arts /Liter	1 - NOT MET	13,066 rows loaded.	-
	99400007	SBAC	SPRG22	110	English Lang Arts /Liter	3 - MET	SBAC	13
	99400007	SBAC	SPRG22	110	Mathematics	1 - NOT MET	949 rows loaded.	
	88402768	SBAC	SPRG22	110	English Lang Arts /Liter	3 - MET		

You will see each workbook in a separate tab and a summary of the data in the **Queries & Connections** section on the right-hand side of the screen.

Tip: Leave worksheets named Sheet 1 in the original Excel Workbook & at the bottom tabs of the SBAC Analysis workbook. Otherwise, when you Refresh the data you will need to make sure the worksheet tabs have the exact same name.

Step 2: Use Power Query to Join and Format the Data

To join the data from the 2 Tables, we first need to **pivot the SBAC** data so there is one row of data per student. **Microsoft Power Query Editor** makes this easy!

Click on the **SBAC** tab.

Click on **Query** on the top menu and then **Edit**.

File	Home	Insert	Page Layou	ut Formulas	Data Revi	ew View A	utomate Help	Table Design Query
Edit	Properties	Delete	Refresh Load	Duplicate	Merge Append	Export Connection File		
_	Edit		Load	Reuse	Combine	Share		
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	A	В	с	D	E	F	G	
1 Stu	ident ID 💌	TESTID	• Test Admin	🕶 Grade 💌 Eng	lish Lang Arts /Lit	er 💌 Mathemati	cs 💌	
2	88400001	SBAC	SPRG22	11 3 -	MET	1 - NOT ME	F	
3	88400002	SBAC	SPRG22	8 2 -	NEARLY MET	2 - NEARLY	MET	
4	88400003	SBAC	SPRG22	82-	NEARLY MET	2 - NEARLY	MET	
5	88400005	SBAC	SPRG22	11 3 -	MET	2 - NEARLY	MET	
6	88400007	SBAC	SPRG22	11 3 -	MET	3 - MET		
7	88400008	SBAC	SPRG22	81-	NOT MET	1 - NOT MET	r i	
8	88400009	SBAC	SPRG22	11 4 -	ABOVE	3 - MET		
9	88400012	SBAC	SPRG22	8 2 -	NEARLY MET	2 - NEARLY	MET	
10	88400015	SBAC	SPRG22	11 4 -	ABOVE	3 - MET		
11	88400018	SBAC	SPRG22	83-	MET	3 - MET		

The **MS Excel Power Query Editor** opens with a whole new world of possibilities! Notice that we see All of our data tables, or queries, on the left. Make sure the **SBAC** query name is highlighted.

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File	Home Tra	ansform	A	dd Column View								
Close & Load • Close	Refresh Preview + M	ropertie dvanceo Manage iery	is d Editor -	Choose Remove Columns + Columns + R Manage Columns	Keep Remove ows * Rows * Reduce Rows Sort	t Group 1, 22 Parts Type: Whole M By Jack Prist Row a 1, 2 Replace Values Transform	lumber ▼ s Headers ▼	Merge Queries * Append Queries * Combine Files Combine	Manage Parameters • Parameters	Data source settings Data Sources	 New Source ▼ Recent Sources ▼ Enter Data New Query 	
Queries [3]	<	X	√ fr = Table.Tr	ansformColumnTypes(#"Pr	omoted Headers".{{"Studen	t ID", Int	64.Type). ("TESTID".	type text}	("Test Admi	n", type text), ("Test Ti	
De De	mographics1			1 ² 3 Student ID	A ^B C TESTID	A ^B _C Test Admin	A ^B C Test Titl	e ▼A ^B _C P	erformLvI = 4, '4	- ABOVE', 'No T	est Data'))))	
LII De	mographics2		1	99000001	SBAC	SPRG22	English Lang	Arts /Liter 2 - NE	ARLY MET			
E SB	AC		2	99000001	SBAC	SPRG22	Mathematic	s 1 - NO	T MET			
			3	99200002	SBAC	SPRG22	Mathematic:	s 2 - NE	ARLY MET			
			4	99200002	SBAC	SPRG22	English Lang	Arts /Liter 3 - Mi	3 - MET			
			5	99300001	SBAC	SPRG22 Mathematic SPRG22 English Lang		ematics 2 - NEARLY h Lang Arts /Liter 3 - MET	ARLY MET	ET		
			6	99300001	SBAC				MET			
			7	89400001	SBAC	SPRG22	English Lang	Arts /Liter 3 - Mi	T			
			8	89400001	SBAC	SPRG22	Mathematics	s 1 - NO	T MET			
			9	99300002	SBAC	SPRG22	Mathematics	s 3 - MI	т			
			10	99300002	SBAC	SPRG22	English Lang	ang Arts /Liter 4 - ABOVE				
			11	99400001	SBAC	SPRG22	Mathematics	s 1 - NC	T MET			
			12	99400001	SBAC	SPRG22	English Lang	Arts /Liter 3 - Mi	ET .			
			13	88400001	SBAC	SPRG22	English Lang	Arts /Liter 3 - Mi	T			
			14	88400001	SBAC	SPRG22	Mathematic	s 1 - NC	T MET			
			15	88401949	SBAC	SPRG22	English Lang	Arts /Liter 4 - AB	OVE			
			16	88401949	SBAC	SPRG22	Mathematic	s 3 - Mi	T			

