



Comprehensive Support and Improvement 103: Interrogating the Data

Arizona Department of Education

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CSI Data-Driven Decisions

- Part 1 – Understanding scores and identification
 - How does a school get identified?
 - What counts for what model?
- Part 2 – Data and the Static File
 - 102a: Dashboard access and interpretation
 - 102b: Basic filtering to address questions
- Part 3 – Interrogating the Data
 - Deeper analysis with pivot tables
 - Answering 2-, 3-, and 4-category questions

About this module

- Overview
- Strategies or Codes
- Excel usage examples
 - Embedded videos
 - Pause and practice
- Analysis questions

Some functions may be different

- Excel Version
- Google Sheets
- Apple Numbers

CSI 103 – Interrogating the Data

Advanced Techniques in Excel

Interrogating the data in Excel

- Pivot tables
- Aggregate Values
- Student Identification
- Relationships
- Visualizations

Starting with Pivot Tables

Interrogating the data in Excel

- Pivot tables
- Pivot table fields
 - Filters
 - Columns
 - Rows
 - Values

Data Models

- Allow for distinct values
- Allow for multiple tables

Standard Models

- Distinct is difficult
- Grouping possible

Aggregates and Summaries

Turning data into a pivot table

- Add to data model
 - Edit Field Settings to change results
 - Allows for distinct results

Filters

- Allow you to exclude/include

Columns

- What considerations do you want in the results

Rows

- What values you want to pursue

Values

- What results you need to query

Practice Questions

- How many student records are in your static file?
- How many students were in your school last year?

Some quick issues

- NULL values may exist on the import from your CSV file
 - These cannot be used in calculations
 - Replace all NULL values with blanks
- Data Model
 - Allow for calculations with distinct values
 - Allow you to import data from other sources and combine

Labels, Scores, and Values

- Performance Aggregates
- Changing Labels
- Visualizing Data

File Home Insert Draw Page Layout Formulas Data Review View Help Acrobat PivotTable Analyze Design

Clipboard Font Alignment Number Styles Cells Editing Analysis Sensitivity

A4	Abbott Elementary					
1						
2						
3	Row Labels	Distinct Students				
4	Abbott Elementary	909				
5	Chilton Preparatory	453				
6	Hawkins Primary School	432				
7	John P. Tristate Elementary	450				
8	Lakewood Elementary	950				
9	Midway Elementary	448				
10	Springfield Elementary	1119				
11	Wagstaff K-8 School	1131				
12	Walkertown School	899				
13	Grand Total	6783				
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18						
19						
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PivotTable Fields

Active All

Choose fields to add to report:

Search

- ☐ SPED
- ☐ Foster
- ☐ Homeless
- ☐ Military
- ☐ EL
- ☐ Subject
- ☐ SubjectGrade
- ☐ Performance
- ☐ ScaleScore
- ☐ StatewideTested
- ☐ SGP_CCR

Drag fields between areas below:

