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Introduction
Executive Summary

• This report explores how Montgomery County Public Schools (MCPS) allocates and uses resources to promote equity and excellence for all students.

• We looked across seven different dimensions of equity – from school funding, to teaching quality, to time and attention – to build a deeper understanding of equity in MCPS.

• Overall, we see that MCPS spends more on its highest-need students and schools, yet performance gaps exist across the student groups defined by MCPS’ Equity Accountability Model.

• When we look at how well dollars are spent, we see there are opportunities to improve how MCPS organizes its resources at the system-, school-, and classroom-level to both improve equity for the students who are behind and raise the bar for all students.

• Money alone is not enough – money must be used well to make a difference.
Who is Education Resource Strategies (ERS)?

ERS is a non-profit organization dedicated to transforming how urban school systems organize resources (people, time, and money) so that every school succeeds for every student.
We partner with states and districts across the country to transform resource use so that every school succeeds for every student.
Project Funding and Contact Information

• MCPS paid for $310,000 of this partnership with ERS through a board-approved expenditure. The work was also subsidized ($230,000) by a group of external funders, including the Raikes, Hewlett, and Kellogg Foundations.

• For more information on this study, please check out our website or reach out via email at AskMCPS@mcpsmd.org.
This report connects to MCPS’ equity framework and vision for action

This study connects to MCPS’ overall equity journey by providing data on **equitable access to resources**.

We did not provide recommendations in this report – it is intended to establish a shared fact base that we hope will spark collective action in the MCPS community by increasing awareness and urgency.
MCPS partnered with ERS to analyze resource allocations in order to:

• Build a deep understanding of resource allocation, use, and equity across the district and within schools

• Build an understanding of how MCPS compares to other similar districts in resource allocation, use, and equity

• Share learnings on promising practices from schools that are achieving better student performance

• Create a set of tools that enable school and system leaders to make informed decisions about resource use that aim to improve the equitable and effective use of resources

• Identify considerations for change or further study

• Develop and implement an effective communication and engagement plan around per pupil spending and resource allocation and use
Our work focused on better understanding resource equity in MCPS

Resource equity is the allocation and use of resources (people, time, and money) to create student experiences that enable all children to reach empowering, rigorous learning outcomes — no matter their race or income.
Resource Equity | Key Concept #1

Equal isn’t equitable

**EQUALITY**
Everyone gets the same thing.

**EQUITY**
Everyone gets what they need.
Resource Equity | Key Concept #2

It’s about equity and excellence

Typical Practice

Student Performance
Gaps in student performance exist.

Equity Without Excellence

Student performance gaps are closed by raising the bar for some and lowering it for others.

Equity AND Excellence

We close gaps AND raise the bar for all.

How do we move to equity AND excellence?

Resource Allocation and Use
Resources are distributed equally.

Resources stay the same, but get redistributed based on need.

We use resources more effectively to expand the pie for all students – and give more to those that need it.
Resource Equity | Key Concept #3

It’s about how much and how well

Inequities persist, even when funding increases. How well those funds are used is critical to equitably improving student outcomes.

MCPS has a strategy of differentiating funding for higher need schools — but we know that more funding alone is not enough to change the student experience. To ensure equity and excellence for all, we need to understand how resources play out in schools and how well they are used in service of student outcomes.
Using research and our work with districts, ERS identified 11 dimensions of equity

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School Funding</strong></td>
<td>All students attend schools with sufficient funding to meet their needs, and those dollars are used well.</td>
</tr>
<tr>
<td><strong>Teaching Quality</strong></td>
<td>All students experience an effective educator workforce that reflects student diversity.</td>
</tr>
<tr>
<td><strong>Instructional Time &amp; Attention</strong></td>
<td>All students get the instructional time and teacher attention they need to thrive.</td>
</tr>
<tr>
<td><strong>Rigorous, Empowering Curriculum</strong></td>
<td>All students are held to high expectations and have access to rich and empowering curriculum materials, coursework, and class offerings.</td>
</tr>
<tr>
<td><strong>Diverse and Inclusive Schools and Classrooms</strong></td>
<td>All students attend schools and classes that are racially and socioeconomically diverse and inclusive of English learners and students with disabilities.</td>
</tr>
<tr>
<td><strong>Whole Child Approach</strong></td>
<td>All students feel engaged, respected, and like they belong in school. They have the academic, physical, and mental supports they need to succeed in school and life.</td>
</tr>
<tr>
<td><strong>School Leadership Quality</strong></td>
<td>All students experience effective school leadership that raises the overall effectiveness of their entire teaching staff.</td>
</tr>
<tr>
<td><strong>Early Intervention</strong></td>
<td>All students receive the early interventions and academic, physical, and mental health supports they need before they can fall behind.</td>
</tr>
<tr>
<td><strong>Early Learning</strong></td>
<td>All students start kindergarten ready to thrive, and with a sound foundation for success.</td>
</tr>
<tr>
<td><strong>Family Academic Engagement</strong></td>
<td>All families feel welcome and empowered to meaningfully engage in their child’s school experience.</td>
</tr>
<tr>
<td><strong>Learning-Ready Facilities</strong></td>
<td>No student attends schools that are unsafe, unwelcoming, or otherwise impede learning.</td>
</tr>
</tbody>
</table>
All dimensions of resource equity work together to shape the student experience in schools.
Resource Equity | Key Concept #4

Dimensions are interconnected, not siloed

Looking at dimensions in silos may risk missing important connections across dimensions. For example:

- Lowering group size to provide more targeted attention, but having a struggling teacher lead the group.
- Creating heterogeneous classes, but not making sure students have differentiated supports they need to succeed.

Dimensions may be in tension with each other. For example:

- Lowering group size to provide more targeted attention may result in more homogenous groups.

For these reasons, we look at the student experience across all dimensions to inform actions steps.
Key Terminology and Data Notes

• Unless otherwise noted, the year of data used for analysis is the 2017-2018 school year (SY2017-2018).

• The analysis is organized around the student groups defined in MCPS’ Equity Accountability Model. In this model, “FARMs” is used to denote students who receive free or reduced-price meals.

  Monitoring student group
  • Non-FARMs all other student groups (white, Asian, and other non-FARMs students)
  • Non-FARMs Black or African American students
  • Non-FARMs Hispanic/Latino students

  Focus student groups
  • FARMs all other student groups (white, Asian, and other FARMs students)
  • FARMs Black or African American students
  • FARMs Hispanic/Latino students

• Higher-need schools are defined as schools with a greater percent of FARMs students and may be referred to as “Focus schools” or “Impacted Schools”. See appendix for more detail on school need designations.

• Performance data is based on PARCC English Language Arts (ELA) and math assessments; use of PARCC data allows for comparability across districts.

• Additional data and terminology notes are included in the Appendix.
## Summary of Study Insights

Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers.

### Dimension Summary of Insights

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Summary of Insights</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance</strong></td>
<td>Overall, MCPS outperforms other Maryland districts with similar levels of FARMs students – however not all student groups in MCPS experience this outperformance. Performance gaps still exist both across and within schools, particularly for FARMs students and students of color.</td>
</tr>
<tr>
<td><strong>School Funding</strong></td>
<td>MCPS spends more on its highest-need schools and students, resulting in more staff per student at higher-need schools. This ‘extra’ investment in high-need schools is more than we see in peer districts.</td>
</tr>
<tr>
<td><strong>Teaching Quality</strong></td>
<td>In MCPS, Focus group students are more likely than Monitoring group students to spend time with novice teachers and less likely to spend time with teacher leaders, National Board Certified teachers, and teachers with advanced degrees. Principals report mixed results on practices related to teacher support and teacher collaboration.</td>
</tr>
<tr>
<td><strong>Instructional Time and Attention</strong></td>
<td>On average, higher-need schools have lower class sizes than lower-need schools, but there is significant variation in class sizes across schools. Some schools differentiate class sizes and time for priority subjects, grade levels, and students, but these practices are inconsistent.</td>
</tr>
</tbody>
</table>
### Summary of Study Insights  
*Continued*

Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers:

- In MCPS, higher-need schools/students get more
- In MCPS, higher-need schools/students get a similar level
- In MCPS, higher-need schools/students get less

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Summary of Insights</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rigorous, Empowering Curriculum</strong></td>
<td>Enrollment in advanced course pathways decreases for all student groups over the course of elementary and middle school, suggesting that students are not getting the supports they need to succeed. Focus group students are less likely to be enrolled in advanced coursework, even compared to peers with the same incoming performance.</td>
</tr>
<tr>
<td><strong>Diverse and Inclusive Schools and Classrooms</strong></td>
<td>Students tend to be grouped in classes with peers of similar performance levels, limiting access to heterogeneous classes.</td>
</tr>
<tr>
<td><strong>Whole Child Approach</strong></td>
<td>Principals report low usage of 'Tier 1' practices that support social-emotional learning for all students.</td>
</tr>
<tr>
<td><strong>School Leadership Quality</strong></td>
<td>MCPS principals recommend working in MCPS more than principals in peer districts, suggesting higher levels of job satisfaction. Higher-need schools are more likely to be led by novice principals than lower-need schools. Principals report both strengths and opportunities for improvement regarding central office support.</td>
</tr>
</tbody>
</table>
How to read and use this report

• First, this report summarizes analysis of student performance in MCPS. Then, it explores each of the equity dimensions.
  • Each section starts with an ‘At a Glance’ slide that summarizes the vision of each dimension, why this dimension is important, and the study insights
  • Each section ends with questions for consideration based on study insights

• You will see green sidebars on the right of most slides that highlight:

  Context
  What did we look at and why?
  Context notes are included at the beginning of individual slides or sections of slides to introduce key concepts

  Explore
  What does the data show us?

  Consider
  What questions or next steps does this data raise?
  Considerations are included at the end of individual slides or sections to encourage reflection on the data. Some slides do not include considerations because there is additional data (on the following slides) that should be taken into account before turning towards considerations.

• Refer to the Appendix for information on:
  • Descriptions of ERS-specific terminology or methodology
  • External research related to the importance of each dimension
**Comparison Data**

- The analysis in this report includes comparative data points from other districts across the country that ERS has partnered with. These peer districts are all relatively large, urban districts that share similar demographics, including poverty, English Learner, and special education student populations.

- We use these comparison districts as a way to help understand and interpret MCPS’ data and identify areas for further inquiry. However, these peer districts are not intended to be a benchmark for MCPS.

Comparison districts include:

- Austin, TX
- Boston, MA
- Baltimore City, MD
- Charlotte, NC
- Fulton, GA
- Los Angeles, CA
- Palm Beach, FL
- Shelby County (Memphis), TN
Performance
Performance: At a Glance

- At an aggregate level, MCPS outperforms districts with similar levels of students in poverty. However, using the new student groupings defined in MCPS' Equity Accountability Model, we see that white and Asian students who are not in poverty drive a greater share of this outperformance.

- MCPS’ performance landscape is a result of performance differences both across schools and within schools.
  
  **Across schools:** Like most districts across the U.S., high-poverty schools in MCPS have lower performance than low-poverty schools.

  **Within schools:** Unlike most districts studied across the U.S., in MCPS, African American and Hispanic FARMs students who live in poverty but attend more affluent schools do not perform significantly better than their peers in schools with higher concentrations of poverty.
Overall, MCPS’ performance is higher than other MD districts with similar levels of students in poverty.

Across Maryland, school districts with lower percentages of students who receive free and reduced-price meals (FARMs) had higher percentages of students who score proficient or better on the 2018 PARCC ELA assessment. This trend is shown in the graph to the left.

In the graph to the left, MCPS is above the dotted blue trend line, suggesting that MCPS’ performance is better than expected, given its percentage of FARMs students.

Source: Maryland Public Schools Report Cards
However, only certain groups of students outperform peer MD districts

The data to the left shows the breakdown of performance across MCPS’ six student groups from its Equity Accountability Model, compared to the same student groups from three other MD districts that have similar levels of FARMs students.

Explore

This data shows that some MCPS student groups outperform peers from other Maryland districts more than other groups do. For example, 75% of MCPS’ Monitoring group students are proficient—more than 10 percentage points higher than in peer Maryland districts. However, similar to those districts, MCPS needs to make significant gains with students of color and students in poverty. Only 21% of MCPS’ Hispanic FARMs students are proficient.

This data shows a relationship with performance by both poverty and race. Non-FARMs student groups perform better than FARMs student groups, and non-black and Hispanic student groups (comprised of mostly white and Asian students) perform better than their black and Hispanic peers.
African American and Hispanic FARMs students in MCPS perform similarly to students in Prince George’s County

Context
In the previous slide, we compared MCPS’ performance with three MD districts that have similar levels of FARMs students (Anne Arundel, Frederick, and Hartford).

In this slide, we compare MCPS’ performance to Prince George’s County, a district with a much higher percentage of FARMs students:
- MCPS % FARMs: 36%
- Prince George’s County: 63%

Explore
This data shows that while some MCPS student groups outperform their peers in Prince George’s County, black and Hispanic FARMs students in MCPS perform similarly to their peers in Prince George’s County.

Source: Maryland Public Schools Report Cards, ERS analysis.
Across schools in MCPS, higher-poverty schools perform worse than lower-poverty schools.

Elementary Schools: % of Students Proficient on 2018 PARCC ELA by % FARMs

![Graph showing the relationship between school % FARMs and student performance.](image)

Source: MCPS SY17-18 Student Performance Data, ERS analysis.

Context
To better understand the performance landscape in MCPS, we looked at how performance varies across schools and then within schools. Here, we look at performance across schools: we look at the relationship between concentration of poverty (% FARMs students) in a school and ELA performance across MCPS elementary schools.

Explore
This chart shows that there is a strong correlation between school % FARMs and student performance. Schools with a higher concentration of FARMs students are more likely to have lower performance. This trend between % FARMs and performance is the same trend we saw across other Maryland districts, and is a trend we see with districts and states nationwide.

Note that while the relationship between school need and student performance is strong, we also see significant variation across schools with similar levels of need. We studied three schools above the trendline (Matsunaga, Highland, and Wheaton Woods), to gain insight into potential promising practices across these schools. While these schools were not the only outliers, they stood out as schools that achieve these results while serving only their local student populations. For example, the school represented by the red dot also outperforms its peers with a similar level of poverty (~50% FARMs), but it has a Gifted and Talented program that extends beyond its regular attendance area.

For more information on the promising practices we identified in Matsunaga, Highland, and Wheaton Woods, see the appendix.
Nationally, FARMs students in low-poverty schools outperform all students (both FARMs and non-FARMs) in high-poverty schools.

**Context**

We wanted to understand how performance across schools might differ by student group. First, we looked at national data to understand the landscape.

**Explore**

This data compares FARMs and non-FARMs student performance across levels of school need. For example, in schools with less than 5% FARMs, non-FARMs students have an average scale score on NAEP of ~29, compared to FARMs students who have an average scale score of ~27.

Looking across the chart from left to right, we see that all students perform better in low-poverty schools. In particular, FARMs students in low-poverty schools perform better than both FARMs and non-FARMs students in high-poverty schools.

In MCPS, African American and Hispanic FARMs students do not perform substantially better in low-poverty schools.

This data compares student group performance across levels of school need. This data shows that the trend we just saw nationally — that FARMs students perform better in lower-need schools — is not true for all student groups in MCPS. Specifically, in MCPS, African American and Hispanic FARMs students do not perform substantially better in low-poverty schools.

This contrast between MCPS and national trends prompted questions about what might be different or unique about what takes place in MCPS schools that contributes to this result. This understanding of the performance landscape in MCPS — about both across and within school factors — shaped the remaining analysis in this report. This analysis is organized to assess both ‘across’ and ‘within’ school factors across our dimensions.

Source: MCPS SY17-18 Student Performance Data, ERS analysis.
Performance: Key Questions

- Given the performance landscape, how can we organize resources across all dimensions to support schools to serve our students better?

Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers:

- In MCPS, higher-need schools/students get more
- In MCPS, higher-need schools/students get a similar level
- In MCPS, higher-need schools/students get less
Dimensions of Resource Equity

School Funding
# School Funding: At a Glance

**Vision:** All students attend schools with sufficient funding to meet their needs.

## Why it Matters

**Money matters for schools and students.** Additional funding may be required to support students who have more intensive learning needs.

**But money alone is not enough.** Equitable school funding can enable equitable access to many of the resources described in this report and can lead to accelerated learning *when those dollars are used well.*

## How it's Assessed

*Indicates topics addressed in our study

- Adequacy of funding
- Differentiation in funding by student populations and levels of school need*
- The types of resources that we invest in*

## Study Insights

- Per pupil spending varies greatly across schools; some schools spend twice as much as other schools. Three key factors that influence how much a school spends are: (1) student need (students with disabilities, English learners and poverty), (2) school enrollment, and (3) average teacher compensation.

- MCPS provides more incremental funding for students and schools in poverty than peer districts across the nation.

- MCPS’ incremental poverty investment is more significant in elementary schools, compared to middle and high schools.

- MCPS’ incremental poverty investment results in more staff members at higher-need schools, primarily in teaching positions.
Per pupil spending and student need vary widely across schools in MCPS

The first step to understanding school funding is to calculate the per pupil spending at each school. The data to the left shows the dollar per pupil spending at each school in MCPS. We can see that spending by school varies greatly: some schools spend more than twice as much as others. However, this data on its own doesn’t help us understand school funding equity, since we also see that student need varies across schools.