Click on **Transform** from the top ribbon. Click on the **Test Title column header** to highlight the column. Select **Pivot Column** from the Transform menu.

File	Home	Transform	1 1	Add Column	View						
Group By	Use First Row as Headers *	ぱ ^田 Transp C 日 Revers は 一 Count	ose e Rows Rows	Data Type: Te Detect D Detect D	ext • 🐫	2 Replace Values Fill - Pivot Column	Gonvert to List	ns • Split Column •	Format	ABC 123 Extract ▼ abc Parse ▼	X
Queries	: [3]	<	×	√ f _x	= Table.	TransformColu	umnTypes(#"Promote	ed Headers",{{	("Studen	t ID", Int64.Typ	e},
	Demographics Demographics	1		1 ² 3 Student ID	[▼ A ^B _C TESTID	▼ A ^B _C	Test Admin	-	A ^B C Test Title	
	BAC		1		990000	01 SBAC	SPR	RG22		English Lang Arts /Lit	ter

This option will use the values in our selected column to create new column headers. Select **PerformLvI** field in the **values column**. Click **Advanced Options** and select **Don't Aggregate**, Click OK.

	to crea	terretriction contain		
Values Column 🕕				
PerformLvI = 4, '4 - ABOVE', 'No Test	*			
Advanced options				
Aggregate Value Function				
Don't Aggregate	-			
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The SBAC data has now been flipped, or **pivoted**, to only have **one record for each student**. There is a separate column for English Lang Arts & Mathematics with performance level for each student.

1 ² 3 Student ID	A ^B _C TESTID	A ^B _C Test Admin	ABC Grade	A ^B _C English Lang Arts /Liter	A ^B _C Mathematics
88400001	SBAC	SPRG22	11	3 - MET	1 - NOT MET
88400002	SBAC	SPRG22	8	2 - NEARLY MET	2 - NEARLY MET
88400003	SBAC	SPRG22	8	2 - NEARLY MET	2 - NEARLY MET
88400005	SBAC	SPRG22	11	3 - MET	2 - NEARLY MET
88400007	SBAC	SPRG22	11	3 - MET	3 - MET
88400008	SBAC	SPRG22	8	1 - NOT MET	1 - NOT MET
88400009	SBAC	SPRG22	11	4 - ABOVE	3 - MET
88400012	SBAC	SPRG22	8	2 - NEARLY MET	2 - NEARLY MET

Click on the **Home** menu tab at the top.

Click on Close & Load

This saves the changes to the SBAC table and brings us out of the Power Query Editor.

Use Power Query to JOIN Data

Now we are ready to join or **Merge** the data from the 2 separate Queries into one table.

Click on The Demographics Query to see the **Query** menu option in the top toolbar. Click on **Query** Click on **Merge**



Select the following options to join the Demographics table to the SBAC table on Student ID.

Merge

Select tables and matching columns to create a merged table.