Filters

Columns

Rows

SchoolName

Values

Distinct Students

☐ Defer Layout Update

Update

Practice Questions

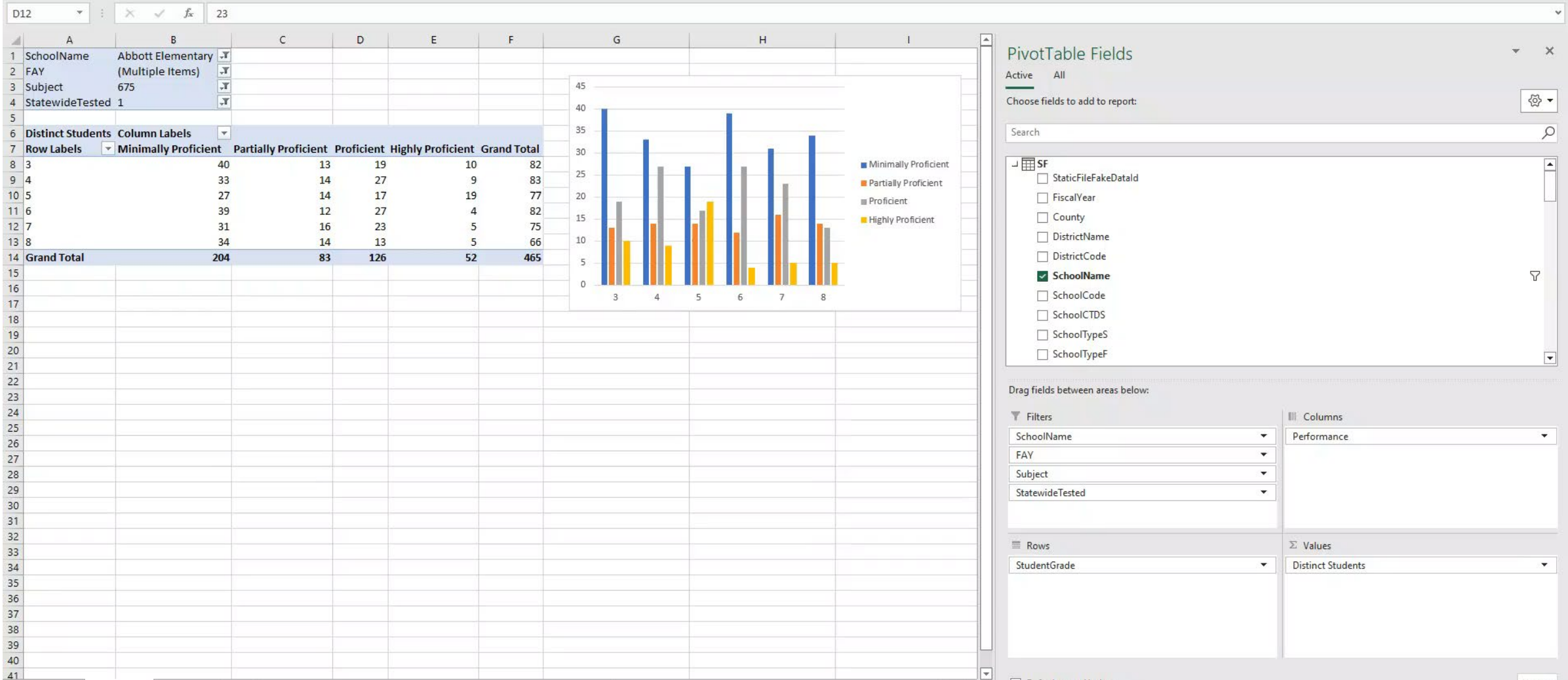
- How many students in your school were FAY?
- How many students were English Learners?
- Pick one tested grade:
 - How many FAY students took the ELA exam?
 - How many FAY students earned a 3 on the Math exam?

Combination Results

- Duplicating/Copying Pivot Tables
- Results with additional filters
- Displaying results proportions

File Home Insert Draw Page Layout Formulas Data Review View Help Acrobat PivotTable Analyze Design

Clipboard Font Alignment Number Styles Cells Editing Analysis Sensitivity



PivotTable Fields

Active All

Choose fields to add to report:

Search

SF

- ☐ StaticFileFakeDataId
- ☐ FiscalYear
- ☐ County
- ☐ DistrictName
- ☐ DistrictCode
- ☒ SchoolName
- ☐ SchoolCode
- ☐ SchoolCTDS
- ☐ SchoolTypeS
- ☐ SchoolTypeF

Drag fields between areas below:

Filters

- SchoolName
- FAY
- Subject
- StatewideTested

Columns

Performance

Rows

StudentGrade

Values

Distinct Students

☐ Defer Layout Update

Update

Practice Questions

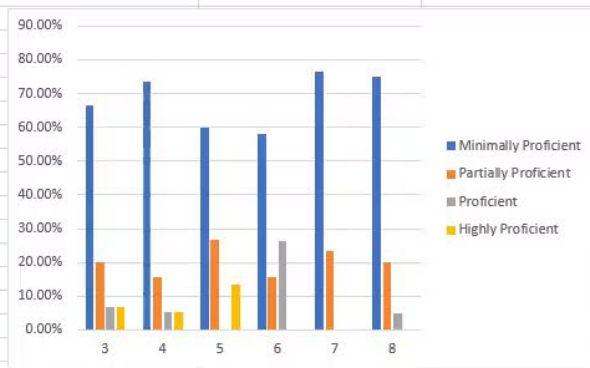
Pick one grade:

- What percent of that grade were EL students who earned a 2 on Math?
- What percent of students were proficient or highly proficient on the ELA exam