For this reason, we must better understand what factors (including student need) drive differences in spending across schools to help us assess if those drivers match our vision for equitable school funding.
In ERS’ work with districts across the country, we have identified common factors that lead to variation in spending across schools. These factors can be related to student need, district strategy, or unplanned reasons. In MCPS, we found and explored three key factors for differences in school spending:

- student need
- school enrollment
- average teacher compensation.

Variation in spending due to these factors isn’t ‘good’ or ‘bad’ on its own. Instead, we seek to understand the ways in which the additional spending:

- is deliberate
- matches MCPS’ priorities,
- might be unintentional or go against our priorities.

## Common drivers of variation in school spending

<table>
<thead>
<tr>
<th>Driver</th>
<th>Typical Magnitude of Impact on School Spending</th>
<th>Explored further in this report?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student Need</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Students with Disabilities (SWD)</td>
<td>High</td>
<td>Yes</td>
</tr>
<tr>
<td>% English Learners (EL)</td>
<td>Medium</td>
<td>Yes</td>
</tr>
<tr>
<td>% Poverty (FARMs)</td>
<td>Medium</td>
<td>Yes</td>
</tr>
<tr>
<td>Other student needs</td>
<td>Low</td>
<td>No</td>
</tr>
<tr>
<td><strong>District Strategy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School opening/closure</td>
<td>Low</td>
<td>No</td>
</tr>
<tr>
<td>School level (e.g. elementary, middle, high)</td>
<td>Low</td>
<td>No</td>
</tr>
<tr>
<td>School type (e.g. magnet, gifted, etc.)</td>
<td>Low</td>
<td>No</td>
</tr>
<tr>
<td><strong>Unplanned</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Enrollment (school size)</td>
<td>High</td>
<td>Yes</td>
</tr>
<tr>
<td>Teacher Compensation</td>
<td>Low</td>
<td>Yes</td>
</tr>
<tr>
<td>Building Utilization</td>
<td>Low</td>
<td>No</td>
</tr>
<tr>
<td>Enrollment Projections</td>
<td>Low</td>
<td>No</td>
</tr>
<tr>
<td>Ad-hoc exceptions</td>
<td>Low</td>
<td>No</td>
</tr>
</tbody>
</table>
Smaller schools spend more per pupil than larger schools across all school levels

In most districts, schools with lower enrollment spend more per pupil than larger schools. This happens for two reasons:

1. There are certain fixed costs of running a school, regardless of size – e.g. typically all schools need a principal or a secretary.
2. There are increased instructional costs that come from having fewer students per grade level. Smaller schools (with smaller grade level sizes) are more likely to trigger the need for additional staff to meet class size or staffing ratios, simply because they have fewer options for ‘smoothing out’ class sizes across their school.

Just because smaller schools spend more, doesn’t mean that districts should not have small schools. Instead, it means that districts need to acknowledge and consider the additional financial investment required to run small schools when thinking about school funding across their portfolio.

The data to the left shows that this trend is true in MCPS – across all school levels, smaller schools spend more per pupil than larger schools.

Source: MCPS SY17-18 Expenditures, ERS analysis.

Dollars include all school attributed dollars. See appendix for detailed definition of dollars that are included.
However, MCPS has a lower share of small schools compared to peers

To help us understand the relative impact of small schools in MCPS, we can compare MCPS to peer districts. These peer districts are all relatively large, urban districts that share similar student demographics. As a reminder, we use comparison districts to help us understand and interpret MCPS’ data and identify areas for further inquiry. Peer districts are not intended to be a benchmark or best practice.

Although small schools spend more, we see that MCPS has a lower share of small schools than peer districts: in MCPS, only 5% of schools have fewer than 350 students. This suggests that for MCPS, addressing small schools may not be a big lever for improving funding equity.
School size does not differ significantly between lower and higher need schools

Context

One other way of understanding the impact of small schools on school funding equity is exploring if certain types of schools are disproportionately small. For example, if all of your highest-need schools were also your smallest, then it could look like you’re providing additional investment to your highest-need schools, when in fact, the additional investment comes from size, not need level.

Explore

This data shows school enrollment by % FARMs for all elementary schools. We focused on elementary schools because it was the only level that included schools with fewer than 350 students. We see that there is no clear relationship between enrollment and % FARMs, suggesting that school enrollment does not disproportionately impact schools by need level. However, We also see that enrollment varies the most across non-focus schools and that MCPS’s smallest and largest schools are non-focus schools.

Consider

Small schools tend to cost more per pupil, but given the data on total number and distribution, it did not seem like a critical area for potential action.

Source: MCPS SY17-18 Expenditures, ERS analysis. School categories defined by FARMs enrollment (see appendix for details).
Next, we explore how student need impacts school funding

To understand how student need impacts school funding, we explored how MCPS invests resources in different student populations. To do this, we looked at the full SY17-18 expenditures and identified which expenditures were intended for which student populations. For example—some investments serve all students (e.g. principals), while others are intended to serve only certain student populations (e.g. ESOL teachers). Taking this step helped us identify total dollar investment by student population.
Compared to peer districts, MCPS spends more overall per general education student and differentiates spending more for students in poverty and students with disabilities.

<table>
<thead>
<tr>
<th>District</th>
<th>General Education Base ($000s)</th>
<th>Incremental poverty (FARMs) Investment ($000s)</th>
<th>Incremental EL Investment ($000s)</th>
<th>Incremental SWD Investment ($000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCPS</td>
<td>$10.9</td>
<td>$1.5</td>
<td>$2.6</td>
<td>$19.3</td>
</tr>
<tr>
<td>Peer Median</td>
<td>$10.2</td>
<td>$0.9</td>
<td>$3.0</td>
<td>$15.1</td>
</tr>
<tr>
<td>Difference Between MCPS and Peer Median</td>
<td>$0.7</td>
<td>$0.6</td>
<td>$(0.4)</td>
<td>$4.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>District</th>
<th>General Education Base ($000s)</th>
<th>Incremental poverty (FARMs) Investment ($000s)</th>
<th>Incremental EL Investment ($000s)</th>
<th>Incremental SWD Investment ($000s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlotte</td>
<td>$9.0</td>
<td>$1.5</td>
<td>$2.8</td>
<td>$10.4</td>
</tr>
<tr>
<td>Fulton County</td>
<td>$8.7</td>
<td>$0.8</td>
<td>$3.9</td>
<td>$15.1</td>
</tr>
<tr>
<td>Palm Beach County</td>
<td>$10.2</td>
<td>$0.7</td>
<td>$3.0</td>
<td>$11.1</td>
</tr>
<tr>
<td>Austin</td>
<td>$9.1</td>
<td>$0.8</td>
<td>$0.8</td>
<td>$15.1</td>
</tr>
<tr>
<td>Shelby County</td>
<td>$10.2</td>
<td>$1.2</td>
<td>$3.1</td>
<td>$12.2</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>$10.2</td>
<td>$0.9</td>
<td>$0.7</td>
<td>$20.8</td>
</tr>
<tr>
<td>Baltimore City</td>
<td>$11.3</td>
<td>$0.9</td>
<td>$4.0</td>
<td>$23.7</td>
</tr>
<tr>
<td>Boston</td>
<td>$13.4</td>
<td>$0.7</td>
<td>$3.5</td>
<td>$28.5</td>
</tr>
</tbody>
</table>

Source: MCPS SY17-18 Expenditures, ERS analysis, ERS benchmark database.

This data does not include $4.1M of poverty investments in PreK.
Incremental English Learner (EL) Investment:

Given the size of MCPS’ EL population, MCPS differentiates EL spending similarly to predicted spending

Cost per pupil varies by the size of the EL population. As districts serve a higher percentage of ELs, the incremental EL investment decreases. This may happen because of economies of scale — that is, all districts, regardless of the size of their EL population, may need to have a base set of resources to support their EL students. As the EL population increases, the base set of resources stays the same, lowering the EL cost per pupil.

From this chart, we see that the data point for MCPS is close to the trend line, suggesting that MCPS’ incremental investment for EL students is consistent with other districts, given the size of MCPS’ EL population.
**Incremental poverty (FARMs) Investment:**
MCPS’ higher incremental spending on FARMs students is driven by a larger investment of non-Title I dollars.

- **Context:** We saw earlier that MCPS’ incremental investment for students in poverty students was higher than the median peer district. Now, we will explore what drives that higher investment and how the investment is used.

- **Explore:** This data shows that 75% of MCPS’ investment in FARMs students and schools comes from non-Title I funds. This is different from most peer districts, where the majority of their FARMs investment comes from Title I funds.

  This shows that MCPS is targeting more of its own general funds specifically toward FARMs students and schools and reflects the strong financial commitment MCPS has made to differentiate funding for higher-need schools.

---

**FARMs Investment by Funding Source**

<table>
<thead>
<tr>
<th>District</th>
<th>% of FARMs investments funded by other sources</th>
<th>% of FARMs investments funded by Title I</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCPS</td>
<td>29%</td>
<td>71%</td>
</tr>
<tr>
<td>Peer Median</td>
<td>79%</td>
<td>21%</td>
</tr>
<tr>
<td>District A</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>District B</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>District C</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>District D</td>
<td>94%</td>
<td>6%</td>
</tr>
<tr>
<td>District E</td>
<td>92%</td>
<td>8%</td>
</tr>
<tr>
<td>District F</td>
<td>70%</td>
<td>30%</td>
</tr>
<tr>
<td>District G</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>District H</td>
<td>76%</td>
<td>24%</td>
</tr>
</tbody>
</table>

Source: MCPS SY17-18 Expenditures, ERS analysis; ERS benchmark database. This data does not include $4.1M of poverty investments in PreK for MCPS.
MCPS’ incremental investment in FARMs students is targeted to elementary schools: ES receive 2x more incremental FARMs investments than MS and HS.

<table>
<thead>
<tr>
<th>District</th>
<th>General Education Base ($000s)</th>
<th>Incremental FARMs Spend (% of Gen Ed Base)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCPS</td>
<td>$10.9</td>
<td>14%</td>
</tr>
<tr>
<td>• MCPS ES</td>
<td></td>
<td>19%</td>
</tr>
<tr>
<td>• MCPS MS/HS</td>
<td></td>
<td>8%</td>
</tr>
<tr>
<td>Peer Median</td>
<td>$10.2</td>
<td>9%</td>
</tr>
<tr>
<td>Charlotte</td>
<td>$9.0</td>
<td>17%</td>
</tr>
<tr>
<td>Fulton County</td>
<td>$8.7</td>
<td>9%</td>
</tr>
<tr>
<td>Palm Beach County</td>
<td>$10.2</td>
<td>7%</td>
</tr>
<tr>
<td>Austin</td>
<td>$9.1</td>
<td>9%</td>
</tr>
<tr>
<td>Shelby County</td>
<td>$10.2</td>
<td>12%</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>$10.2</td>
<td>9%</td>
</tr>
<tr>
<td>Baltimore City</td>
<td>$11.3</td>
<td>8%</td>
</tr>
<tr>
<td>Boston</td>
<td>$13.4</td>
<td>5%</td>
</tr>
</tbody>
</table>

Source: MCPS SY17-18 Expenditures, ERS analysis; ERS benchmark database

This data does not include $4.1M of poverty investments in PreK.

Explore

When we look at MCPS FARMs investment by school level, we see that MCPS targets the majority of this investment to elementary schools instead of to middle or high schools.

Consider

The MCPS team confirmed that this is a deliberate strategy to target additional funding to elementary schools; however, it did raise questions for our team about investments that are made in higher-need middle and high schools as well. We explore this further in this report.

Of the $87M incremental dollars MCPS invests in students living in poverty, 74% goes towards elementary schools, which serve 54% of all FARMs students.
MCPS’ investments in FARMs and EL students drives higher spending per pupil for high-need schools across all school levels.

So far, we have looked at spending by student population at the district level. Now, we will see how that plays out across schools. In order to make meaningful school comparisons, special education spending and self-contained students are not included in this analysis. These students are served primarily outside the general education environment, and their models of service (and the funding associated with them) can vary greatly across schools. Therefore, we exclude them in order to have an apples-to-apples comparison of general education funding levels across schools.

This bar chart shows dollar per pupil spending at schools by school level and school need type. This data shows that higher-need schools across all school levels spend more than non-Focus schools, and that this higher spending is driven by the incremental FARMs and EL investment (represented in green and light blue respectively). The difference in spending is largest between higher-need and lower-need ES. This matches what we saw earlier: the majority of MCPS’ incremental FARMs investment goes toward ES.
Without incremental EL and FARMs spending, higher-need elementary and middle schools spend slightly less than lower-need schools.

This data shows that just looking at total dollar per pupil misses an important nuance. Without the incremental EL and FARMs spending, higher-need elementary and middle schools actually spend slightly less than lower-need schools. This is represented by the dark blue bars.

Context

Now, we will look at the base allocation of dollars per pupil, without incremental EL or FARMs spending. As before, special education funding and self-contained students are excluded for purposes of making accurate comparisons across schools.

Explore

This data shows that just looking at total dollar per pupil misses an important nuance. Without the incremental EL and FARMs spending, higher-need elementary and middle schools actually spend slightly less than lower-need schools. This is represented by the dark blue bars.

*Note: To make meaningful school comparisons, special education spending and self-contained students are not included in this analysis. These students are served primarily outside the general education environment, and their models of service (and the funding associated with them) can vary greatly across schools. Therefore, we exclude them in order to have an apples-to-apples comparison of general education funding levels across schools.*
Higher-need schools have lower average teacher compensation and a higher percent novice teachers than lower-need schools

Average Teacher Compensation (Salary + Benefits) by School Level and School Need

Elementary School
- Non-Focus: $103,398
- Focus: $99,402
- Title I: $97,060

Middle School
- Non-Focus: $107,624
- Impacted: $98,567

High School
- Non-Focus/Impacted: $107,249
- Highly Impacted: $102,701

% Novice Teachers (New to teaching)

- Elementary School: 15% Non-Focus, 17% Focus, 23% Title I
- Middle School: 10% Non-Focus, 20% Impacted
- High School: 10% Non-Focus/Impacted, 14% Highly Impacted

Source: MCPS SY17-18 Expenditures, ERS analysis. See glossary for definition of school-need designations. Compensation is defined as salary plus benefits, but does not include pension contributions. Average Teacher Compensation excludes special education and Pre-K teachers.

Context
To understand why the general education spending per pupil might be higher at lower-need schools, we explored differences in average teacher compensation as a potential driver. Like most districts, MCPS staffs schools by using staff to student ratios. This means that each school receives the same number of positions per student, regardless of where those positions are on the salary schedule. If certain schools have higher concentrations of more experienced teachers (and therefore, teachers that are higher on the salary schedule), this can create differences in per pupil spending.

Explore
This bar chart shows that higher-need schools across all levels have lower average teacher compensation [salary + benefits] than lower-need schools. This is driven by the fact that higher-need schools have a higher concentration of novice teachers, who are on the lower end of the salary schedule. This difference is most pronounced at the middle school level, where impacted middle schools have 2x more novice teachers than non-Focus middle schools.

Data Note: Novice teachers are defined as teachers with less than three years of experience teaching. See Teaching Quality section for more details on this metric.
This difference in average teacher compensation between higher and lower need schools represents $32M system-wide

(1) Looking at elementary schools, the purple bar almost perfectly matches the dark blue bars – indicating that the difference in average teacher compensation would level out the base allocation in higher-need elementary schools.

(2) For middle and high schools, the size of the purple bar is almost the same size as the green bar (the incremental FARMs investment). This suggests that at the secondary level, the incremental poverty spending intended to cover the extra needs associated with poverty is offset by the difference in access to teacher experience as reflected in compensation levels.

This data raised two key questions:
(1) Should we be differentiating funding more, particularly at secondary levels?
(2) We differentiate spending more than other districts; but how are we using those additional investments to create the student experiences that make a difference?
Unlike peer districts, almost all of MCPS’ incremental FARMs spending goes toward instruction.
Over 80% of MCPS’ total incremental FARMs investment is in teacher positions.

Percent of FARMs Investment in Schools, by Position

- Focus and Intervention Teachers: 43%
- Classroom Teachers: 33%
- Paraeducators: 12%
- Other Teachers: 5%
- Assistant Principals: 3%
- Non-Position: 1%
- Coordinators/Managers: 1%
- Guidance Counselors: 1%
- Instructional Coaches: 1%
- All Others: 0%

Source: MCPS SY17-18 Expenditures, ERS analysis

Explore

This data digs one level deeper and explores the specific position types that make up MCPS’ FARMs investment. We see that close to 80% of MCPS’ incremental FARMs investment is in classroom, Focus, and academic intervention teachers.
MCPS’ additional poverty investments result in significantly more staff in higher-need schools across all levels

<table>
<thead>
<tr>
<th>School Level</th>
<th>Non-Focus</th>
<th>Focus</th>
<th>Title 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary</td>
<td>41</td>
<td>51</td>
<td>58</td>
</tr>
<tr>
<td>Middle</td>
<td>42</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>High School</td>
<td>40</td>
<td>47</td>
<td>47</td>
</tr>
</tbody>
</table>

*Note: To make meaningful school comparisons, special education spending and self-contained students are not included in this analysis. These students are served primarily outside the general education environment, and their models of service (and the funding associated with them) can vary greatly across schools. Therefore, we exclude them in order to have an apples-to-apples comparison of general education funding levels across schools.

