

## Subject-Level Insights Analysis Report

### 1. Which subject shows the highest proficiency rates for elementary/middle school students?

- **Subject with Highest Proficiency Rate: Math**
- **Proficiency Rate: 48.31%**

Math outperformed both ELA and Science, indicating stronger performance among elementary/middle school students in this subject.

### 2. Are there subjects where a significant percentage of students consistently score at Level 1?

- **Subjects with High Level 1 Scores: None**
- **Threshold for Significant Level 1 Scores: >30% scoring at Level 1**

The data indicates that no subject has a significant percentage of students consistently scoring at Level 1, suggesting balanced performance at higher levels.

### 3. How do proficiency rates in Science compare to Math and ELA in middle school?

- **Middle School Proficiency Rates:**
  - **Math: 90.08%**
  - **ELA: 43.36%**
  - **Science: 38.71%**

Math shows exceptional performance in middle school, significantly outpacing ELA and Science, which are comparatively similar but lower.

### 4. What are the top- and bottom-performing subjects in the Regents Exams?

- **Top Performing Subject: Regents Common Core English Language Arts**
  - **Proficiency Rate: 76.44%**
- **Bottom Performing Subject: Regents Common Core Geometry**
  - **Proficiency Rate: 56.09%**

These results highlight notable disparities in performance across subjects in Regents Exams, with English Language Arts showing strong performance and Geometry requiring improvement.

### 5. Is there a significant difference in performance between Math Regents and ELA Regents?

- **Math Regents Proficiency:** NaN% (missing or invalid data)
- **ELA Regents Proficiency:** 76.44%
- **Difference:** NaN%

The analysis for Math Regents failed due to missing or invalid proficiency data in the dataset. This needs to be addressed by validating and cleaning the PER\_PROF column for Math Regents data.

## Key Observations

1. **Math Dominance:**
  - Math consistently performs well across middle school levels, achieving the highest proficiency rate.
2. **Regents Exam Gaps:**
  - Significant differences in performance between top- and bottom-performing Regents subjects (e.g., English vs. Geometry).
3. **Data Issues:**
  - Missing data in Math Regents proficiency rates undermines the ability to compare subjects fully.

## Recommendations

1. **Targeted Support:**
  - Focus on improving Science and ELA proficiency in middle school and address Geometry gaps in Regents Exams.
2. **Data Validation:**
  - Investigate and address missing or invalid data in Math Regents assessments to enable comprehensive analysis.
3. **Leverage Success in Math:**
  - Identify effective strategies in Math instruction that can be applied to Science and ELA.