School		Scho	ool name	Grad	le	Student ID	Stude	nt Name	Sex	Description_STU_LF
990	Golde	n Eagle	Elementary Scho	ol	6	99000001	Aadas	ian, Robert	М	English Only
990	Golde	n Eagle	Elementary Scho	ol	1	99000002	Aadas	ian, Ruben	М	English Only
992	Hawk	Element	tary - Elem Sched	luling	6	99200002	Aadas	ian, Saul	M	Redesignated
992	Hawk Elementary - Elem Scheduling		luling	1	99200001	Aadas	ian, Thomas	М	English Only	
			e . e .	64	æ		** 1		••	
GBAC				•			•		• • •	,
BAC	т	ESTID	Test Admin	₹ Grade	Eng	lish Lang Arts /L	iter	Mathemat	ics	,
BAC tudent ID 884000	TI 107 SE	E STID BAC	Test Admin SPRG22	• Grade	Eng 3 - 1	dish Lang Arts /L MET	iter	Mathemat 1 - NOT ME	ics T	
BAC tudent ID 884000 884000	TI 107 SE 162 SE	E STID BAC BAC	Test Admin SPRG22 SPRG22	• Grade 110	Eng 3 - 1 2 - 1	t <mark>lish Lang Arts /L</mark> MET NEARLY MET	iter	Mathemat 1 - NOT ME 1 - NOT ME	ics ET	
BAC itudent ID 884000 884000	TR 007 SE 062 SE 108 SE	ESTID BAC BAC BAC	Test Admin SPRG22 SPRG22 SPRG22 SPRG22	• Grade 110 80	Eng 3-1 2-1	t <mark>ish Lang Arts /L</mark> MET NEARLY MET NOT MET	iter	Mathemat 1 - NOT ME 1 - NOT ME 1 - NOT ME	ics ET ET	
5BAC student ID 884000 884001 884001 884002	TE 007 SE 062 SE 08 SE	ESTID BAC BAC BAC BAC	Test Admin SPRG22 SPRG22 SPRG22 SPRG22 SPRG22	- Grade 110 110 80 80	Eng 3-! 2-! 1-!	t <mark>lish Lang Arts /L</mark> MET NEARLY MET NOT MET NOT MET	iter	Mathemat 1 - NOT ME 1 - NOT ME 1 - NOT ME 1 - NOT ME	ics ET ET ET ET	

Use fuzzy matching to perform the merge

▷ Fuzzy matching options

The selection matches 481 of 13066 rows from the first table, and 481 of...

Click the **OK** button.

You now see a new Query named Merge1 with a column added to the end named SBAC. However, the values displayed for each record = 'Table'

To show the actual data, need to click on the **icon with arrows** in the column header name and choose **Expand**.



iption_STU_ETH	💌 A ^B _C Description_STU_RC1 💽 📰 SBAC
spanic or Latino	T Search Columns to Expand
spanic or Latino	C Expand Acoregate
spanic or Latino	F System
spanic or Latino	H (Select All Columns)
spanic or Latino	F Student ID
spanic or Latino	V TESTID
nic or Latino	V Test Admin
spanic or Latino	V V English Lang Arts // iter
spanic or Latino	V Mathematics
spanic or Latino	V
spanic or Latino	V Use original column name as prefix
spanic or Latino	V
nic or <mark>Latin</mark> o	OK
nic or Latino	American Indian or Alaskan Native Table

Note: you only need to expand the fields you want to see in this merged table. Since we already have Student ID in the table from Demographics, I unchecked Student ID.

Click the **OK** button.

The SBAC Test result fields have now been added to the end of this table.

There are now 3 Queries available. **Right-click** on the **Merge1** query name on the left **and rename to SBAC Demographics.**

From the Home menu select Close & Load to save.

Use Power Query to Format Data

We also need to format the data to make our visualizations better.

Launch **Power Query Editor** either by selecting **Query** from the top menu OR **Data** > **Get Data** > **Launch Power Query Editor**.

Click on the **SBAC Demographics** table.

Rename columns to display better on your visualizations. For example, right-Click on the Description_STU_LF column header and select **Rename**. You can then begin typing to change the name. Change the name of the column to **Language Fluency**.

<pre>School", Int64.Type}, {"School name", type text}, {"Grade",</pre>									
x	ABC Language Fluency	-	A ^B _C Description_STU						
	English Only		Regular Program						
	English Only		SDC						
	Redesignated		Regular Program						
	English Only		SDC						
		null	Regular Program						

Repeat this process for any fields you would like to rename.

Explore the values in the fields. Replace null values with a better option.

For example, in the Language Fluency, Home Language and Race columns replace null values with Unknown.