Ultimately, MCPS uses its staffing allocation formula and additional student need investments to put more staff in higher-need schools. This visual shows the total FTE per 500 students by school level and need. Across all school levels, higher-need schools have more FTE/500 students than lower-need schools. For example, on the very left, we see that non-Focus elementary schools have 41 FTE/500 students, compared to 58 FTE/500 students in Title 1 elementary schools (41% more staff). The differences in middle and high school are smaller, which is consistent with the smaller spending differences we saw earlier.

This set of data alone does not clearly validate or invalidate the use of MCPS’ incremental FARMs spending. Instead, it raises a number of important questions specifically:

- What is the student experience we are trying to create and/or the needs we are trying to address?
- How do these investments align with and support that vision?
How does actual staffing in schools compare to MCPS' intended staffing allocation guidelines? Differences in spending across schools can occur when schools get staffed differently than intended. This happens for various reasons, such as inaccurate enrollment projections and ad hoc requests.

The table to the left lists the positions that MCPS intends to staff differently for its lower- and higher-need schools. The arrows indicate the intended level of differentiation in FTE allocated for different positions as follows:

- 3 arrows = greater than 3 FTE
- 2 arrows = between 1 and 3 FTE
- 1 arrow or less = 1 or fewer FTE

The next few slides explore how actual staffing compares to this intent.
**Elementary Schools:**

The majority of additional staff in higher-need schools are teacher positions

<table>
<thead>
<tr>
<th>Position Type</th>
<th>Position</th>
<th>Non-Focus</th>
<th>Focus</th>
<th>Title I</th>
<th>Difference: Focus to Non-Focus</th>
<th>Difference: Title I to Non-Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher</td>
<td>Classroom Teachers and Music, Art, P.E.</td>
<td>24.1</td>
<td>29.2</td>
<td>29.4</td>
<td>5.0</td>
<td>5.2</td>
</tr>
<tr>
<td></td>
<td>Teacher, ESOL</td>
<td>1.1</td>
<td>2.8</td>
<td>5.8</td>
<td>1.7</td>
<td>4.7</td>
</tr>
<tr>
<td></td>
<td>Focus and Academic Intervention Teachers</td>
<td>0.1</td>
<td>1.8</td>
<td>4.1</td>
<td>1.7</td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td>Reading Teachers</td>
<td>1.0</td>
<td>1.0</td>
<td>1.2</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>0.1</td>
<td>0.3</td>
<td>0.4</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>Teacher, Reading Initiative</td>
<td>0.6</td>
<td>0.0</td>
<td>0.0</td>
<td>(0.6)</td>
<td>(0.6)</td>
</tr>
<tr>
<td>Non-Teacher Positions</td>
<td>Paraeducator</td>
<td>1.3</td>
<td>2.8</td>
<td>3.4</td>
<td>1.5</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>Asst. Principals &amp; ASAs</td>
<td>0.6</td>
<td>1.0</td>
<td>1.0</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td>Counselors</td>
<td>1.1</td>
<td>1.1</td>
<td>1.1</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>All Other*</td>
<td>10.9</td>
<td>11.0</td>
<td>11.2</td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>41.1</td>
<td>50.9</td>
<td>57.5</td>
<td>9.8</td>
<td>16.4</td>
</tr>
</tbody>
</table>

FTE per 500 Students by School Need at Elementary Schools
Excludes Special Education and Pre-K Spending; Excludes Self-Contained Students with Disabilities and Pre-K Student Populations

Excludes Special Education and Pre-K Spending; Excludes Self-Contained Students with Disabilities and Pre-K Student Populations

Source: MCPS SY17-18 Expenditures, ERS analysis. See glossary for definition of school-need designations.

*Note: To make meaningful school comparisons, special education spending and self-contained students are not included in this analysis. These students are served primarily outside the general education environment, and their models of service (and the funding associated with them) can vary greatly across schools. Therefore, we exclude them in order to have an apples-to-apples comparison of general education funding levels across schools.
**Elementary Schools:**

Actual staffing at high-need elementary schools matches intended staffing

<table>
<thead>
<tr>
<th>Incremental Position</th>
<th>Description of Intended Staffing for Higher-FARMs Schools</th>
<th>Intended Level of Differentiation in FTE Allocated for Higher Need Elementary Schools</th>
<th>Actual Matches Intent?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom Teachers</td>
<td>Provide additional classroom teachers to decrease average class size by 5 students at ES (exact class size reduction varies by grade) and by 1 student at MS/HS</td>
<td>✆ ✆ ✆</td>
<td>✓</td>
</tr>
<tr>
<td>Focus &amp; Academic Intervention Teachers</td>
<td>Allocate additional FTE to highest-need schools</td>
<td>✆ ✆</td>
<td>✓</td>
</tr>
<tr>
<td>Paraeducators</td>
<td></td>
<td>✆ ✆ ✆</td>
<td>✓</td>
</tr>
<tr>
<td>Asst. Principals &amp; ASAs</td>
<td>Allocate additional FTE to highest-need and biggest schools</td>
<td>1</td>
<td>✓</td>
</tr>
<tr>
<td>Counselors</td>
<td></td>
<td>1</td>
<td>✓</td>
</tr>
<tr>
<td>Reading Initiative Teacher</td>
<td>Intended only for non-Focus schools</td>
<td>❌</td>
<td>✓</td>
</tr>
</tbody>
</table>

Source: MCPS SY17-18 Staffing Allocations, ERS analysis

Note: The arrows indicate the intended level of differentiation in FTE allocated for different positions as follows:
- 3 arrows = greater than 3 FTE
- 2 arrows = between 1 and 3 FTE
- 1 arrow or less = 1 or fewer FTE

Given the differences in actual staffing among non-Focus, Focus, and Title I elementary schools, we saw that actual staffing differences match MCPS intended staffing (as defined by MCPS’ staffing formula) across all position types. This suggests that the staffing formula for elementary schools is working as intended.
**Secondary Schools:**

Higher-need middle and high schools have more staff overall, but there is little difference in total classroom teachers

FTE per 500 Students by School Need at Secondary Schools

<table>
<thead>
<tr>
<th>Position Type</th>
<th>Position</th>
<th>Middle School</th>
<th>High School</th>
<th>Difference: Focus to Non-Focus</th>
<th>Non-Focus/Impacted</th>
<th>Highly-Impacted</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teacher &amp; Instructional Coach Positions</strong></td>
<td>Classroom Teachers</td>
<td>21.3</td>
<td>21.2</td>
<td>(0.2)</td>
<td>22.2</td>
<td>22.4</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>ESOL Teachers</td>
<td>0.4</td>
<td>1.3</td>
<td>0.9</td>
<td>0.6</td>
<td>2.3</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td>Focus &amp; Academic Intervention Teachers</td>
<td>0.0</td>
<td>1.4</td>
<td>1.4</td>
<td>0.2</td>
<td>1.3</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>Other Teachers</td>
<td>0.5</td>
<td>1.0</td>
<td>0.5</td>
<td>0.9</td>
<td>1.8</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>Resource Teachers, Content Specialists, Team Leaders</td>
<td>4.9</td>
<td>6.5</td>
<td>1.6</td>
<td>1.9</td>
<td>2.6</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td>Staff Development Teachers</td>
<td>0.5</td>
<td>0.5</td>
<td>0.0</td>
<td>0.2</td>
<td>0.2</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Other Instructional Coaches</td>
<td>0.3</td>
<td>0.4</td>
<td>0.0</td>
<td>0.3</td>
<td>0.4</td>
<td>0.1</td>
</tr>
<tr>
<td><strong>Non-Teacher, Non-Instructional Coach Positions</strong></td>
<td>Paraeducator</td>
<td>0.4</td>
<td>1.1</td>
<td>0.7</td>
<td>1.2</td>
<td>1.7</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Asst Principals</td>
<td>1.3</td>
<td>1.3</td>
<td>0.0</td>
<td>0.9</td>
<td>1.1</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>All other</td>
<td>12.1</td>
<td>12.4</td>
<td>0.3</td>
<td>11.8</td>
<td>13.3</td>
<td>1.6</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td>41.7</td>
<td>47.0</td>
<td>5.4</td>
<td>40.0</td>
<td>46.9</td>
<td>6.9</td>
</tr>
</tbody>
</table>

Source: MCPS SY17-18 Expenditures, EFR analysis. See glossary for definition of school-need designations. Instructional coach positions are staff with a primary role of directly supporting teachers in instructional practice. Other Teachers include Central Office Teachers, ESOL Teachers, Alternative Programs Teachers, Special Programs Teachers, Physical Education Teachers, ROTC Instructors, Career Support and Career Preparation Teachers. Other Instructional Coaches include Consulting Teachers, Instructional Specialists, and Pre-K-12 Content Specialists.

*Note: In HS, difference in “all other” positions is driven mainly by additional school safety and custodial staff.*

Higher-need middle and high schools have more FTE/500 students than lower need schools by 5.4 and 6.9 FTE/500 respectively. In secondary schools, a good portion of this additional staff comes from additional teacher and instructional coach positions.

However, although higher-need middle and high schools have more staff overall, there is little difference in total classroom teachers — specifically, impacted middle schools actually had 0.2 classroom teacher FTE/500 students less than non-Focus HS. Highly-impacted high schools had 0.3 classroom teacher FTE/500 students more than non-Focus HS. The positions that higher-need secondary schools did have more of include ESOL teachers, Focus and academic intervention teachers, resource teachers, content specialists, and team leaders.
### Secondary Schools:

**Actual staffing at higher-need schools matches intended for Focus and academic intervention teachers, but not for classroom teachers**

<table>
<thead>
<tr>
<th>Incremental Position</th>
<th>Description of Intended Staffing for Higher-FARMs Schools</th>
<th>Intended Level of Differentiation in FTE Allocated for Higher Need Middle and High Schools</th>
<th>Actual Matches Intent?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom Teachers</td>
<td>Provide additional classroom teachers to decrease average class size by 5 students at ES (exact class size reduction varies by grade) and by 1 student at MS/HS</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Focus &amp; Academic Intervention Teachers</td>
<td>Allocate additional FTE to highest-need schools</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Paraeducators</td>
<td>No intended differentiation</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Asst. Principals &amp; ASAs</td>
<td>Allocate additional FTE to highest-need and biggest schools</td>
<td>1 (For HS)</td>
<td>✓</td>
</tr>
<tr>
<td>Counselors</td>
<td>No intended differentiation</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Reading Initiative Teacher</td>
<td>Intended only for non-Focus schools</td>
<td>Not a position at MS/HS</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Source: MCPS SY17-18 Staffing Allocations, ERS analysis

Given the differences in actual staffing between lower- and higher-need secondary schools, we found that actual staffing matches intended staffing for other teachers and administrators, but **not for classroom teachers**. Specifically, MCPS' staffing formula intends to provide more classroom teachers to higher-need secondary schools, but this does not show up in what schools actually receive. This could be a result of a number of factors, including rounding that happens when calculating staffing ratios, and ad hoc exceptions.

This data raises the questions: does the additional investment in secondary school positions match our vision for higher-need schools? How are positions used across schools?

**Note:** The arrows indicate the intended level of differentiation in FTE allocated for different positions as follows:
- 3 arrows = greater than 3 FTE
- 2 arrows = between 1 and 3 FTE
- 1 arrow or less = 1 or fewer FTE
Like other districts, the majority of MCPS principals do not think resources are allocated equitably.

The data to the left shows responses to the principal survey statement: “Positions and dollars are allocated equitably based on my school’s needs.” In MCPS, 55% of principals responded with disagree or strongly disagree. This result is similar to other districts studied.

Looking ahead, a potential next step was identified to further understand principal opinion on this topic to help inform potential actions.

Source: MCPS SY17-18 Principal Survey, ERS analysis; ERS benchmark database. See appendix for details on principal survey respondents.
60% of principals do not think they have the right mix of positions at their schools, with higher levels of disagreement from elementary school principals.

Principal response to the statement “My school has the right mix of positions and resources to meet the needs of my school and students”

- 15% Strongly Disagree
- 18% Disagree
- 52% Agree
- 17% Strongly Agree

Total Responses:
- All: 129
- ES: 87
- MS: 23
- HS: 12

Source: MCPS SY17-18 Principal Survey, ERS analysis; ERS benchmark database. See appendix for details on principal survey respondents.
Relative to other districts, a greater percent of MCPS principals do not think they have the flexibility to make changes to their budget or staff.

This data shows the principal survey responses to the statement: “I have flexibility over how I spend my budget, including swapping staff positions or exchanging staff positions for dollars.” 62% of MCPS principals responded with disagree or strongly disagree, compared to 46% in peer districts.

This data raises two questions:

1. Are there opportunities to increase transparency and understanding of the current flexibilities that principals have?
2. Should MCPS consider changing or increasing the level of flexibilities that principals have over budgets so they can better match resources to their own school need?

Source: MCPS SY17-18 Principal Survey, ERS analysis; ERS benchmark database.
See appendix for details on principal survey respondents.
School Funding: Key Questions

Given that MCPS differentiates spending for higher-need schools, how well does that additional investment match our vision for the student experience? Specifically:

• Is the level of differentiation in funding to the highest-need schools sufficient across all levels?

• Are we providing the right mix of positions to schools?

• Are we providing the right level of flexibility to principals? Are those flexibilities widely known and understood?

• How well are resources being used? How does funding relate to our other equity dimensions?

Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers:

- In MCPS, higher-need schools/students get more
- In MCPS, higher-need schools/students get a similar level
- In MCPS, higher-need schools/students get less
Dimensions of Resource Equity

Teaching Quality
# Teaching Quality: At a Glance

**Vision:** All students experience a high-quality teaching workforce that reflects student diversity

<table>
<thead>
<tr>
<th>Why it Matters</th>
<th>Consistent access to great teaching has a dramatic effect on student achievement and long-term outcomes, such as college graduation rates and post-school salaries.</th>
</tr>
</thead>
</table>
| **How it's Assessed** | *Teaching quality measures* (see next slide for more details on exact measures)  
*Teacher assignment to schools and students*  
*Practices for teacher collaboration and support* (e.g. teacher load)  
*Teacher diversity* |

*Indicates topics addressed in our study

| Study Insights | **Teacher assignment** to schools and students:  
*In MCPS, Focus group students are more likely than Monitoring group students to spend time with novice teachers and less likely to spend time with teacher leaders, National Board Certified teachers, and teachers with advanced degrees.  
*In elementary and middle school, differences in student experience is driven mostly by differences in teachers across schools.  
In high school, the difference is driven mostly by within school assignment of teachers to certain classes or students.  
**Practices for teacher collaboration and support:**  
*Overall, novice teachers in middle and high schools do not have lower class loads or fewer preps than non-novice teachers.  
*Principals report mixed results on practices related to teacher support and teacher collaboration. |

---
A note on teaching quality measures

Across the education field, there is no singular, agreed-upon way to objectively measure teaching quality. For this study, we considered the measures listed below. We recognize that teacher experience, leadership, and certification measures are not direct measures of teaching quality. To identify high-level trends, our analysis looks across multiple measures from the data that was available.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Used in study?</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher evaluation data</td>
<td>No</td>
<td>Data was not available for this study.</td>
</tr>
<tr>
<td>Novice teachers</td>
<td>Yes</td>
<td>Research shows that teachers make the greatest gains in effectiveness during their first three years of teaching, and that generally, teachers with less than three years of experience are less effective than those with more experience. Additionally, having a high percentage of novice teachers suggests less continuity and stability of the school staff over time, which may impact student experience. For this analysis, we looked at two different metrics for novice teachers.</td>
</tr>
<tr>
<td>• New to MCPS</td>
<td></td>
<td>New to MCPS – teachers with fewer than three years of experience in MCPS</td>
</tr>
<tr>
<td>• New to teaching</td>
<td></td>
<td>New to teaching – teachers with fewer than three years of teaching overall</td>
</tr>
<tr>
<td>Research does not indicate or suggest novice teachers are not effective; instead, it indicates that for most teachers, effectiveness increases with experience, particularly early in an individual’s career.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher leaders</td>
<td>Yes</td>
<td>In MCPS, schools select some high-performing teachers to take on teacher leadership roles. For this reason, we use teacher leaders as a general proxy for high-quality teachers. Positions included as teacher leaders: content specialists, resource teachers, team leaders (MS), and staff development teachers.</td>
</tr>
<tr>
<td>National Board Certified (NBC) teachers</td>
<td>Yes</td>
<td>MCPS provides stipends to NBC teachers as part of a strategy to attract and retain high-quality teachers.</td>
</tr>
<tr>
<td>Education level (Masters+60 or higher advanced degree)</td>
<td>Yes</td>
<td>Through the salary schedule, MCPS invests more in teachers with higher levels of education as part of a strategy to attract and retain high-quality teachers.</td>
</tr>
<tr>
<td>Student survey data</td>
<td>No</td>
<td>Data was not available for this study.</td>
</tr>
</tbody>
</table>
Students who enter the school year below proficient in ELA and math are more likely to have novice teachers in those subjects.

The first way we assess teaching quality is by looking at access to novice teachers. We start by comparing access to novice teachers (defined as new to MCPS) across students with different incoming performance levels.

