

1. OVERVIEW OF SCHOOL DISTRICT ANALYSIS

In this module, I will be working with Maria, the chief data scientist for a city school district who is responsible for analyzing information from a variety of sources, and in a variety of formats. She was tasked with preparing all standardized test data for analysis, reporting, and presentation to provide insights about performance trends and patterns. These insights will then be used to inform discussions and strategic decisions at the school and district level.

I will be helping Maria to analyze data on student funding, students' standardized test scores (math and reading), as well as various information on the schools they attend.

PURPOSE: Aggregate data and showcase trends in school performance to assist school board and superintendent in making decisions regarding the school budgets and priorities.

2. RESULTS OF SCHOOL DISTRICT ANALYSIS

1. How is the district summary affected?

Table 2.1. District Summary Percentage Change

	Before	After	Percentage Change
Average Math Score	79.0	78.9	-0.13%
Average Reading Score	81.9	81.9	0.00%
% Passing Math	75.0	74.8	-0.27%
% Passing Reading	85.8	85.7	-0.12%
% Overall Passing	65.2	64.9	-0.46%

2. How is the school summary affected?

Table 2.2. School Summary Percentage Change

	Before	After	Percentage Change
Average Math Score	83.418349	83.350937	-0.08%
Average Reading Score	83.84893	83.896082	0.06%
% Passing Math	93.272171	93.18569	-0.09%
% Passing Reading	97.308869	97.018739	-0.30%
% Overall Passing	90.948012	90.630324	-0.35%

3. How does replacing the ninth graders' math and reading scores affect Thomas High School's performance relative to the other schools?

Table 2.3.a. Thomas High School Math and Reading Scores Change in Relation to Cabrera High School

	Cabrera High School	Before	After	Percentage Change
Average Math Score	83.061895	-0.43%	-0.35%	0.08%
Average Reading Score	83.975780	0.15%	0.09%	0.06%
% Passing Math	94.133477	0.92%	1.02%	-0.09%

% Passing Reading	97.039828	-0.28%	0.02%	0.25%
% Overall Passing	91.334769	0.43%	0.78%	-0.35%

Table 2.3.b. Thomas High School Math and Reading Scores Change in Relation to Griffin High School

	Griffin High School	Before	After	Percentage Change
Average Math Score	83.351499	0.08%	0.00%	0.08%
Average Reading Score	83.816757	0.04%	0.09%	-0.06%
% Passing Math	93.392371	-0.13%	-0.22%	-0.09%
% Passing Reading	97.138965	0.17%	-0.12%	0.05%
% Overall Passing	90.599455	0.38%	0.03%	0.35%

4. How does replacing the ninth-grade scores affect the following:

a. Math and reading scores by grade

The only affected school is 9th grade observations for Thomas High School. Therefore, no data is altered for any school nor grades, except for 9th grade observations for Thomas High School, having a NaN in our summary in this case.

b. Scores by school spending

Given the significant numbers we are working with, there are no significant changes in any case except for “% *Passing Reading*”, where the change is sufficient to help round our numbers to the previous integer number.

c. Scores by school size

Given the significant numbers we are working with, there are no significant changes in any case except for “% *Passing Reading*”, where the change is sufficient to help round our numbers to the previous integer number.

d. Scores by school type

Denver county is the county with the largest number of votes, having 306,055 votes, representing 82.2% of the total votes.

3. SUMMARY OF SCHOOL DISTRICT ANALYSIS

Four changes to the school district analysis after reading and math scores have been replaced:

1. District summary
2. School summary
3. Grade difference between Cabrera and Griffin High Schools
4. Percentage of passing for reading tests for all four sub analyses:
 - a. Math and reading scores by grade
 - b. Scores by school spending
 - c. Scores by school size
 - d. Scores by school type