Comparisons

- Moving filters to rows
- Changing labels to provide comparisons

20	SchoolName	Abbott Elementary				
21	FAY	(Multiple Items)				
22	Subject	677				
23	StatewideTested	1				
24	ChronicAbsent	1				
25						
26	Distinct Students	Column Labels				
27	Row Labels	Minimally Proficient	Partially Proficient	Proficient	Highly Proficient	Grand Total
28	3	66.67%	20.00%	6.67%	6.67%	100.00%
29	4	73.68%	15.79%	5.26%	5.26%	100.00%
30	5	60.00%	26.67%	0.00%	13.33%	100.00%
31	6	57.89%	15.79%	26.32%	0.00%	100.00%
32	7	76.47%	23.53%	0.00%	0.00%	100.00%
33	8	75.00%	20.00%	5.00%	0.00%	100.00%
34	Grand Total	68.57%	20.00%	7.62%	3.81%	100.00%



Practice Questions

Comparing Populations

- How do your students compare?
 - Did your EL students outperform or underperform your non-EL students on the math test?
 - Is the difference between how your Chronic Absent students performed large or small? How large or small?

Individual Performance

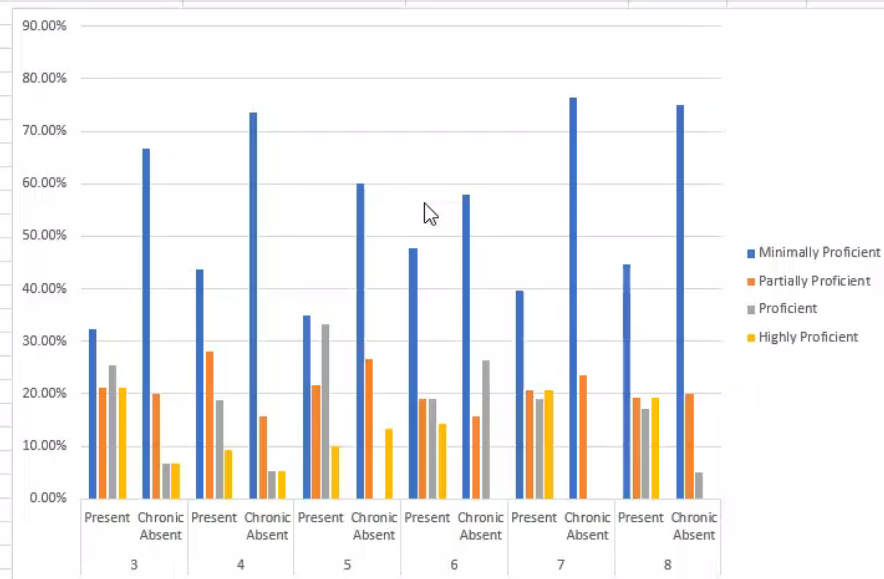
- Stacked columns
- Copying pivots to new worksheets
- Finding Individual Students
- Tabular, Compact, and Outline Format
- Grand Totals and Subtotals

File Home Insert Draw Page Layout Formulas Data Review View Help Acrobat

Clipboard Font Alignment Number Styles Cells Editing Analysis Sensitivity

Calibri 11 A A Wrap Text General \$ % , .00 .00 Conditional Formatting Format as Table Normal Bad Good Neutral Calculation Check Cell

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
34	Grand Total	46.58%	21.37%	19.02%	13.03%	100.00%	0.00%	3	4	5	6	7	8						
35																			
36																			
37																			
38																			
39																			
40																			
41	SchoolName	Abbott Elementary																	
42	FAY	(Multiple Items)																	
43	Subject	677																	
44	StatewideTested	1																	
45																			
46	Distinct Students	Column Labels																	
47	Row Labels	Minimally Proficient	Partially Proficient	Proficient	Highly Proficient	Grand Total													
48	3																		
49	Present	32.39%	21.13%	25.35%	21.13%	100.00%													
50	Chronic Absent	66.67%	20.00%	6.67%	6.67%	100.00%													
51	4																		
52	Present	43.75%	28.13%	18.75%	9.38%	100.00%													
53	Chronic Absent	73.68%	15.79%	5.26%	5.26%	100.00%													
54	5																		
55	Present	35.00%	21.67%	33.33%	10.00%	100.00%													
56	Chronic Absent	60.00%	26.67%	0.00%	13.33%	100.00%													
57	6																		
58	Present	47.62%	19.05%	19.05%	14.29%	100.00%													
59	Chronic Absent	57.89%	15.79%	26.32%	0.00%	100.00%													
60	7																		
61	Present	39.66%	20.69%	18.97%	20.69%	100.00%													
62	Chronic Absent	76.47%	23.53%	0.00%	0.00%	100.00%													
63	8																		
64	Present	44.68%	19.15%	17.02%	19.15%	100.00%													
65	Chronic Absent	75.00%	20.00%	5.00%	0.00%	100.00%													
66	Grand Total	46.58%	21.37%	19.02%	13.03%	100.00%													