In middle and high school, students who were below proficient during the prior school year are more likely to have a novice teacher in the current school year than students who were proficient. In other words, students who are behind and likely need additional support to catch up are in classes with teachers with the least experience. In this case, teacher experience is differentiated against student need.

The MCPS project team recognized this as an important equity challenge for the district to address.

Source: MCPS 17-18 Course Schedule, ERS analysis. Proficiency is based on prior year PARCC ELA or Math assessment. In high school, only Algebra 1 scores were used for Math.
Across school levels, Focus group students spend more time with novice teachers than Monitoring group students.

Student Assignment to Novice Teachers (New to MCPS)
ES: Percent of Students with Novice Homeroom Teacher
MS/HS: Percent of Classes With Novice Teachers

<table>
<thead>
<tr>
<th>Non-FARMs</th>
<th>Non-FARMs</th>
<th>Non-FARMs</th>
<th>FARMs</th>
<th>FARMs</th>
</tr>
</thead>
<tbody>
<tr>
<td>All other Student Groups</td>
<td>Black or African American</td>
<td>Hispanic/Latino</td>
<td>All other Student Groups</td>
<td>Black or African American</td>
</tr>
</tbody>
</table>

Hispanic FARMs students are 2x more likely to have a novice teacher in middle school than Monitoring group students.

Across elementary, middle and high school, Focus group students are more likely than Monitoring group students to have novice teachers. For example, Hispanic/Latino FARMs students in middle school are almost two times more likely to have a novice teacher than their Monitoring group peers.

The MCPS project team identified this as a potential area to improve equity in the district so that certain student groups are not disproportionately spending time with novice teachers.
There are two reasons why students might be more likely to be served by a novice teacher—one is about differences in the population of novice teachers across schools, and the other is about differences in within-school classroom assignments. We will use the example of a typical Hispanic FARMs student in middle school to illustrate these factors.

Overall, 18% of middle school teachers in MCPS are novice. However, impacted schools have a higher concentration of novice teachers (23% of teachers in focus/impacted middle schools are novice, compared to 11% of teachers in non-Focus middle schools). Therefore, students in an impacted school will be more likely to have a novice teacher, simply because of the school they attend.

Within both impacted and non-Focus schools, students may also have different experiences with novice teachers based on their specific class assignment.

It is important to understand the impact of each of these factors separately as a way to inform potential actions—addressing differential access to novice teachers due to across-school differences will necessitate different actions than addressing within-school assignment differences.
Across Schools (MS):
Schools with higher concentrations of Hispanic FARMs students have a higher percentage of novice teachers.

Note that while the overall correlation is positive, we also see significant variation among schools with similar concentrations of Hispanic FARMs students. For example, comparing schools with ~10% Hispanic FARMs students, some have <5% novice teachers, while others have ~30%. This shows us that differences in the percent of novice teachers is important across all schools, not just higher-need schools.

Source: MCPS 17-18 Course Schedule, ERS analysis.
Includes all teachers of record at schools (including special education, ESOL, and non-core teachers).
Within Schools (MS):

In most middle schools, Hispanic FARMs students have a similar percent of classes with novice teachers as their Monitoring group peers.

Source: MCPS 17-18 Course Schedule, ERS analysis.

Percent of classes includes all scheduled time (core and non-core) for all students (incl. students with disabilities and English language learners).
In elementary and middle school, the difference in the concentration of novice teachers across schools accounts for most of the difference in student experience.

We can size the relative impact of across- and within-school factors on overall differences in student experience to assess root causes and inform priorities for action. (See appendix for details on methodology.)

We see that in elementary and middle school, the difference in the concentration of novice teachers across schools accounts for almost the entire difference in student experience at the district level, and that differences in within school assignment are a smaller factor. Specifically, the orange bar segment shows how much of the student experience difference is explained by across school differences.

This data raised a question about how to improve the value proposition for teaching in our highest-need schools so that great teachers want to work at those schools.

Source: MCPS 17-18 Course Schedule, ERS analysis.
In contrast, in high schools, *within*-school assignment decisions are a bigger driver of difference in student experience.

At the same time, across-school differences in the concentration of novice teachers persist and contribute to the overall difference in student experience, shown by the orange bar.

This data raised questions about *how* and *why* student assignment practices result in these patterns.
Within Schools (HS):
In almost every high school, students who enter the school year below-proficient spend more time with novice teachers than a typical student in their school.

Source: MCPS 17-18 Course Schedule, ERS analysis.
Percent of classes includes all scheduled time (core and non-core) for all students (incl. SWD, ELs).
Within Schools (HS):
Assignment of novice teachers to less advanced math classes contributes to within-school assignment differences for Focus group students and students entering the year below-proficient.

---

**Context**
To help understand why within-school assignment differences might exist, we looked at whether novice teachers in high school are more likely to teach lower-level classes.

**Explore**
Left: Algebra 1 and Geometry make up 36% of all math classes in high school, but they comprise 55% of math classes taught by novice teachers. Students in those lower-level classes (e.g., students entering below-proficient) are therefore more likely to have novice teachers.

Right: The same pattern was not observed in ELA. A contributing factor is that some high schools offered very few or no sections of standard English in SY17-18.

**Consider**
The MCPS project team discussed the potential reasons why novice teachers are more likely to teach lower-level courses, especially in math (e.g., content expertise needed to teach advanced subjects, teacher preference), and want to explore opportunities to minimize the impact of these factors in creating inequitable student experiences.

Source: MCPS 17-18 Course Schedule, ERS analysis. Special education classes are not included.
In addition to defining novice teachers as new to MCPS, we can also look at teachers who are new to teaching. This data looks at the likelihood of having novice teachers – new to teaching by student group.

Across elementary, middle and high school, Focus group students are more likely than Monitoring group students to have novice teachers.

Source: MCPS 17-18 Course Schedule, ERS analysis

In addition to spending more time with ‘new to MCPS’ novice teachers, Focus group students also spend more time with ‘new to teaching’ novice teachers than Monitoring group students.
In high school, *Focus* group students are less likely to be taught by teacher leaders than their peers.

Comparing across student groups, in middle school, all student groups are equally likely to be taught by a teacher leader in a core subject.

In contrast, in high schools, there are differences across student groups. Specifically, 24% of Monitoring group students in high school are taught by a teacher leader in at least one core subject, but this is true for less than 20% of all Focus group students, including just 14% for Hispanic FARMs students.

This data also shows that middle school students are more likely to have a class with a teacher leader than high school students. This is a function of two factors:

1. The staffing allocation formula provides more teacher leader positions to middle schools than to high schools.
2. On average, middle school teacher leaders teach more periods than high school teacher leaders.
To help understand why access to teacher leaders differs across student groups in high school, we looked at the types of classes teacher leaders tend to teach.

Teacher leaders in high school are more likely to teach AP classes and advanced topics in both math and ELA. Therefore, students who are less likely to be in those classes (e.g., students entering the year below-proficient and Focus group students) will have a lower likelihood of being taught by teacher leaders.

Source: MCPS 17-18 Course Schedule, ERS analysis. This analysis does not include special education classes. Teacher Leader category includes: Resource Teacher, Content Specialist, Team Leader, and Staff Development Teacher.
In middle school and high school, Focus group students are less likely to be taught by a National Board Certified (NBC) teacher.

Context
We looked at access to National Board Certified (NBC) teachers as another proxy for teaching quality. We chose this metric as a proxy for ‘high-quality’ because MCPS currently provides stipends to NBC teachers as part of a strategy to attract and retain high-quality teachers.

Explore
This chart shows the likelihood that a student has an NBC teacher in any core subject.

- First, we see that overall access to NBC teachers is higher in MCPS high schools because NBC teachers are more concentrated at the high school level.
- Additionally, when we look across student groups, we see that Focus group students are less likely to have an NBC teacher than Monitoring group students in both middle and high school.

Source: MCPS 17-18 Course Schedule, ERS analysis.
Note: Counts reflect number of NBC teachers at each school level who are teachers of record for at least one class.
Across- and within-school factors drive differences in access to NBC teachers in middle school, but in high school differences are only due to within-school factors.
Focus group students are slightly less likely to have classes with teachers who have attained advanced degrees

Percent of Classes with Teachers With Advanced Degrees (MA+60, MEQ+60, DR, EDD, JD, and PhD)*

- Non-FARMs: 14%
- All other Student Groups: 12%
- Black or African American: 12%
- Hispanic/Latino: 11%
- Non-FARMs: 18%
- All other Student Groups: 16%
- Black or African American: 16%
- Hispanic/Latino: 15%
- Non-FARMs: 15%
- All other Student Groups: 14%
- Black or African American: 14%
- Hispanic/Latino: 14%
- Non-FARMs: 21%
- All other Student Groups: 19%
- Black or African American: 19%
- Hispanic/Latino: 20%
- Non-FARMs: 18%
- All other Student Groups: 18%
- Black or African American: 18%
- Hispanic/Latino: 18%

Source: MCPS 17-18 Course Schedule, ERS analysis.
Note: Counts reflect number of teachers at each school level who are teachers of record for at least one class. MA+60 is Master's degree plus 60 credits. MEQ+60 is a Master's degree equivalent plus 60 credits.
How can we support and retain novice teachers to give all students access to high-quality instruction?

• Teachers require differentiated levels of support to deliver high-quality instruction and improve their skills over time.

• Novice teachers in particular require different kinds of support than mid-career and veteran teachers. Novice teacher support should focus on:

  - Shelter: To improve retention in the first few years, novice teacher roles can be designed to be less complex and better supported.
  - Development: Schools and systems can invest deliberately in teachers’ professional learning and growth so that they are able to build their skillset over time.

Next, we will explore metrics that help us better understand how novice teacher roles and teaming practices allow for these supports in MCPS today.
On average, novice teachers do not teach reduced student loads or have fewer preps than non-novice teachers

**Context**

One way to “shelter” novice teachers is by assigning them fewer students (either through a reduced teaching load, or by assigning them to smaller classes). Another shelter strategy is to reduce the number of distinct courses (“preps”) that novice teachers are assigned to teach. This reduces the amount of time teachers need to prepare for their classes. However, note that these strategies may require tradeoffs for the loads/preps for other teachers in the building. School teams must consider these tradeoffs within the larger school context.

**Explore**

Left: This chart shows that on average, in both middle and high school, novice teacher loads are not differentiated from non-novice teacher loads.

Right: This chart shows that novice teachers are not significantly more likely to teach fewer preps than non-novice teachers.

**Consider**

A potential next step was raised to better understand the impact of these strategies on other teachers in the building, so that district and school teams can think through how to best support novice teachers, while balancing other associated tradeoffs.

Source: MCPS 17-18 Course Schedule, ERS analysis.

Only shows teachers whose load is > 50% core, general education classes. Excludes teacher leaders (who typically do not teach a full load).
Principals say they assign additional staff to support classrooms led by new teachers, but that those positions can have fragmented roles and limited time to support instruction.

% Principals responding “Always” or “Frequently” to statement: “I assign additional instructional staff (e.g. co-teachers, paraprofessionals, staff development teachers, reading coaches and math content coaches) to help support classrooms led by new teach

- Elementary School
- Middle School
- High School

66% 58% 57%

“As a single administrator school my staff development teacher acts as an administrator, to support testing, large class sizes as a teacher of record for a math class, interventions for students at risk, technology support for students and teachers, as well as the duties listed above [in her job description].”

Source: MCPS Principal Survey (90 ES, 25 MS, 15 HS respondents)
Across MCPS, the majority of principals report that teachers meet regularly in teams; however there is variation in how that time is used.

### Context
We used the principal survey to understand practices around teacher teams and collaboration, which can be critical supports for teacher growth and development.

### Explore
The data from the principal survey shows us what types of **teaming structures** are currently in place in MCPS. Practices that are used consistently include:

1. Across all school levels, teacher teams have at least one highly-effective teacher.
2. In elementary and middle schools, teachers meet regularly in teams, and use collaborative planning time productively.

The practices that are not taking place as consistently include:

1. In high schools, teachers meeting regularly, or using collaborative planning time productively.
2. Across all school levels, using instructional experts to lead teams.
3. Across all school levels (and particularly in high school), teachers meeting for >90 minutes in teams.

### Consider
This data raised a question about how best to support school leaders in creating strong team practices in their schools.
Teaching Quality: Key Questions

What actions can we take at the system-, school-, and classroom-level to:

- Attract and retain high-quality teachers at our highest-need schools, particularly at the middle school level?
- Ensure within-school student and teacher assignment practices create equitable access to our best teachers for Focus group and below-proficient students?
- Provide differentiated support to novice teachers to both shelter and develop them as they gain experience in MCPS?
- Ensure high-quality, curriculum-connected professional learning for all teachers that is targeted to their needs and the needs of their students?

Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers:

- In MCPS, higher-need schools/students get more
- In MCPS, higher-need schools/students get a similar level
- In MCPS, higher-need schools/students get less

Dimensions of resource equity:

- Performance
- School Funding
- Teaching Quality
- Instructional Time and Attention
- Rigorous, Empowering Curriculum
- Diverse and Inclusive Schools and Classrooms
- Whole Child Approach
- School Leadership Quality
Dimensions of Resource Equity

Instructional Time and Attention
**Instructional Time and Attention: At a Glance**

*Vision: All students get the instructional time and teacher attention they need to thrive*

<table>
<thead>
<tr>
<th>Why it Matters</th>
<th>• Strategically increasing students’ instructional time and teacher attention to respond to individual learning needs is a powerful lever for improving student outcomes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>How it’s Assessed</td>
<td>• Class sizes that allow for differentiated instruction* (class size = the number of students in a given period of instruction)</td>
</tr>
<tr>
<td></td>
<td>• Group sizes that allow for differentiated instruction (group size = the number of students that are grouped together throughout the day both within and outside the classroom to provide smaller-group instruction)</td>
</tr>
<tr>
<td></td>
<td>• Students have the time they need to master content*</td>
</tr>
<tr>
<td></td>
<td>• Student groupings are flexible and based on data on student progress</td>
</tr>
<tr>
<td></td>
<td>• Student needs are accurately identified and matched to appropriate supports</td>
</tr>
<tr>
<td>Study Insights</td>
<td>• On average, Focus schools have lower class sizes in core subjects than non-Focus schools. However, there is significant variation in class sizes across schools.</td>
</tr>
<tr>
<td></td>
<td>• Across the district, there are inconsistent practices related to schools differentiating class sizes for priority subjects, grades, and students. On average, middle schools have more differentiation in class sizes than high schools.</td>
</tr>
<tr>
<td></td>
<td>• With the exception of middle school ELA classes, middle and high schools do not provide more time to lower-performing students in ELA or math.</td>
</tr>
</tbody>
</table>
What drives differences in how students experience instructional time and attention?

### Across Schools

<table>
<thead>
<tr>
<th>Level</th>
<th>Staff per 500 Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher-Need Schools</td>
<td>51-58</td>
</tr>
<tr>
<td>Lower-Need Schools</td>
<td>41</td>
</tr>
<tr>
<td>Middle</td>
<td>47</td>
</tr>
<tr>
<td>High</td>
<td>47</td>
</tr>
</tbody>
</table>

### Within Schools

<table>
<thead>
<tr>
<th>Level</th>
<th>Staff per 500 Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary</td>
<td>47</td>
</tr>
<tr>
<td>Middle</td>
<td>42</td>
</tr>
<tr>
<td>High</td>
<td>40</td>
</tr>
</tbody>
</table>

Source: MCPS SY17-18 Expenditures, Staffing, Student Data; ERS analysis

Lower-Need Schools = Non-Focus Schools and HS Impacted Schools; Higher-Need Schools = All Others. See Appendix for more details on school need categories.

In this section, we explore two factors that impact the amount of instructional time and attention that students receive in different subjects throughout the day.

**Across Schools:** MCPS' differentiated staffing formula allocates more teachers and staff to higher-need schools. This means that higher-need schools have more staff available to lower class or group sizes for all students in that school.

**Within Schools:**
Even for two schools that have the same number of staff, school schedules and staff can be organized differently so that use of time, class sizes, and group sizes look different across those two schools.

In this section, we will dig into the ways in which students experience “time and attention” differently across level of school need, subject areas, grade level, and student incoming performance.
Principals use various practices to provide differentiated time and attention to their students

<table>
<thead>
<tr>
<th>Practice</th>
<th>Overall</th>
<th>ES</th>
<th>MS</th>
<th>HS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Centers</strong></td>
<td>74%</td>
<td>91%</td>
<td>43%</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Push-In Support</strong></td>
<td>73%</td>
<td>77%</td>
<td>65%</td>
<td>62%</td>
</tr>
<tr>
<td><strong>Class Size Reduction</strong></td>
<td>62%</td>
<td>53%</td>
<td>91%</td>
<td>92%</td>
</tr>
<tr>
<td><strong>Tutoring/Intervention</strong></td>
<td>59%</td>
<td>60%</td>
<td>70%</td>
<td>46%</td>
</tr>
<tr>
<td><strong>Supplemental Courses</strong></td>
<td>40%</td>
<td>20%</td>
<td>100%</td>
<td>69%</td>
</tr>
<tr>
<td><strong>Family Model</strong></td>
<td>40%</td>
<td>44%</td>
<td>26%</td>
<td>31%</td>
</tr>
<tr>
<td><strong>Additional Coursework</strong></td>
<td>27%</td>
<td>22%</td>
<td>52%</td>
<td>31%</td>
</tr>
<tr>
<td><strong>Additional Course Time</strong></td>
<td>16%</td>
<td>14%</td>
<td>22%</td>
<td>15%</td>
</tr>
</tbody>
</table>

% principals reporting ‘Always’ or ‘Frequently’ using these practices

Blue shading = >50%

Context

There isn’t a single ‘right’ way to differentiate time and attention to best meet student needs – instead, school teams must continually assess and adjust practices based on individual students, so that all students get opportunities to excel. To better understand practices in MCPS, we asked principals if they used various practices that commonly used to target time and attention.

