Methodology:

The PyCitySchool challenge is focusing on the performance of the students. The comparison is done by firstly: the spending range (budget). Secondly by focusing on the size of the school (small , medium or large), and finally comparing between charter schools and public district schools.

We focused on the following metrics to evaluate the school's performance:

1. Overall passing rate
2. Average math and reading scores
3. Budget per student
4. School size
5. School type (charter vs. district)

Results:

1. Overall Passing Rate: The overall passing rate for PyCitySchools is 65.172326%, which is calculated by taking the average of the percentage of students who passed both math and reading tests. The passing rate for individual schools ranges from 53.5% to 91.3%. Overall, the passing rate is relatively high, indicating that the district is doing a good job of educating its students.

| **Total Schools** | **Total Students** | **Total Budget** | **Average Math Score** | **Average Reading Score** | **% Passing Math** | **% Passing Reading** | **Overall Passing Rate** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | 39,170 | $24,649,428.00 | 78.985371 | 81.87784 | 74.980853 | 85.805463 | 65.17232 |

1. Average Math and Reading Scores: The average math score for PyCitySchools is 74.99, and the average reading score is 81.88. The scores for individual schools vary, with some schools performing better than others. However, the overall scores are above average, indicating that PyCitySchools is providing quality education to its students.
2. Budget per Student: The budget per student for PyCitySchools ranges from $578 to $655. The schools with higher budgets per student tend to perform better on average, suggesting that resources are an important factor in student success.

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| Spending Ranges (Per Student) | Average Math Score | Average Reading Score | % Passing Math | % Passing Reading | Overall Passing Rate |
|  |  |  |  |  |  |
| <$585 | **83.475** | **83.950000** | **93.45** | **96.600000** | **90.35** |
| $585-630 | **81.900** | **83.125000** | **87.15** | **92.700000** | **81.40** |
| $630-645 | **78.500** | **81.600000** | **73.50** | **84.375000** | **62.85** |
| $645-680 | **77.000** | **81.033333** | **66.20** | **81.133333** | **53.50** |

1. School Size: The school size for PyCitySchools ranges from 427 to 4976 students. On average, smaller schools tend to perform better than larger schools. This may be due to the fact that smaller schools can provide more individualized attention to students.

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| --- | --- | --- | --- | --- | --- |
| School Size | Average Math Score | Average Reading Score | % Passing Math | % Passing Reading | Overall Passing Rate |
| Small (<1000) | **83.8** | **83.9** | **9355.0%** | **9610.0%** | **8985.0%** |
| Medium (1000-2000) | **83.4** | **83.9** | **9360.0%** | **9678.0%** | **9060.0%** |
| Large (2000-5000) | **77.7** | **81.3** | **6998.8%** | **8275.0%** | **5827.5%** |

1. School Type: PyCitySchools has both district and charter schools. On average, charter schools tend to perform better than district schools. This may be due to the fact that charter schools are more flexible in term of curriculum.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Type of School | Average Math Score | Average Reading Score | % Passing Math | % Passing Reading | Overall Passing Rate |
| Charter | 83.4 | 83.9 | 93.7% | 96.6% | 90.6% |
| District | 77.0 | 81.0 | 66.5% | 80.9% | 53.7% |

**Conclusion**: The district has a high overall passing rate, above-average test scores, and a range of resources to support student success. However, there are still some areas for improvement, such as providing more resources and funding to schools with lower budgets per student and finding ways to improve the performance of larger schools.