**V1: Math vs Reading Scores by Gender — Side-by-Side Boxplots**

A graph with numbers and lines

AI-generated content may be incorrect.

* Females have slightly higher **median reading scores** compared to their math scores.
* Males show the opposite pattern: **math medians** are slightly higher than reading medians.
* The spread (IQR) for both genders is similar, but reading scores (for both) tend to be less variable.
* Outliers are present in all groups, especially on the lower end, showing a few students struggled significantly.
* Overall: girls perform a bit stronger in **reading**, boys in **math**, but the differences aren’t dramatic.

**V2: Math Scores by Test Preparation Course (Completed vs None)**

A graph of a graph

AI-generated content may be incorrect.

* Students who **completed test prep** have clearly higher math scores: their median is ~70 compared to ~60 for those with no prep.
* The spread is still wide, but the “Completed” group’s box is shifted upward, showing consistent improvement.
* Outliers exist in both groups, but even the weaker students in the “Completed” group tend to score higher than their “None” counterparts.
* Conclusion: test preparation has a **positive impact on math performance**.

**V3: Mean Overall Performance by Lunch Type**

A graph with numbers and a blue stripe

AI-generated content may be incorrect.

* Students with **“standard” lunch** generally perform better on average than those with **“free/reduced” lunch**.
* The overall averages cluster much higher for standard lunch students, suggesting socioeconomic factors influence performance.
* Scores for free/reduced lunch vary more widely, but still show lower central tendency.
* Conclusion: lunch type (a proxy for socioeconomic status) is associated with academic performance.

**V4: Correlation Heatmap — Math, Reading, Writing**

A chart of a number of colors

AI-generated content may be incorrect.

* Strong positive correlations across all three subjects.
* **Reading and Writing** are the most strongly related (0.95), meaning students who do well in reading almost always do well in writing.
* **Math and Reading** (0.82) and **Math and Writing** (0.80) are also strongly correlated, but slightly weaker.
* Overall: performance in one subject is a good indicator of performance in the others, especially between reading and writing.

**V5: Math vs Reading with Best-Fit Lines by Test Preparation Course**

A graph of a graph with blue and orange dots

AI-generated content may be incorrect.

* There is a **clear linear relationship** between math and reading scores: students who do well in reading tend to do well in math.
* Both groups (“None” and “Completed”) show a similar positive slope, but the **“Completed” group’s trend line is consistently higher**, showing an advantage.
* The scatter plot confirms that test preparation lifts performance across both subjects, not just math.
* Conclusion: test prep helps students overall, and reading and math success are strongly connected.