Explore

This table shows the % of principals that responded that they ‘Always’ or ‘Frequently’ used the practices described on the left. The most common instructional practices that principals reported using across school levels were assigning push-in supports and reducing class size in high priority areas.

Consider

Given the data available for this study, much of this section is focused on class size and use of time. However, we recognize that these are limited measures that do not give us the full picture of time and attention in MCPS. This raised an important potential next step: measuring and assessing other components of time and attention (e.g. student grouping practices).
On average, class sizes in core subjects in higher-need schools are 3-4 students lower than in non-Focus schools.

Average Core Class Size by School Level and School Need

Elementary School
- Non-Focus: 24
- Focus: 21
- Title I: 21

Middle School
- Non-Focus: 27
- Impacted: 24

High School
- Non-Focus/Impacted: 27
- Highly Impacted: 24

% of classes <18 students
- Elementary: 3% Non-Focus, 39% Focus, 41% Title I
- Middle: 5% Non-Focus, 13% Impacted
- High: 7% Non-Focus/Impacted, 15% Highly Impacted

Source: MCPS 17-18 Course Schedule, ERS analysis.

Context:
We looked at class size as a way to understand instructional attention. As noted earlier, for this study, group size data was not available. While class size is not a complete measure of group size – there may be two adults in a classroom, or students may be getting pulled out for smaller-group supports – it serves as a useful indicator of systematic practices to differentiate instruction for certain students, grades, or content areas.

Explore:
This graph compares average class size in core subjects (ELA, math, science, and social studies) across school levels and school need. Given that MCPS’ staffing formula prioritizes providing additional staff to higher-need elementary schools first, then to higher-need middle and high schools, we would expect to see lower class sizes at higher-need schools, and elementary schools in particular. In the data, we see that is true - on average, elementary schools have lower class sizes than secondary schools, and across all school levels, higher-need schools have lower class sizes than non-Focus schools.

In addition to looking at average class size, we look at % of classes with less than 18 students as a proxy to measure ‘targeted or significant reductions in class size’. We see that higher-need elementary schools have close to half of their classes below 18 students, but secondary schools have much fewer classes with class sizes this small.

Elementary school class sizes are based on Homeroom sections. Excluded Special ed self-contained classes. Middle-high school includes core classes (ELA, math, science, and social studies) but excludes special education classes, ESOL classes, and “Academic Acceleration for ELs”.

See glossary for definition of school-need designations.
Average class sizes in core subjects varies across schools

Although average class sizes show overall patterns across schools with different levels of need, there can be significant variation across schools.

This graph shows the average class size for core subjects across middle schools. Non-Focus middle schools are on the left and impacted middle schools are on the right.

While impacted schools on average tend to have lower class sizes, there is also significant variation across individual schools due to school-specific factors and decisions. For example, some of the impacted middle schools with the highest class sizes in core subjects have an 8-period day instead of a 7-period day. This gives teachers more release time, but results in higher class sizes overall.
Class sizes are lower for high-priority subjects in middle school, but are not lower in high school

Average Class Size by Subject

- ELA/Math
- Non-Core

Source: MCPS 17-18 Course Schedule, ERS analysis.
Excludes special education classes, ESOL classes, and Academic Acceleration for ELLs.
Non-core subjects include Art/Music, PE/Health, Computer Literacy, Foreign Language, ROTC, Vocational/Career, and Internships.
See glossary for definition of school-need designations.

Context
Next, we looked at if class sizes are differentiated by subject, grade level, and students. Here, we explore class size by subject. One way that principals can prioritize smaller class sizes in high-priority subjects for all students is by increasing class sizes in non-core subjects. This allows schools to maintain a variety of instructional offerings while prioritizing resources in foundational subjects.

Explore
This graph compares average ELA and math class sizes to average non-class sizes in core subjects across school levels and school need.

We see that in both non-Focus and impacted middle schools, ELA and math class sizes are lower than non-core class sizes. However, in high schools, ELA/math class sizes are, on average, the same as non-class sizes in core subjects.
Class sizes in core subjects are not significantly reduced in transition grades (6th and 9th grades)

In addition to differentiating class sizes for core subjects, schools may choose to differentiate class sizes in transition grade levels (grades 6 and 9). Research has shown that transition years can be challenging for students, and that ninth grade in particular is a critical year for a student’s future academic success. For this reason, school leaders may choose to lower class sizes in these grades to provide more targeted attention to their 6th and 9th grade students.

This graph compares the average class sizes in core subjects experienced by students of different grade levels in non-Focus and impacted/highly impacted schools. We see that on average, class sizes are not significantly lower in transition grades.

Source: MCPS 17-18 Course Schedule, ERS analysis.

Core classes are ELA, Math, Social Studies, and Science classes. Excludes special education classes, ESOL classes, and Academic Acceleration for ELLs.

See glossary for definition of school-need designations.
In middle school, students with lower incoming performance have smaller class sizes in ELA and math by 3-4 students

### Average ELA/Math Class Size by Student Incoming Performance (Middle Schools)

<table>
<thead>
<tr>
<th>ELA Class Size</th>
<th>Math Class Size</th>
<th>ELA Class Size</th>
<th>Math Class Size</th>
</tr>
</thead>
</table>

### Instructional Time and Attention

**Context**

Another way that we can assess how school leaders prioritize class size is to see whether students who come into the school year behind are more likely to be in smaller classes.

**Note:** While lowering class sizes for struggling students does provide increased instructional attention, it’s important to note that this strategy often results in lower-performing students being grouped together throughout the day and therefore having less access to peers with a range of skill levels.

**Explore**

This chart shows ELA and math class sizes in middle school for students of different incoming performance levels. We see that in both subjects, students with lower incoming performance have smaller class sizes on average.

Source: MCPS 17-18 Course Schedule, ERS analysis.
Excludes special education classes, ESOL classes, and Academic Acceleration for ELLs.
See glossary for definition of school-need designations.
In high school, students with lower incoming performance do not consistently have smaller class sizes in ELA and math.

The same analysis for high school shows that class sizes are **not consistently differentiated** for students with lower incoming performance.

This series of class size data raised a question about if, and how, schools use staff to differentiate group size in other ways besides lowering class sizes (e.g. push-in support or pull-out groups).

This data also raised a potential next step of studying specific school strategies for differentiating group or class sizes to understand the impact of those strategies, and to identify and share best practices more broadly across the district.

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**Average ELA/Math Class Size by Student Incoming Performance (High School)**

(ELA – 9th and 11th grades; Math – 9th grade only)

Source: MCPS 17-18 Course Schedule, ERS analysis.

Excludes special education classes, ESOL classes, and Academic Acceleration for ELLs.

9th grade incoming math scores are based only on students who took Algebra 1.

See glossary for definition of school-need designations.
In middle school, students with lower incoming performance receive additional time in ELA, but current schedules leave little opportunity for additional time in math.

Context
So far, we have looked at class size to understand the extent to which schools provide more individualized attention for specific subjects, grades, or students. Schools can also prioritize resources to increase the amount of time that students spend in certain content areas during the school day.

Explore
This chart shows the percent of time that middle school students spend in ELA and math instruction, by incoming performance in that subject.

We see that in middle schools, students with lower incoming performance get more instructional time in ELA, but not in math. Outside of dedicated math instruction, students with lower incoming performance may have additional time in support and enrichment classes, which, depending on the school, may be used for content mastery. The data on the exact use of this support and enrichment time was unavailable for this study.

Source: MCPS 17-18 Course Schedule, ERS analysis. ELA/Math instructional time includes any support & enrichment time that is subject-specific. Does not include after-school, lunch, or other enrichment time that is not scheduled as a part of the school day. For simplicity, we did not show support and enrichment breakdown by incoming ELA performance.
In high school, students in ninth grade who have lower incoming performance occasionally get differentiated time in ELA; but current schedules leave little opportunity for additional time in math.

The same analysis for high school shows that there is still some differentiation of time for students with lower incoming performance in ELA, though less than at the middle school level. Similarly to middle school, there are limited opportunities for students with lower incoming performance to receive extra time in math.

Based on this data, MCPS team members were interested in ways that schools could provide additional supports (additional time and otherwise) for students with lower incoming performance, especially in math.
In middle and high schools, some teacher roles are teacher-of-record for fewer than five classes, allowing time for push-in, intervention, and other supports.

### Number of Periods Taught by Teacher Position (Middle School)

- **Less than 4**: 2% (Classroom Teacher), 13% (Teacher Leader), 14% (ESOL Teacher), 15% (Focus/Intervention Teacher), 35% (Other Teachers), 13% (Split Position Teacher)
- **Exactly 4**: 4% (Classroom Teacher), 80% (Teacher Leader), 80% (ESOL Teacher), 75% (Focus/Intervention Teacher), 53% (Other Teachers), 25% (Split Position Teacher)
- **Greater than 4**: 2% (Classroom Teacher), 2% (Teacher Leader), 9% (ESOL Teacher), 15% (Focus/Intervention Teacher), 35% (Other Teachers), 13% (Split Position Teacher)
- **Not Teacher of Record**: 25% (Classroom Teacher), 51% (Teacher Leader), 6% (ESOL Teacher), 6% (Focus/Intervention Teacher), 10% (Other Teachers), 10% (Split Position Teacher)

<table>
<thead>
<tr>
<th>Position</th>
<th>Less than 4</th>
<th>Exactly 4</th>
<th>Greater than 4</th>
<th>Not Teacher of Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom Teacher</td>
<td>2%</td>
<td>4%</td>
<td>2%</td>
<td>94%</td>
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<tr>
<td>Teacher Leader</td>
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<td>ESOL Teacher</td>
<td>14%</td>
<td>15%</td>
<td>9%</td>
<td>53%</td>
</tr>
<tr>
<td>Focus/Intervention</td>
<td>15%</td>
<td>35%</td>
<td>6%</td>
<td>51%</td>
</tr>
<tr>
<td>Other Teachers</td>
<td>35%</td>
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<td>13%</td>
<td>13%</td>
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<tr>
<td>Split Position Teacher</td>
<td>25%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>

**FTE:** 1,385

### Number of Periods Taught by Teacher Position (High School)

- **Less than 4**: 9% (Classroom Teacher), 149% (Teacher Leader), 49% (ESOL Teacher), 17% (Focus/Intervention Teacher), 8% (Other Teachers), 19% (Split Position Teacher)
- **Exactly 4**: 9% (Classroom Teacher), 149% (Teacher Leader), 49% (ESOL Teacher), 17% (Focus/Intervention Teacher), 8% (Other Teachers), 19% (Split Position Teacher)
- **Greater than 4**: 9% (Classroom Teacher), 149% (Teacher Leader), 49% (ESOL Teacher), 17% (Focus/Intervention Teacher), 8% (Other Teachers), 19% (Split Position Teacher)
- **Not Teacher of Record**: 10% (Classroom Teacher), 50% (Teacher Leader), 14% (ESOL Teacher), 26% (Focus/Intervention Teacher), 25% (Other Teachers), 26% (Split Position Teacher)

<table>
<thead>
<tr>
<th>Position</th>
<th>Less than 4</th>
<th>Exactly 4</th>
<th>Greater than 4</th>
<th>Not Teacher of Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom Teacher</td>
<td>9%</td>
<td>149%</td>
<td>49%</td>
<td>9%</td>
</tr>
<tr>
<td>Teacher Leader</td>
<td>14%</td>
<td>149%</td>
<td>49%</td>
<td>17%</td>
</tr>
<tr>
<td>ESOL Teacher</td>
<td>15%</td>
<td>149%</td>
<td>49%</td>
<td>8%</td>
</tr>
<tr>
<td>Focus/Intervention</td>
<td>9%</td>
<td>149%</td>
<td>49%</td>
<td>8%</td>
</tr>
<tr>
<td>Other Teachers</td>
<td>35%</td>
<td>27%</td>
<td>27%</td>
<td>211%</td>
</tr>
<tr>
<td>Split Position Teacher</td>
<td>17%</td>
<td>14%</td>
<td>14%</td>
<td>14%</td>
</tr>
</tbody>
</table>

**FTE:** 1,980

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**Source:** MCPS 17-18 Course Schedule, ERS analysis. Charts show full-time FTE only.

Teacher Leader includes Resource Teachers, Content Specialists, Team Leaders, and Staff Development Teachers.

Other Teachers includes Alternative Programs Teachers, Special Programs Teachers, Career Preparation Teachers, and Career Support Teachers.

Split Position Teacher includes teachers whose FTE is split across multiple teacher roles.

Teacher of Record = teacher assigned as lead teacher to a class in MCPS course schedule data.
In elementary schools, non-classroom teachers are used in a variety of ways to support instruction.

Types of Classes Taught by Teacher Position (Elementary Schools)

- Classroom Teacher: 98% Homeroom, 1% Other Class, 2% Not Teacher of Record
- Art/Music/PE Teacher: 99% Homeroom, 0% Other Class, 1% Not Teacher of Record
- ESOL Teacher: 96% Homeroom, 4% Other Class, 0% Not Teacher of Record
- Reading Specialist, Staff Development Teacher: 97% Homeroom, 3% Other Class, 0% Not Teacher of Record
- PreK Teacher: 96% Homeroom, 4% Other Class, 0% Not Teacher of Record
- Focus/Intervention Teacher: 67% Homeroom, 30% Other Class, 3% Not Teacher of Record
- Split Position Teacher: 22% Homeroom, 77% Other Class, 1% Not Teacher of Record
- Other Teachers: 11% Homeroom, 88% Other Class, 1% Not Teacher of Record

FTE:
- Classroom Teacher: 3,256
- Art/Music/PE Teacher: 314
- ESOL Teacher: 269
- Reading Specialist, Staff Development Teacher: 248
- PreK Teacher: 166
- Focus/Intervention Teacher: 127
- Split Position Teacher: 72
- Other Teachers: 13

Source: MCPS 17-18 Course Schedule, ERS analysis. Chart shows full-time FTE only. Split Position Teacher includes teachers whose FTE is split across multiple teacher roles. Other Teachers includes Special Programs Teachers, Reading Initiative Teachers, and Reading Support Teachers. Teacher of Record = teacher assigned as lead teacher to a class in MCPS course schedule data.

Context
A similar analysis for elementary schools looks at whether teachers are the teacher-of-record for a homeroom class, for another class (e.g. subject-specific or specials), or are not the teacher-of-record for any class. Like in the previous analysis, this gives us a sense of how positions are used differently to support instruction.

Explore
This chart shows that almost all classroom and Pre-K teachers are homeroom teachers. Almost all specials teachers and ESOL teachers are the teacher-of-record for a non-homeroom class. Most teacher leaders are not a teacher-of-record, and other teaching positions are used in a wide variety of ways.

Consider
After seeing this data, a need was identified to better understand the specific models for how principals use support teachers, whether certain practices are connected to better student performance, and what kinds of support or resources can help school leaders make strategic staffing decisions that support their school improvement priorities.
**Elementary Schools:**

In addition to teachers, many other staff in the building can support students throughout the day.

### Context

In addition to teachers, schools have a variety of other instructional and non-instructional staff in their building to support students. While these staff play different roles in the ways that they serve students, they all interact with students throughout the day and contribute to building school culture and climate. As we think about time and attention for students, it is important to consider not only class and group sizes, but also how all staff are used to support students.

### Explore

This graph shows the student-to-adult ratio in elementary schools, and how this decreases as more positions are included.

For example, looking at only classroom teachers, the average elementary school has 23 students per teacher. After adding in other general education teachers, the student-to-teacher ratio decreases by 5, to 18. When all other instructional and non-instructional staff are included, the overall student-to-adult ratio is 9 — less than half the starting ratio based on only classroom teachers.

---

**Student-to-Adult Ratio: Elementary Schools**

- Average Homeroom Class Size
- Students per FTE

<table>
<thead>
<tr>
<th>Position</th>
<th>Average Homeroom Class Size</th>
<th>Students per FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom Teachers</td>
<td>23</td>
<td>9</td>
</tr>
<tr>
<td>Other General Education Teachers</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>ESOL and Special Education Teachers</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>General Education Paraeducators</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Special Education Paraeducators</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Other Staff</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

Source: MCPS SY17-18 Expenditures, ERS analysis. Includes school-reported positions only. Other Gen Ed Teachers include elective, focus, academic intervention teachers and teacher leaders. Other Staff includes pupil services, media specialist, and administrative/operations staff.
Middle Schools:

In addition to teachers, many other staff in the building can support students throughout the day.

This graph shows the student-to-adult ratio in middle schools, and how this decreases as more positions are included.

For example, looking at only classroom teachers, the average middle school has 24 students per teacher. After adding in other general education teachers, the student-to-teacher ratio decreases by 6, to 18. When all other instructional and non-instructional staff are included, the overall student-to-adult ratio is 10.