To do this, right-click in any cell of the column & select **Replace Values**.

Enter null as the Value To Find.

Enter **Unknown** for the **Replace With** value.

Refresh Preview - Mana Query	erties nced Editor age *	Choose Remove Columns - Columns - Manage Columns	Keep Remove ows * Rows * Reduce Rows Sort	Split Column +	Data Type: Text ~ Use First Row a L _{2 2} Replace Values Transform	Headers +	Merge Queries * Append Queries * Combine Files Combine	Manage Parameters * Parameters	Data source settings Data Sources	New Source •	
1 mographics1	< ×	✓ f _X = Table.Pi	vot(#"Changed Ty;	pe", List.Dis	tinct(#"Changed Typ	e"[#"Test	Title"]), "Test Tit	le", "Perform	Lvl = 4, '4	- ABOVE', 'No Test	Data'))))
mographics2		3 Student ID	A ^D C TESTID	✓ A ^D _C T	est Admin 💌	A ^D _C English	- NOT MET I - NOT MET 3 - MET		Mathematics		
AC .	66	88400196	SBAC	SPRG	22	1 - NOT MET					
	67	88400198	SBAC	SPRG	22	3 - MET					
	68	88400199	SBAC	SPRG	22	3 - MET		3 - MET			
	69	88400202	SBAC	SPRG	22	4 - ABOVE			null		
	70	88400203	SBAC	SPI							×
	71	88400204	SBAC	SPI	Poplaco Valu	20					
	72	88400206	SBAC	SPI	Replace value						
	73	88400208	SBAC	SPI	Replace one value v	e with another in the selected columns.					
	74	88400209	SBAC	SPI	Value To Find						
	75	88400212	SBAC	SPI	null						
	76	88400215	SBAC	SPI	Replace With						
	77	88400222	SBAC	SPI	Net Teler						
	78	88400226	SBAC	SPI	INOL TAKEN						
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	81	88400230	SBAC	SPI							
	82	88400235	SBAC	SPI						ОК	Cancel
	83	88400236	SPI								

The **Grade** column comes from the test grade field (TST.GR) and has a zero after each grade. Use **Replace Values** to change each grade. Replace 110 to 11, 110 to 10..etc.

From the **Home** tab, click on **Close & Load** to save these changes.

Step 3: Use Analyze Data with Pivot Tables and Charts

Pivot Tables and Pivot Charts are powerful tools for analyzing data. We can create both a PivotTable and a PivotChart using our new **SBAC Demographics** table by **selecting** the **Insert** tab on the Ribbon and **Clicking** the **PivotChart** Button & selecting PivotChart & PivotTable.

ile	Home	Insert	Page Layout	Formulas	Data	Review	View	Automate	Help	Table Design	Query			0	
votTabl	e Recommer PivotTabl	nded Table	Pictures Shap	bes Icons Ma	3D adels ~	SmartArt Screenshot ×	B €	et Add-ins ly Add-ins 💙	Visio Data Visualizer	Bing Maps People Graph	Recommended Charts		° € Maps	PivotChart	3D Map ~
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Ctuck			oct Admin	odich Lang A	rte /litor	- Mathania	atice -	School Num	bor S	bool		Crada C S	d <mark>≞ P</mark> ive	otChart & Piv	otTable

The Create PivotTable Dialogue Box appears.

Ensure the Table/Range is **SBAC_Demographics** and the **New Worksheet** radio Button is selected. **Click** the **OK** Button.

Create PivotTable		?	\times
Choose the data that	you want to analyze		
Select a table or	ange		
Table/Range	SBAC_Demographics		Ť
O Use an external o	lata source		
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This will create a new worksheet in the workbook with a placeholder for the PivotTable. Name this worksheet **SBAC Analysis** by right-clicking with the mouse on the new Sheet tab. Notice the PivotTable Fields control box on the right-hand side of the worksheet. This is where you control what is in the PivotTable.

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Adding Fields to your PivotTable is as easy and clicking and dragging. To count the number of students in our data set **Click** the **check box** next to the **Student ID** field. This will add that field under the VALUES category. This is the box that performs calculations in a PivotTable. By default, it will Sum the value.

Sum of Student ID	-
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To get the total count of students instead of adding the student ID numbers together, **Click** on the **drop-down arrow** next to the **"Sum of Student ID Field"**. **Select Value Field Settings** and the Value Field Settings dialogue box will appear.