Practice Questions

Individual Performance

- Think of one student who took a test...
 - How did they perform compared to their peers?
 - How did they perform compared to last year?
- Which group does better: EL students or SPED students?
- Does Chronic Absenteeism imply a large impact or a small impact?

Everything

- Adding further levels
- Including filters with student status and demographics
- How deep the rabbit hole goes...

File Home Insert Draw Page Layout Formulas Data Review View Help Acrobat PivotTable Analyze Design

Clipboard: Cut, Copy, Paste, Format Painter

Font: Calibri, 11, Bold, Italic, Underline, Text Color, Background Color

Alignment: Left, Center, Right, Indent, Wrap Text, Merge & Center

Number: General, Currency, Percentage, Decimals, Fractions

Styles: Normal, Bad, Good, Neutral, Calculation, Check Cell

Cells: Insert, Delete, Format

Editing: AutoSum, Fill, Clear, Sort & Filter, Find & Select

Analysis: Analyze Data, Sensitivity

Comments, Share

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	SchoolName	Abbott Elementary													
2	FAY	(Multiple Items)													
3	Subject	677													
4	StatewideTested	1													
5															
6	Distinct Students					Performance									
7	StudentGrade	ChronicAbsent	LastFakeName	FirstFakeName	FakeSAISID	Minimally Proficient	Partially Proficient								
8	3	Present	Avery	Emily	958152184	1									
9			Bradley	Donald	326054211		1								
10			Bradshaw	Bruce	390540402	1									
11			Branch	David	163162335	1									
12			Bryan	Walter	663726043		1								
13			Doyle	Roy	235365375	1									
14			Fields	Joshua	419219117	1									
15			Francis	Joyce	467110150		1								
16			Frye	Joseph	760130499	1									
17			Greer	Lisa	697072599		1								
18			Guerra	Andrea	549163171		1								
19			Hall	Abigail	810268817	1									
20			Hill	Cheryl	603114824		1								
21			Jorne	Ethan	613965195		1								
22			Kelley	Justin	189800918		1								
23			Kemp	Janet	131773630	1									
24			Klein	Cheryl	519037287	1									
25			Koch	Sandra	959433006	1									
26			Leblanc	Virginia	656676495		1								
27			Little	Beverly	720090430	1									
28			Lopez	Sara	419416554	1									
29			May	Paul	300821451	1									
30			Mayer	Willie	233703875		1								
31			Mercado	Nancy	104877553		1								
32			Meyers	Nathan	854798732	1									
33			Montgomery	Charlotte	897518054	1									
34			Moore	Brian	560087429		1								
35			Oneal	Frances	322792956		1								
36			Pugh	Christian	615336624	1									
37			Quinn	Harold	529978149	1									
38			Rivers	Nancy	535740928		1								
39			Rowe	Terry	208142404	1									
40			Valenzuela	Janice	379251695	1									
41			Vance	Pamela	899826311	1									

PivotTable Fields

Active All

Choose fields to add to report:

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SF

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- ☐ County
- ☐ DistrictName
- ☐ DistrictCode
- ☒ SchoolName
- ☐ SchoolCode
- ☐ SchoolCTDS
- ☐ SchoolTypeS
- ☐ SchoolTypeF

Drag fields between areas below:

Filters

- SchoolName
- FAY
- Subject
- StatewideTested

Columns

Performance

Rows

- StudentGrade
- ChronicAbsent
- LastFakeName
- FirstFakeName
- FakeSAISID

Values

Distinct Students

☐ Defer Layout Update

Update

Practice Questions

- How many Low Income, EL students were Proficient on the Math test?
- How did White students at your school perform compared to Asian/Pacific Islanders?
- How many low income students were chronically absent? Is that percent higher or lower than not-low-income?

Next Steps

CSI 102a – Student Data and the Accountability Dashboard

CSI 102b – Introduction to the Static File

CSI 103 – Interrogating the Static File

Questions?

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