Student-to-Adult Ratio: Middle Schools

- Average Core Class Size
- Students per FTE

For more information, see the source: MOPS SY17-18 Expenditures, ERS analysis. Includes school-reported positions only. Other Gen Ed Teachers include elective, focus, academic intervention teachers and teacher leaders. Other Staff includes pupil services, media specialist, and administrative/operations staff. Core class size excludes special education classes, ESOL classes, and Academic Acceleration for ELLs.
High Schools:
In addition to teachers, many other staff in the building can support students throughout the day.

This graph shows the student-to-adult ratio in high schools, and how this decreases as more positions are included.

For example, looking at only classroom teachers, the average high school has 23 students per teacher. After adding in other general education teachers, the student-to-teacher ratio decreases by 4, to 19. When all other instructional and non-instructional staff are included, the overall student-to-adult ratio is 10.

Given this data, a need was identified to better understand how different schools use all staff in their building to support students throughout the day, as a way to identify and share best practices across the system.

Source: MCPS SY17-18 Expenditures, ERS analysis. Includes school-reported positions only.
Other Gen Ed Teachers include elective, focus, academic intervention teachers and teacher leaders.
Other Staff includes pupil services, media specialists, and administrative/operations staff.
Core class size excludes special education classes, ESOL classes, and Academic Acceleration for ELLs.
Instructional Time and Attention: Key Questions

• Looking at class size alone provides a limited view into time and attention practices at MCPS — therefore, how can we best measure and assess other practices happening across the district? (e.g. student grouping practices)

• How are schools currently using non-classroom teacher positions to provide differentiated instruction to students?

• How are schools currently using the extra time provided to students who are below-proficient in ELA?

• Are students who are below-proficient in math given additional instructional time to catch-up? If not, are there opportunities to create this additional instructional time, while still giving students the opportunity to participate in electives, extracurriculars, and other enrichment?

• How we can we identify and share best practices across schools to better support our students?
Access to Rigorous and Empowering Content
Rigorous, Empowering Curriculum: At a Glance

Vision: All students are held to high expectations and have access to – and succeed in – rich and empowering curriculum materials, coursework and class offerings.

<table>
<thead>
<tr>
<th>Why it Matters</th>
<th>More rigorous academic content – from underlying curriculum to course materials and assignments – leads to better student achievement.</th>
</tr>
</thead>
</table>
| How it’s Assessed | *Class assignment*  
| | *Class offerings*  
| | *Instructional practices*  
| | *Instructional materials*  
| | *Student assignments*  
| | *Grading practices*  

*Indicates topics addressed in our study

| Study Insights | MCPS has defined advanced course pathways for math and ELA, starting as early as 4th grade with compacted math  
| | For all student groups across the district, enrollment in the most advanced math pathway decreases from 4th grade through the end of middle school. This suggests that students may not be getting the support they need to succeed in this pathway.  
| | Additionally, Focus group students are less likely than Monitoring group students to be enrolled in the advanced pathway. This is driven by two main factors: (1) On average, Focus group students have lower incoming performance scores than Monitoring group students, and (2) Focus group students with the same performance scores as their Monitoring group peers are less likely to be placed in the advanced pathway the following school year. |
What is the course landscape for math and ELA?

<table>
<thead>
<tr>
<th>Grade: K - 3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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<td><strong>Math Pathways</strong></td>
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<td></td>
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<tr>
<td>Path 1</td>
<td>Math 4/5</td>
<td>Math 5/6</td>
<td>Math Investigations</td>
<td>Algebra 1</td>
<td>Geometry</td>
<td>Algebra 2</td>
<td>Precalc</td>
<td>AP</td>
<td>AP</td>
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<tr>
<td>Path 3</td>
<td>Math 7</td>
<td>Math 8</td>
<td>Algebra 1</td>
<td>Geometry</td>
<td>Algebra 2</td>
<td>Precalc</td>
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<th>Grade: K - 3</th>
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<tr>
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<td>AP English</td>
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<td></td>
<td></td>
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<tr>
<td>Path 2</td>
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<td>Reading / Writing</td>
<td>Reading / Writing</td>
<td>Adv English</td>
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<td>Honors English</td>
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<td>Path 3</td>
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<td>English</td>
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<td>English</td>
<td>English</td>
<td>English</td>
</tr>
</tbody>
</table>

Source: MCPS Mathematics Curriculum Brochure, MCPS 17-18 Course Schedule, ERS analysis.
Starting in elementary school and through middle school, Focus group students are less likely to be enrolled in the most advanced math course offerings, compared to Monitoring group students.

Context
Because the first point of pathway differentiation starts in 4th grade with compacted math, we used this as a starting point to see how enrollment rates in the most advanced math pathway compare by student groups and over time.

Explore
Each line represents the enrollment rate of a given student group in the most advanced math pathway (Path 1) over time, starting in 4th grade. This data shows two key trends:

1. Enrollment in Path 1 declines for all student groups through 8th grade. This suggests:
   - If students are not selected for advanced math in 4th grade, it is difficult to access this pathway in later grades.
   - Among students who take advanced math in 4th grade, not all are able to stay in this advanced pathway over time.

2. Across all grade levels, enrollment in Path 1 is significantly lower for all Focus groups compared to Monitoring group students.

Source: MCPS 17-18 Course Schedule, ERS analysis.
Additionally, **Focus** group students are more likely to be enrolled in the lowest-level course starting in middle school and through high school.

### Context
Starting in 7th grade, MCPS offers math courses in “Path 3,” the least advanced path. We looked at how enrollment rates in this pathway compare by student group and over time.

### Explore
Each line represents the enrollment rate of a given student group in the least advanced math pathway through middle and high school. This data shows two key trends:

1. Between 7th and 12th grade, enrollment in Path 3 increases for all student groups by 4-6x. This suggests that students are not succeeding in Path 1 and 2, and end up in Path 3 over time.

2. Across all grade levels, enrollment in Path 3 is higher for all **Focus** student groups compared to **Monitoring** group students.

---

**Percent of Student Group Enrolled in Math Path 3 (least advanced pathway) by Grade**

- **Non-FARMs**
- **All other Student Groups**
- **Non-FARMs Black or African American**
- **FARMs**
- **All other Student Groups**
- **FARMs Black or African American**
- **Non-FARMs Hispanic/Latino**
- **FARMs Hispanic/Latino**

Source: MCPS 17-18 Course Schedule, ERS analysis. In 12th grade, all AP/IB courses and advanced topics (e.g. linear algebra, multivariable calculus, etc.) are categorized as advanced. Non-AP calculus and statistics classes are categorized as standard.
Deep Dive:
Understanding course enrollment differences in 7th grade math

7th Grade Algebra 1 (Path 1 – most advanced path) Enrollment by Student Group

To better understand why there might be differences in enrollment across student groups, we will look at a specific example: enrollment in Path 1 in math for 7th graders (i.e. enrollment in Algebra 1).

This data is the same as we saw in our line chart earlier – it shows us that Focus group students are less likely than Monitoring group students to be enrolled in the Path 1 advanced course in 7th grade.

Specifically, we see that in 7th grade, 39% of Monitoring group students take Algebra 1, compared to just 5% of Hispanic/Latino FARMs students. The Focus student group with the highest enrollment in Algebra 1 (16%) is still less than half as likely as Monitoring group students to be enrolled.

We will explore this difference in enrollment rates in the following slides.
What factors might drive this difference in student enrollment?

There are three main factors that contribute to different enrollment rates in course pathways across student groups. Let's consider the example of Algebra 1 in 7th grade (the most advanced math pathway) to understand these factors.

**Student Incoming Performance:**
Students who are higher performing and have had prior exposure to advanced coursework will be more likely to meet the academic enrollment criteria for Algebra 1.

**Course Assignment Within Schools:**
Even for kids with the same incoming performance, course placement might vary based on school course assignment practices.

**Course Availability Across Schools:**
Course availability at the school you attend can limit or enable your opportunities to take certain courses.

---

**Context**

Student Incoming Performance:
Students who are higher performing and have had prior exposure to advanced coursework will be more likely to meet the academic enrollment criteria for Algebra 1.

Course Assignment Within Schools:
For students who have similar levels of performance, there may be other factors in the course assignment process that impact access to the course. This includes, for example, which other types of student data are considered when assigning students to courses (e.g. attendance data, prior course grade).

Course Availability Across Schools:
If some schools offer more sections of Algebra 1 relative to the number of students who qualify, then students in those schools will have more opportunity to be enrolled, compared to similarly performing students in other schools that offer fewer sections.

We will continue using the example of Algebra 1 in 7th grade to assess the relative impact of these factors.
Both incoming student performance and course assignment practices within schools contribute to differences in Algebra 1 enrollment between Focus group students and Monitoring group students. The next few slides explore these two factors more deeply.

We also found that there was no impact from differences in course availability across schools. We found that all MCPS middle schools offered Algebra 1, and any variation in course availability across schools was not related to school need. This differs from other districts we have studied – we have often found that differences in course offerings across schools has contributed to differences in Algebra 1 enrollment. The MCPS project team recognized this difference from other districts as a positive practice in MCPS.

See the appendix for more details on our methodology for sizing the relative impact of each factor on Algebra 1 enrollment.

Source: MCPS 17-18 Course Schedule, ERS analysis.
Incoming Student Performance:

*Monitoring* group students enter 7th grade with higher incoming performance scores than *Focus* group students.

The first factor we will look at is incoming student performance. This chart shows the distribution of student performance on the prior year (6th grade) PARCC math assessment, by student group. For example, we see that 18% of Monitoring group students scored a 5 on this exam, while 25% of Hispanic/Latino FARMs students scored a 1.

Overall, this data shows that a greater percentage of Monitoring group students enter 7th grade proficient in math compared to Focus group students (proficient = scoring a 4 or 5 on PARCC). This suggests that part of the reason Focus group students have lower enrollment in Algebra 1 is because they have lower incoming performance than Monitoring group students, and are not academically prepared for the advanced course.

This data raised important questions around why students enter 7th grade with lower levels of performance and how to make sure that students receive necessary supports in earlier grade levels to be successful.

Source: MCPS 17-18 Course Schedule, ERS analysis.
Course Assignment Within Schools:

Some Focus group students are less likely to be enrolled in Algebra 1 than Monitoring group students with the same incoming performance.

7th Grade Algebra 1 Enrollment Rate by Incoming Performance Score

- **Non-FARMs**
  - All other Student Groups (Monitoring)
  - Black or African American
  - Hispanic/Latino

- **FARMs**
  - All other Student Groups
  - Black or African American
  - Hispanic/Latino

<table>
<thead>
<tr>
<th>6th Grade PARCC Score</th>
<th>Non-FARMs</th>
<th>Non-FARMs</th>
<th>Non-FARMs</th>
<th>FARMs</th>
<th>FARMs</th>
<th>FARMs</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>43%</td>
<td>39%</td>
<td>29%</td>
<td>28%</td>
<td>28%</td>
<td>28%</td>
</tr>
<tr>
<td>5</td>
<td>92%</td>
<td>96%</td>
<td>83%</td>
<td>84%</td>
<td>88%</td>
<td>71%</td>
</tr>
</tbody>
</table>

Context

In addition to understanding the impact of incoming performance on enrollment in Algebra 1, we assessed whether differences in enrollment still exist after controlling for incoming performance.

Explore

This chart shows enrollment rates in Algebra 1 across student groups with the same incoming performance level. For example, 92% of Monitoring group students who scored a 5 on the PARCC Math 6 assessment take Algebra 1 in 7th grade, compared to 71% of Hispanic/Latino FARMs students who scored a 5. This data shows that even after accounting for incoming performance, there are still differences in enrollment rates across student groups.

Consider

While recognizing that many factors can impact course assignment, the MCPS project team identified this as an opportunity to improve equity, so that enrollment in advanced coursework for students of the same incoming performance level do not vary by student group.

Source: MCPS 17-18 Course Schedule, ERS analysis.
Course Assignment Within Schools:

Enrollment differences for students with the same incoming performance exist across most middle schools, but vary in size and direction.

Among Students With Incoming Performance Scores of 4, Difference between Monitoring Group and Hispanic FARMs Enrollment in Algebra 1

- Monitoring Group: 79% of Level 4 students enrolled in Algebra 1
- Hispanic/Latino FARMs: 17% of Level 4 students enrolled in Algebra 1

Source: MCPS 17-18 Course Schedule, ERS analysis.

Context

The previous analysis showed the enrollment difference for students of the same incoming performance across the entire district. Here, we will see how the size of this difference varies across schools.

Explore

This chart shows the difference in Algebra 1 enrollment between Monitoring group and Hispanic FARMs students in each middle school. To ensure a consistent comparison across schools, we only looked at students entering 7th grade with an incoming performance score of 4. In the yellow callout example, 79% of Monitoring group students who are level 4 are enrolled in Algebra 1, compared to 17% of Hispanic/Latino FARMs students who are also level 4. This results in a difference of 62%, which is reflected in the bar chart. Most schools show a positive difference, which means that Monitoring students have higher enrollment than Hispanic/Latino FARMs students of the same incoming performance.

Consider

The MCPS project team discussed factors that might contribute to this result, such as the use of other kinds of student data in course assignment (course grades, attendance, or behavioral data), teacher recommendations, and the timing of PARCC data (mid-summer). This raised a question of how to ensure that these practices do not disproportionately impact access to advanced coursework for certain students.
Course Availability Across Schools:

Unlike peer districts, course availability across MCPS schools is not a driver of differences in Algebra 1 enrollment between student groups.

Context

The last factor that can impact enrollment in advanced coursework is differences in the availability of advanced courses across schools. For example, if certain schools offer fewer sections of Algebra 1 compared to the number of eligible students, then all students in that school would be impacted.

Explore

In ERS' work with other large, heterogeneous school systems, we have seen that course availability across schools can play a significant role in the student experience. In the comparison district shown here, higher-need schools offer fewer sections of Algebra 1, so students in those schools are less likely to be enrolled. Students of color are disproportionately impacted because they are more concentrated in those schools. In this district, differences in course availability across schools account for a quarter of the total enrollment difference.

In MCPS, we did not observe differences in course availability across schools that systematically impacted Focus group students. Based on this data, the MCPS project team concluded that increasing course availability was likely a less impactful opportunity for action than addressing incoming performance and course assignment factors.

Source: MCPS 17-18 Course Schedule, ERS analysis, ERS comparison district database.
Both incoming student performance and course assignment practices within schools contribute to differences in Algebra 1 enrollment between Focus group students and Monitoring group students.

As we saw earlier, incoming student performance and course assignment practices both contribute to Algebra 1 enrollment differences between Focus group students and Monitoring group students. Note: In this report, we focused on enrollment in Algebra 1 as an example. When we looked at enrollment in other advanced courses across different grade levels and subjects, we saw similar trends regarding drivers of enrollment differences between student groups. Other grades/subjects explored include: 4th grade compacted math, 11th grade AP English, and standard English courses in middle and high schools.

This analysis reinforces the importance of ensuring that students have sufficient support in earlier grade levels to raise incoming performance for all students long-term. This data also raised questions about which changes could be made to current student course assignment practices or course pathways to ensure all student groups have equitable enrollment to advanced coursework, given similar performance levels.
We also see differences in Algebra 1 success rates across Paths 1, 2, and 3

<table>
<thead>
<tr>
<th>Grade:</th>
<th>Passed Course</th>
<th>Passed Course and PARCC Graduation Criteria (Received 3, 4, or 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Path 1</td>
<td>Algebra 1</td>
<td>99%</td>
</tr>
<tr>
<td>Path 2</td>
<td>Algebra 1</td>
<td>93%</td>
</tr>
<tr>
<td>Path 3</td>
<td>Algebra 1</td>
<td>68%</td>
</tr>
</tbody>
</table>

Source: MCPS 17-18 Course Schedule, ERS analysis.
Note: 17% of 9th graders did not have an exam score.
Rigorous, Empowering Curriculum: Key Questions

• Why might we see enrollment decrease in the most advanced pathway over elementary and middle school? What actions can we take to support student success in their coursework?

• Given that the biggest factor contributing to differences in Algebra 1 enrollment across student groups is incoming performance, what actions can we take to support student success in their coursework?

• Given that the second biggest factor in differences in Algebra 1 enrollment is course assignment within schools:
  ○ Why might we see differences in enrollment in advanced coursework across student groups with the same incoming performance?
  ○ What actions can we take to ensure we have the right criteria for accessing advanced coursework, and that all students who meet those criteria get access?

• How can we ensure that rigorous grade-level instruction happens in every classroom, no matter the pathway? How can we measure if and how this is currently happening?
Dimensions of Resource Equity

Diverse and Inclusive Schools and Classrooms
Diverse and Inclusive Schools and Classrooms: At a Glance

**Vision:** All students attend schools and classes that are racially and socioeconomically diverse, and inclusive of English learners and students with disabilities

| Why it Matters | School diversity has been shown to benefit all students, for reasons that are not clearly identified in research:  
|                | • *Impact for historically underserved students:* Low-income students who attend economically mixed schools have higher achievement than those who attend schools with high concentrations of poverty.  
|                | • *Impact for all students:* All students benefit in the form of increased creativity, motivation, deeper learning, critical thinking, and problem-solving skills. |

| How it’s Assessed | Composition of schools and classrooms by:  
|                  | • Race  
|                  | • Socioeconomic status  
|                  | • Performance levels*  
|                  | • Other student characteristics (gender, EL status, special education status, etc.) |

| Study Insights | • Compared to higher-performing students, lower-performing students attend classes with a lower concentration of proficient peers. In middle school and high school, this is mostly driven by *within* school classroom assignment differences (vs. differences in student performance across schools). |
Students who enter fourth, sixth, and ninth grades with lower incoming performance scores are in classes with fewer proficient peers.