Select Count and Click OK.

Value Field Settings		?	×
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It is usually better to analyze percentages instead of counts of the data. To turn the count of students into a percent of students, drag the Student ID to the Values box again. This time, in the **Value Field Settings** select the **Show Values As** tab and chose **% of Column Total** from the drop-down. Click on the **Number Format** button to format the data as a **percent** with **0 decimal places**.

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Select the following Fields one at a time. Drag and Drop them into the Row or Column boxes as shown in the image below.

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Note, I removed the count of student by dragging the field from the Values box back to the tables box above.

The PivotTable on the left side of the screen will look like this.

Sum of Student ID Column	Labels 💌							
Row Labels 🔹	3	4	5	6	7	8	11	Grand Total
■ SPRG22	100%	100%	100%	100%	100%	100%	100%	100%
1 - NOT MET	24%	33%	27%	16%	21%	18%	12%	19%
2 - NEARLY MET	29%	18%	21%	23%	25%	24%	19%	22%
3 - MET	24%	24%	29%	43%	37%	40%	36%	36%
4 - ABOVE	20%	25%	22%	18%	15%	18%	32%	22%
(blank)	3%	0%	1%	1%	2%	0%	1%	1%
Grand Total	100%	100%	100%	100%	100%	100%	100%	100%

On the left, is the ELA Proficiency Level. Across the top is the grade level the student took this test. The numbers in the PivotTable represent the percent of students that fall within each category.

The PivotChart is also displayed. Use **Quick Layout** and **Chart Styles** for a quick and easy way to create great looking charts without having to spend a lot of time formatting.

While the PivotChart is selected **Select** the **Design** Tab. Choose the **Quick Layout** Button to select a preformatted layout. You may also select a **Chart Style**.

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Repeat these steps to add a Pivot Chart for the Math Performance level on the same worksheet.

Add Slicers

Slicers allow you to quickly filter the data in both the PivotTable and PivotChart by clicking on Slicer (filter) Buttons.

To insert Slicers. Fist **Click** anywhere on the **Pivot Table** or **Pivot Chart**. Then **Select** the **PivotTable Analyze** tab on the Ribbon. **Click** on the **Insert Slicer** Button in the Filter Group.

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The Insert Slicers dialog box will appear.

Check the fields you want to be able to Filter by and **Click OK.** The slicers will be created. Move and resize the slicers on your spreadsheet.



You are now able to filter your Pivot Table and Pivot Chart by Clicking the items on the slicers.

Tip: To use one set of slicers for multiple Pivot Tables or Charts, **Select a slicer**. Select **Slicer** tab on the ribbon and **Report Connections**. Check the visualizations to share this slicer.

Step 3: Analyze Data



Use the Slicers to filter the data.

Drill Down to see a list of students. When you right-click on any of the bars in the chart and select Show Detail a new worksheet will open listing the students who meet the criteria.



Refresh the Data in 3 Easy Steps!

Once you have this setup, all you need to do is re-run the queries & refresh the data. No joining or formatting required!

1. Run Aeries Queries - Re-Run queries to get the latest data. The SBAC query will need to modified to add the new test administration:

LIST STU TST CST CSN CTL STU.ID TST.ID TST.TA TST.GR CTL.NM ((IIF (TST.PL = 1, "1 - NOT MET", IIF (TST.PL = 2, "2 - NEARLY MET", IIF (TST.PL = 3, "3 - MET", IIF (TST.PL = 4, "4 - ABOVE", "No Test Data")))))) IF (TST.ID = SBAC AND (TST.TA = "SPRG22" OR TST.TA = "SPRG23"))

2. Replace - Save each new query result to Excel. Navigate to where you stored the original data & select the existing file to **REPLACE** the data. Close each workbook.

Note: You could just run the query for the new test administration each year. Instead of replacing the SBAC workbook, you would cut & paste the new data to the end of the existing SBAC file and save.

3. Refresh - Open the SBAC Analysis Workbook. Click on the **Data** tab on the ribbon & **Refresh All**. You will now see Spring23 data in the SBAC Demographics table.

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Select the Pivot Chart and **PivotChart Analyze** from the ribbon and **Refresh All**.

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The Charts are now updated. We can see data for both testing administrations.