---

**Context**

Although students are sometimes grouped by skill to facilitate targeted instruction, students also benefit from having access to a diverse learning environment with peers from a range of incoming performance levels.

---

**Explore**

We looked at 4th, 6th and 9th graders by their incoming performance scores (based on 3rd, 5th and 8th grade PARCC ELA exams) and compared the average percent of students in their homeroom (for elementary school) or core classes (for middle and high school) who enter the class proficient in ELA (scoring a 4 or 5 on the prior year exam).

We see that students who enter 4th grade proficient are in classes where 65% of their peers are also proficient. Students who are not proficient when entering 4th grade are in classes where only 41% of their peers are proficient. This difference increases in middle and high school.
What factors might drive this difference in student experience?

Context

There are two reasons why proficient and below-proficient students would have different peer experiences.

• **Across schools**, we know that impacted schools have a greater concentration of below-proficient students compared to non-Focus schools. Therefore, a student in an impacted school has a greater likelihood of being in classes with below-proficient peers.

• **Within schools**, classrooms may differ in the percent of proficient students in each class. This can be due to a number of factors, including level of course (e.g. honors, AP, etc.) or student assignments to specific periods based on overall class schedule.
Within-school student assignment drives most of the difference in the percent of proficient peers that students experience, particularly in high school.

We can size the relative impact of across- and within-school factors to understand what drives differences in student experience. How much of the difference is because below-proficient students are concentrated in certain schools, and how much of the difference is because below-proficient students are concentrated in certain classes within a school?

We see that in both middle and high school, within school factors (purple bar) account for the majority of the overall difference in student experience across the district. This is especially noticeable in high school, where the overall difference in student experience is also larger. In elementary school, both within and across school factors account for the differences in student experience.

See appendix for details on methodology for sizing across school and within school drivers.
Focus group students attend classes with fewer proficient peers than Monitoring group students

Percent of peers proficient on prior year ELA PARCC exam

- ES (4th grade)
- MS (6th grade)
- HS (9th grade)

<table>
<thead>
<tr>
<th></th>
<th>ES (%)</th>
<th>MS (%)</th>
<th>HS (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-FARMs All other</td>
<td>63</td>
<td>46</td>
<td>34</td>
</tr>
<tr>
<td>Black or African American</td>
<td>63</td>
<td>47</td>
<td>41</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>62</td>
<td>46</td>
<td>37</td>
</tr>
<tr>
<td>Non-FARMs</td>
<td>46</td>
<td>41</td>
<td>36</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>47</td>
<td>44</td>
<td>39</td>
</tr>
<tr>
<td>Non-FARMs All other</td>
<td>40</td>
<td>34</td>
<td>28</td>
</tr>
<tr>
<td>Black or African American</td>
<td>41</td>
<td>41</td>
<td>36</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>46</td>
<td>39</td>
<td>28</td>
</tr>
<tr>
<td>FARMs All other</td>
<td>34</td>
<td>34</td>
<td>28</td>
</tr>
<tr>
<td>Black or African American</td>
<td>39</td>
<td>37</td>
<td>28</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>37</td>
<td>37</td>
<td>32</td>
</tr>
</tbody>
</table>

Source: MCPS 17-18 Course Schedule, ERS analysis.
Proficiency is a score of 4 or 5 on PARCC ELA exam.
Percent of proficient peers calculated based on homeroom (for elementary schools) and core classes (for middle and high school).

Context
So far, we explored student experience of peer proficiency from the perspective of proficient and below-proficient students. We can also compare to see if there are differences across the student groups outlined in MCPS’ Equity Accountability Model.

Explore
We see here that across elementary, middle and high schools, Focus group students are in classes with a lower percentage of proficient peers than Monitoring group students. We also see that for all Focus groups, the percent of proficient peers decreases from middle school to high school. This suggests that courses get more segregated by proficiency as students move through their school career.

Consider
This data raised two big questions:

1. How can we ensure that each student gets the support and opportunities they need to succeed and excel, while also giving them access to heterogenous learning environments?
2. What actions can we take early on in a student’s school experience so that we raise performance for all kids over time, and give all students the opportunity to excel?
How does this experience play out across dimensions of resource equity?

Consider

As we shared earlier, when we think about the dimensions of equity, it is important that we think about all of them together. If we look at them in isolation, we risk missing an important link across them. For example, we can create heterogeneous classrooms, but if students aren’t academically prepared or don’t have the support they need to succeed in that class, then that won’t lead to better outcomes for students.

When reflecting on the data on student experienced peer proficiency, it seemed particularly important to consider this data in the context of the other equity dimensions. It is one thing to see that students tend to be in classes with kids who have similar levels of performance. But if kids who are behind are not only in segregated classes, but (A) are also more likely to be in classes with novice teachers, (B) are in schools with novice leaders, and (C) don’t get significantly smaller class sizes, or more time in core subjects — how can we expect them to catch up?
Diverse and Inclusive Schools and Classrooms: Key Questions

• What actions can we take early in a student’s career to raise performance for all, and ensure that all students have the opportunities they need to excel?

• What actions can we take to ensure student class assignments, interventions and targeted supports are organized in ways that best meet student needs, while also maximizing opportunities for heterogenous settings?
Whole Child Approach

Dimensions of Resource Equity
**Whole Child Approach: At a Glance**

**Vision:** All students feel engaged, respected, and like they belong in school. All students have the academic, physical and mental supports, and college and career guidance they need to succeed in school and life.

<table>
<thead>
<tr>
<th>Why it Matters</th>
<th>A strong school climate that makes all students feel respected and like they belong in their school is essential for student learning to take place.</th>
</tr>
</thead>
</table>
| How it’s Assessed | • Access to different whole child practices*  
*Indicates topics addressed in our study  
• Effectiveness of different whole child practices |
| Study Insights | • Based on the principal survey, we don’t see consistent use of ‘Tier 1’ practices (i.e. practices that build culture, climate, and social-emotional competencies for all students in a school)  
• Compared to peer districts, MCPS has more guidance counselor positions per 500 students, and similar levels of social workers and psychologists  
• At the same time, most principals say they need more resources to meet students’ social-emotional needs |
**Schools with effective whole child approaches tend to emphasize four components**

1. **Integrate more intensive supports** (e.g., counseling, intervention) when necessary
2. **Explicitly teach** social-emotional and academic development (SEAD) skills and competencies
3. **Embed** SEAD skills and competencies **within rigorous, CCR-aligned instruction**
4. **Build** climate and culture to ensure students are safe, known, and feel connected to their school

**Context**

A whole child approach should be integrated into a holistic school strategy and have components that take place both in and out of the classroom.

It can be helpful to think of whole child as a tiered approach:

- **Tier 1** (80-90% of students)
  - All students should experience safety and belonging in a positive school climate and culture. Social-emotional competencies should be embedded and explicitly taught in classroom instruction and throughout the school day.

- **Tier 2** (5-15% of students)
  - Some students will have more acute social-emotional needs that require more intensive supports such as counseling, therapy, or other kinds of individualized attention from social workers or counselors.

- **Tier 3** (1-5% of students)
  - Integrate more intensive supports (e.g., counseling, intervention) when necessary

Source: Informed by The Aspen Institute National Commission on Social, Emotional, and Academic Development
Based on the principal survey, we don’t see consistent use of Tier 1 practices that support social-emotional learning across schools and for all students in MCPS.

<table>
<thead>
<tr>
<th>Tier</th>
<th>Practice</th>
<th>% Freq/Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiers 2 and 3: Targeted Interventions</td>
<td>Integrate more intensive supports when necessary</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Counseling teams and teachers collaborate regularly about shared students</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>My school has a process for identifying social-emotional needs of students</td>
<td>91%</td>
</tr>
<tr>
<td>Tier 1: Classroom-Based Practices</td>
<td>Teachers participate in professional learning to improve their ability to teach SEL</td>
<td>78%</td>
</tr>
<tr>
<td></td>
<td>Teachers consistently integrate SEL competencies into regular instruction</td>
<td>73%</td>
</tr>
<tr>
<td></td>
<td>Teacher loads &lt;90 for ELA and Math in transition grades</td>
<td>47%</td>
</tr>
<tr>
<td></td>
<td>Smaller groups of students that take the same classes as each other</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td>Class sizes in core subjects below 17</td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td>Looping students and teachers for 2 or more years</td>
<td>4%</td>
</tr>
<tr>
<td>Tier 1: School-Based Practices</td>
<td>Morning meeting</td>
<td>57%</td>
</tr>
<tr>
<td></td>
<td>Advisory groups of &lt;15 students that meet for 20+ minutes/week</td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td>Student-driven clubs &amp; electives</td>
<td>41%</td>
</tr>
</tbody>
</table>

Source: MCPS SY17-18 Principal Survey

1. These groups may be called “teams”, “cohorts”, “houses”, or “families”. 2. Looping involves re-assigning students to the same teacher over multiple years and grades. Typical examples include a Grade 1 teacher “looping” with his/her students, meaning the teacher goes on to teach Grade 2 with the same set of students that were enrolled in his/her Grade 1 class.

We used the principal survey to understand how frequently different practices for social-emotional learning are used in schools. Principals were asked to rate if their schools frequently or always used each practice listed on the left. Survey responses show that the majority of principals report using Tier 2 or 3 interventions, but the use of the Tier 1 practices is less consistent.

This data raised questions about how to increase the use of Tier 1 practices that are more embedded in classrooms. The MCPS team also reflected that having more comprehensive data about the use of whole child practices would help build a more complete picture of needs and opportunities in the district. Finally, the team discussed the importance of collecting input and perspective from teachers, families, and students themselves to inform priorities and next steps.
Compared to peer districts, MCPS has more guidance counselors per 500 students, and similar levels of social workers and psychologists.

Context

In addition to looking at whole child practices currently used across schools, we also explored MCPS' investment in staffing positions whose core responsibility is supporting students' social-emotional well-being—specifically, guidance counselors, social workers and psychologists. (Note: we recognize that all school staff play an important role in supporting their students in this area; for this analysis, we wanted to focus on the subset of staff with core functions in this area.)

Explore

This table shows the FTE per 500 students by position in MCPS compared to peer districts. We see that compared to peer districts, MCPS has more guidance counselor FTE per 500 students (1.8 vs. 1.0), and similar levels of social worker and psychologist FTE per 500 students (0.3 and 0.3 respectively).

Source: MCPS SY17-18 Expenditures, ERS analysis; ERS benchmark database.
There is some differentiation across school need levels in positions related to social-emotional support for students

**Context**

In addition to comparing staffing levels for positions between MCPS and peer districts, we can also look to see how staffing compares within MCPS by school need level.

**Explore**

This chart shows the total FTE/500 students by position (guidance counselor, social workers, psychologists and parent/community coordinators) across school level and school need designation. This data shows two things:

1. Compared to other elementary schools, Title I elementary schools receive additional positions in the form of parent/community coordinators and psychologists to support their students’ social emotional learning needs.
2. All other high need schools (focus elementary, impacted middle, and highly impacted high schools), had slightly more FTE per 500 in these positions compared to their low-need counterparts — ranging from 1% to 7% more FTE per 500 students.

**Whole Child Approach**

<table>
<thead>
<tr>
<th>Non-Focus</th>
<th>Focus</th>
<th>Title I</th>
<th>Non-Focus</th>
<th>IM</th>
<th>Non-Focus/IM</th>
<th>HI</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTE per 500 Students</td>
<td>0.2</td>
<td>0.2</td>
<td>0.4</td>
<td>2.0</td>
<td>2.1</td>
<td>0.3</td>
</tr>
<tr>
<td>FTE per 500 Students</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
<td>0.2</td>
<td>0.3</td>
</tr>
</tbody>
</table>

% Difference in FTE from non-focus schools

- 1% 46% - 4% - 7%

*Note: To compare general education staffing across schools, we exclude special education positions.

Source: MCPS SY17-18 Expenditures, ERS analysis
At the same time, most principals say they need more resources to meet students’ social-emotional needs.

% Principals Responding to the Statement:
“Overall, the resources provided to my school are sufficient to meet the social-emotional needs of all students”

- Elementary School (n=86):
  - N/A / Not Sure: 5%
  - Strongly Agree: 36%
  - Agree: 39%
  - Disagree: 17%
  - Strongly Disagree: 17%

- Middle School (n=23):
  - N/A / Not Sure: 17%
  - Strongly Agree: 39%
  - Agree: 22%
  - Disagree: 17%
  - Strongly Disagree: 50%

- High School (n=12):
  - N/A / Not Sure: 8%
  - Strongly Agree: 25%
  - Agree: 17%
  - Disagree: 50%
  - Strongly Disagree: 17%

Source: MCPS SY17-18 Principal Survey

Lastly, we used the principal survey to collect school leaders’ perspectives on the overall levels of resources available for whole child supports.

This chart shows the percent of principals at each school level who agreed or disagreed that the resources provided to their school were sufficient to meet students’ social-emotional needs. A majority of principals disagreed with this statement, especially in elementary and high schools.

The data on the last few slides raises questions about how different positions are being used to support social-emotional learning, and the places where principals currently feel their needs are being unmet.
Whole Child Approach: Key Questions

What actions can we take at the system-, school- and classroom-level to:

- Better collect and track data on whole child practices?
- Better understand how schools currently use positions and resources to support whole child practices, and the places where principals feel needs are not currently being met?
- Increase use of Tier 1 practices that are embedded in the classroom?
Dimensions of Resource Equity

School Leadership Quality
# School Leadership Quality: At a Glance

**Vision:** All students have access to a strong school leader

| Why it Matters | • Students enrolled in schools with strong school leaders perform better.  
• School leaders play a critical role in instructional leadership, school culture, and strategic resource use that impacts many aspects of a student’s experience in school. |
|---|---|
| How it’s assessed | • Principal quality measures*  
• Principal distribution across schools*  
• Principal support*  
• Principal diversity |
| *Indicates topics addressed in our study |

| Study Insights | • Compared to principals in peer districts, MCPS principals are more likely to recommend working in their district, suggesting higher levels of overall job satisfaction.  
• Higher-need elementary and middle schools are more likely to have novice principals than lower-need elementary and middle schools. This trend is reversed in high school.  
• From the principal perspective, there are both strengths and opportunities for improvement regarding central office support to principals. |

**Note on principal quality measures:** Similar to teaching quality measures, there is no singular, agreed upon way to objectively measure principal quality. Given available data, our analysis looks at principal years of experience as a proxy for quality. We recognize that this is not a direct measure of quality, and intend this to be a starting point for further conversation.
MCPS principals are more likely to recommend working in the district compared to principals in peer districts.

**Net Promoter Score (NPS) Across Districts**

- **A**: -66%
- **B**: -56%
- **C**: -38%
- **D**: 6%
- **E**: 8%
- **F**: 10%
- **G**: 32%
- **H**: 36%
- **I**: 40%
- **Peer average**: -2%
- **MCPS**: 6%
- **Note**: Net Promoter Scores are calculated by subtracting the % of respondents labeled “detractors” (those responding 0-6 on likelihood to recommend) from % of respondents labeled “promoters” (those responding 9-10 on likelihood to recommend).

Elementary school principals had a net promoter score of 31%, compared to middle and high school principals who had a NPS of 43%.

**Context**

The Net Promoter Score (NPS) is a measure that assesses a stakeholder group’s overall perception and experience with an organization. Here, we will look at the NPS for principals in MCPS.

**Explore**

Net Promoter Score is calculated by asking principals how likely they are to recommend working in the district on a scale of 1-10. We calculate the percent of “promoters” (those who responded 9-10) and subtract the percent of “detractors” (those who responded 0-6) to calculate NPS.

We see here that NPS for principals is higher in MCPS than in many peer districts. However, there are some differences within MCPS – elementary school principals had a lower NPS on average than middle and high school principals.

**Source**: MCPS SY17-18 Principal Survey, ERS analysis, ERS benchmark database
Higher-need elementary and middle schools are more likely to have novice principals than lower-need schools

As with teaching quality, one proxy for assessing school leadership quality is to look at a school’s likelihood of having a novice principal (less than 3 years of experience). In addition to novice principals facing a learning curve as they adjust to a new role, leadership transitions also may reduce stability in the overall school environment, impacting teachers and students.

Explore

This chart shows the percent of schools that have a novice principal by school level and school need. At the elementary and middle school levels, higher-need schools are more likely to have novice principals, with the majority of higher-need elementary and middle schools being led by a novice principal.

Consider

This data raised the question of how to improve the value proposition in our highest-need schools so that great principals want to work at and stay in those schools.

Source: MCPS SY17-18 employee data, ERS analysis
See glossary for definition of school-need designations
Overall, principals responded positively to questions on school leader support, with some opportunities for MCPS to improve coordination of supports to schools.

Percent of Principals Agreeing to Statement about School Leader Support

- The district provides me with the support and training I need to be effective: 96% (Elementary), 80% (Middle), 60% (High)
- I receive timely, useful data on student performance and school resource use to inform strategic planning and resource allocation: 89% (Elementary), 83% (Middle), 73% (High)
- Central office departments coordinate effectively to provide integrated support to my school: 43% (Elementary), 33% (Middle), 20% (High)
- When I need support from the central office, I receive help in a timely matter: 67% (Elementary), 63% (Middle), 60% (High)

Source: MCPS SY17-18 Principal Survey, ERS analysis.
School Leadership Quality: Key Questions

What actions can we take at the system-, school-, and classroom-level to:

- Attract and retain high-quality principals at our highest-need schools?
- Provide high-quality and integrated support to principals to enable them to make strategic school design decisions that best support their vision and priorities?
Appendix
School Need Designations

- School need categories, as designated by MCPS and used in this report, are as follows:

<table>
<thead>
<tr>
<th>School Level</th>
<th>School Need Designation (MCPS)</th>
<th>% FARMs Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary</td>
<td>Non-Focus</td>
<td>Less than 35%</td>
</tr>
<tr>
<td></td>
<td>Focus</td>
<td>35% - 67%</td>
</tr>
<tr>
<td></td>
<td>Title I</td>
<td>67% or higher</td>
</tr>
<tr>
<td>Middle</td>
<td>Non-Focus</td>
<td>Less than 20%</td>
</tr>
<tr>
<td></td>
<td>Impacted (Focus)</td>
<td>20% or higher</td>
</tr>
<tr>
<td>High</td>
<td>Non-Focus / Impacted</td>
<td>Less than 35%</td>
</tr>
<tr>
<td></td>
<td>Highly Impacted (Focus)</td>
<td>35% or higher</td>
</tr>
</tbody>
</table>

- Note: For middle and high schools, higher-need schools may be referred to in this report as “Focus schools”.
## Financial Analysis: Uses and Functions

### Instruction
- Teacher Compensation
- Aides Compensation
- Substitute Compensation
- Librarian & Media Specialist
- Instructional Materials & Supplies
- Other Non-Compensation
- Other Compensation
- Extended Time & Tutoring

### Pupil Services & Enrichment
- Enrichment
- Social Emotional
- Physical Health Services & Therapies
- Career Academic Counseling
- Parent & Community Relations

### Operations & Maintenance (O&M)
- Facilities & Maintenance
- Security & Safety
- Food Services
- Student Transportation
- Utilities

### Business Services
- Human Resources
- Finance, Budget, Purchasing, Distribution
- Data Processing & Information Services
- Facilities Planning
- Development & Fundraising
- Legal
- Insurance

Coding financial data using these standardized definitions of uses and functions allows ERS to compare financial data across other districts.
Course Schedule Analysis: Subject Areas

- Course schedule analysis in this report focused on student experiences in core subjects because these subjects have the most significant and direct impact on academic achievement.

- Core subjects are defined as follows:
  - English Language Arts (ELA)
  - Mathematics
  - Social Studies
  - Science

- Non-core subjects include art/music, physical education/health, computer literacy/computer science, foreign language, ROTC, and career or vocational classes.

- Classes may also be designated as support and enrichment – these include all activities that support the social and emotional growth of students as well as academic support activities (e.g. test prep, advisory, or study skills).
Methodology:
Sizing the drivers of differences in student experience

Throughout this report, we measure differences in student experience across the **dimensions of resource equity** and size the **relative impact** of different drivers in creating these differences. This methodology enables better understanding of the root causes of inequities in student experience to inform opportunities for system- and school-level action. This methodology does not intend to model or project actual changes; rather, the purpose is to assess the relative size of different factors by seeing how changes in those factors impact the overall differences in student experience. To assess the magnitude of each driver, we performed the simulations described below:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Driver</th>
<th>How much do the differences in student experience change if…</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teaching Quality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Across School</td>
<td>Every school had the same percent of novice teachers. Within-school differences in teacher assignment across student groups does not change.</td>
<td></td>
</tr>
<tr>
<td>Within School</td>
<td>For a given school, each student group in the school had the same likelihood of having a novice teacher.</td>
<td></td>
</tr>
<tr>
<td><strong>Diverse &amp; Inclusive Schools</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Across School</td>
<td>Every school had the same percentage of entering students who are ELA-proficient. Within-school differences in percentage of proficient peers across student groups does not change.</td>
<td></td>
</tr>
<tr>
<td>Within School</td>
<td>For a given school, each student group in that school has the same percent of proficient peers in their core classes.</td>
<td></td>
</tr>
<tr>
<td><strong>Access to Empowering, Rigorous Curriculum</strong></td>
<td>Student Incoming Performance</td>
<td>For a given school, each student Focus group had the same distribution of incoming performance scores as Monitoring group students in that same school. Within-school differences in enrollment by incoming performance across student groups does not change (e.g. if currently in a school 80% of Monitoring group students who scored a 5 get enrolled in the advanced course, and 60% of Hispanic FARMs students who scored a 5 get enrolled in the advanced course, we would use 80% and 60% respectively).</td>
</tr>
<tr>
<td>Within Schools</td>
<td>For a given school, each student Focus group was enrolled into the advanced course as the same rate as their Monitoring group peers with the same incoming performance score.</td>
<td></td>
</tr>
<tr>
<td>Course Assignment</td>
<td>If differences in student experience persist after the adjustments for incoming performance and within-school assignment, this suggests that there are schools where all student groups are less likely to access advanced courses, and that higher-need students are disproportionately concentrated in these schools. We did not see this pattern in MCPS.</td>
<td></td>
</tr>
</tbody>
</table>

Appendix
Methodology: Performance Analysis

- Performance analysis in this report is based on PARCC assessment data, to allow comparability across MCPS and other districts.

- In the Performance section of the report, results are based on 2018 scores, which reflect SY2017-18 performance.

- Analyses that compare student experience by “incoming performance” or “incoming proficiency” are based on same-student scores from the prior school year (2017 scores, which reflect SY2016-17 performance).

- PARCC is scored on a scale of 1 to 5, with proficiency defined as a score of 4 or higher. We use “percent of students proficient” as a benchmark to compare schools or groups of students but recognize that proficiency alone does not fully capture MCPS’ goal of educating all students to excellence.

- When assessing percent of students proficient, we do not include scores for tests taken outside of the grade level in which the subject is traditionally assessed. This ensures that proficiency rates are not skewed by students who take the test ahead of schedule or who retake the test in later years.
Elementary School Spotlights: Selection Criteria

Objectives:

- Highlight promising practices in “bright spot” schools to inspire and inform principal action.
- Illustrate how school resources can be configured to enable strategic, integrated school designs that deliver equitable student and teacher experiences in a variety of contexts.

Criteria for selecting schools to be studied:

<table>
<thead>
<tr>
<th>Criteria for selecting individual schools</th>
<th>Higher-than-expected academic performance given student need</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High African American FARMs student performance</td>
</tr>
<tr>
<td></td>
<td>High Hispanic FARMs student performance</td>
</tr>
<tr>
<td></td>
<td>Small achievement gap between AA/Hispanic FARMs students and other students</td>
</tr>
<tr>
<td></td>
<td>At least 5% of students in school are African American FARMs or Hispanic FARMs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Criteria for selecting groups of schools</th>
<th>Single School Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mix of Special Programs</td>
</tr>
<tr>
<td></td>
<td>Mix of Student Need</td>
</tr>
</tbody>
</table>
## Elementary School Spotlights:
### Key themes of promising practices

<table>
<thead>
<tr>
<th>Schools create common experiences for students and teachers…</th>
<th>…through a common set of essential building blocks…</th>
<th>…but implementation methods differ based on school context</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Students who are behind receive differentiated time and attention.</td>
<td>• Teachers engage in 90+ min of collaborative planning time.</td>
<td>• Intervention models, such as co-teaching, push-in, pull-out, or smaller class sizes.</td>
</tr>
<tr>
<td>• Students receive rigorous instruction and are held to high expectations in every classroom.</td>
<td>• Staff use student data regularly and frequently to identify students who are behind and to target or adjust supports.</td>
<td>• Whole child systems and supports, such as positive behavior intervention, mentoring, and morning meeting.</td>
</tr>
<tr>
<td>• Teachers received job-embedded professional development from the school leadership team and teacher teams.</td>
<td>• Staff have dedicated time to review student data in teams.</td>
<td>• Teacher supports, such as separate time dedicated to student data vs. bringing into CPT, and structured vs. ad-hoc supports.</td>
</tr>
<tr>
<td>• School leaders create a strong school culture that supports whole child approaches and fosters staff community.</td>
<td>• Whole child instruction is embedded in classroom and daily routines.</td>
<td>• School leadership roles that define who works with students vs. teachers, who supports instruction vs. admin and who is a peer leader vs. evaluative leader.</td>
</tr>
</tbody>
</table>
# Principal Survey Respondents and Response Rate

<table>
<thead>
<tr>
<th>School Type</th>
<th>Number of Responses</th>
<th>Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Elementary School (All)</strong></td>
<td>90</td>
<td>68%</td>
</tr>
<tr>
<td>Focus</td>
<td>45</td>
<td>64%</td>
</tr>
<tr>
<td>Non-Focus</td>
<td>45</td>
<td>71%</td>
</tr>
<tr>
<td><strong>Middle School (All)</strong></td>
<td>25</td>
<td>63%</td>
</tr>
<tr>
<td>Impacted (Focus)</td>
<td>14</td>
<td>56%</td>
</tr>
<tr>
<td>Non-Focus</td>
<td>11</td>
<td>73%</td>
</tr>
<tr>
<td><strong>High School (All)</strong></td>
<td>15</td>
<td>58%</td>
</tr>
<tr>
<td>Highly-Impacted (Focus)</td>
<td>7</td>
<td>54%</td>
</tr>
<tr>
<td>Impacted/Non-Focus</td>
<td>8</td>
<td>62%</td>
</tr>
<tr>
<td><strong>Special/Alternative School</strong></td>
<td>5</td>
<td>63%</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>135</td>
<td>65%</td>
</tr>
</tbody>
</table>
Research Highlights: School Funding

Summary: Money matters in schools; it is especially important to the achievement of low-income students over time:

- **Academic Impact:** Although some waves of earlier research did not find a conclusive link between levels of spending and student outcomes, recent studies demonstrate that states that consistently increased investment in their high-poverty districts over multiple years generated better and more equitable student performance outcomes relative to states that did not.\(^1\) When funding increases over time, schools tend to experience smaller student-teacher ratios, increased teacher salaries, and longer school years — which positively impact student outcomes.\(^2\)

- **Long-Term Impact:** Sustained increases in per pupil spending across a student’s academic career have been shown to lead to more completed years of education, higher wages, and reduction in adult poverty. These effects are greater for students from low-income backgrounds.\(^3\)

Sources:


Research Highlights: Teaching Quality

Summary: Consistent access to strong and diverse teachers has a dramatic effect on student achievement and long-term outcomes:

- **Academic Gains:** Teaching quality has a greater impact on student achievement in both math and reading than almost any other in-school factor, and the impact of a high-quality teacher is greater for students who are further behind academically.\(^1\) Research suggests that a one standard deviation improvement in teacher effectiveness has a greater impact on student achievement than a ten-student reduction in class size.\(^2\)

- **Longer-Term Impacts:** Students assigned to highly-effective teachers experience long-term improvements beyond academic achievement; they are less likely to have children as teenagers, more likely to attend higher-ranked colleges, and, as adults, earn higher salaries, live in higher-income neighborhoods, and save more for retirement.\(^3\)

- **Value of Diversity:** While all students benefit from a diverse teacher workforce, students of color receive particular benefits from teachers of color: they have better classroom experiences, are referred more for gifted and talented programs, and are more likely to graduate from high school and consider college.\(^4\) One study found that black male students who have at least one black teacher between grades 3-5 are 30% less likely to drop out of high school.\(^5\)

- **Teacher Experience and Effectiveness:** Teaching experience is positively associated with student achievement gains throughout a teacher’s career. Most studies find that teachers show the greatest gains from experience during their initial years in the classroom, but continue to make meaningful improvement in their effectiveness past these initial gains.\(^6\)

Sources:


Research Highlights: Instructional Time and Attention

Summary: Strategically increasing students’ instructional time and teacher attention to respond to individual learning needs can be a powerful lever for improving student outcomes:

- **Learning Time**: Research shows that adding instructional hours to the school year can increase student outcomes in both reading and math, particularly when the additional time is targeted to meet the needs of students who are further behind.¹

- **Targeted Time and Attention**: Within the school day, increased time and smaller group sizes in core classes can increase student test scores in reading, particularly for students who are further behind.²

- **Frequent Adjustments**: Flexible grouping is an important strategy for providing targeted and individualized instruction while ensuring students aren’t permanently tracked into remedial courses; one study found that a five-year flexible grouping intervention increased the percentage of students achieving mastery on literacy assessments in a high-need school.³

Sources:


Research Highlights: Rigorous, Empowering Curriculum

Summary: More rigorous academic content—from underlying curriculum to course materials and assignments—leads to better student achievement:

- **High-Quality Curricula:** Research suggests that rigorous, comprehensive, and standards-aligned curricula and assessments can have a large positive impact on student achievement. This impact is particularly pronounced for less effective teachers, who are more likely to be working in high-need schools.¹

- **Advanced Coursework Pathways:** Enrollment in advanced coursework has been shown to improve student test scores and college and career readiness and success. Enrollment in advanced coursework at each grade level and subject has been shown to lead to additional advanced opportunities for students, underscoring the impact of access to these courses on a student’s academic experience.²

- **Rigorous, Engaging, and Culturally-Sustaining Instructional Practices:** Research has shown that having access to grade-appropriate assignments, strong instruction, deep engagement, and teachers who hold high expectations is critical to student outcomes. These components of high-quality instruction are deeply intertwined with each other: the presence of one resource tends to accompany the others and increase their impact on student achievement.³

Sources:


**Research Highlights: Diverse and Inclusive Schools and Classrooms**

**Summary:** School diversity has been shown to benefit all students, and particularly students from historically underserved backgrounds, for reasons that are not clearly identified in research.

- **Impact for Historically Underserved Students:** The economic composition of a student’s classmates can have more of an impact on achievement than that student’s own poverty status. Low-income students who attend economically mixed schools have higher achievement and lower likelihood of adult poverty than those who attend schools with high concentrations of poverty. In fact, multiple analyses have found that economically-disadvantaged students who attend economically mixed schools typically outperform non-economically disadvantaged students who attend schools with high concentrations of poverty.¹

- **Impact for All Students:** Research shows that all students benefit from diverse and inclusive schools and classrooms in the form of increased creativity, motivation, deeper learning, critical thinking, and problem-solving skills.²

**Sources:**


Research Highlights: Whole Child Approach

Summary: A strong school climate that makes all students feel respected and like they belong in their school is essential for student learning:

- **Relationships:** Strong school cultures with strong adult-to-adult, adult-to-student, and student-to-student relationships create a context in which social, emotional, and academic development can be accomplished. Research shows that student engagement and relationships with teachers and peers is key for student academic success: one study found that in classrooms with higher levels of student engagement, students experienced two additional months of learning. Further, teachers value school culture more than almost any other factor in their job satisfaction and consider relationships with other adults a core component of their decision to stay and grow at a school. ¹

- **Social-Emotional Learning:** Research shows that students who participate in social-emotional learning programs have greater academic performance than their peers. Students who have unmet social or emotional needs or who don’t feel physically or psychologically safe are at greater risk of poor performance, and research has linked improving student social-emotional competencies to both immediate and long-term benefits. ² As districts provide rigorous academic content for all students, it is critical that students have the social and emotional skills they need to participate in rigorous learning.

- **Fair Discipline Practices:** Race disparities in disciplinary actions are well documented and an important barrier to equitable student outcomes. ³ Creating school cultures in which teachers and students know and trust each other is critical to ensuring that discipline practices are experienced equitably across students and contribute to supporting the whole child. ⁴

- **Address Adult Biases:** As systems and schools design and implement whole child approaches, it is critical to do so with an explicit focus on racial equity. This means that the work begins from student strengths, not deficits, and that adult biases and beliefs are deliberately addressed. Approaches that lack this focus risk unintended negative effects for students of color and indigenous populations. ⁵

Sources:


**Research Highlights: School Leadership Quality**

**Summary:** Students enrolled in schools with highly effective leaders perform better.

• **Instructional Leadership:** Having a principal who is a strong instructional leader increases teacher effectiveness and the degree to which teachers collaborate with each other around curriculum and instructional practices. One study found that school leaders who received training on lesson planning, data-driven instruction, and teacher observation and coaching saw significant increases in student achievement. Another study found that, on average, a highly-effective principal raised student achievement by between two and seven months of learning in one school year.

• **School Culture:** School leaders have been shown to have a profound impact on school culture, a key component of teacher retention. Teachers have higher satisfaction and retention rates in schools that have a positive working environment, regardless of a school’s demographic characteristics. The biggest drivers of teacher satisfaction include relationships among colleagues and support from school leaders, factors that are also tied to increased student achievement.

• **Strategic Resource Use:** Principals must be strategic talent managers and school designers. Research shows that schools with strong leadership have lower turnover rates and higher strategic retention rates, meaning the teachers who leave the school are likely to be less effective than those who stay.

**Sources:**


