Examining educational inequities:
How do Algebra I and high school outcomes differ for students who complete Algebra I in grades 7, 8, or 9?

Completing Algebra I in middle school offers students the opportunity to take more advanced mathematics courses in high school, with the aim of increasing the number of students who graduate with a college preparatory diploma.* Ensuring all students have access to Algebra I in middle school, coupled with effective teaching practices, can increase equity in the education system.

*Virginia’s more rigorous Advanced Studies diploma, a college preparatory diploma, requires students to successfully complete courses research shows students need to enroll and succeed in college.

Three-quarters (75%) of Virginia’s high-scoring students completed Algebra I in grades 7 or 8 (middle school).

<table>
<thead>
<tr>
<th>High-scoring students in grade 5 mathematics*</th>
<th>Completed Algebra I in grade 7</th>
<th>Completed Algebra I in grade 8</th>
<th>Completed Algebra I in grade 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>37,898</td>
<td>24%</td>
<td>51%</td>
<td>25%</td>
</tr>
</tbody>
</table>

*High-scoring students earned advanced proficient scores on the state’s grade 5 mathematics assessment.

Data suggest a gap in access to Algebra I in middle school for high-scoring, economically disadvantaged students.

75% of high-scoring students from the overall study population completed Algebra I in middle school.

63% of high-scoring, economically disadvantaged students completed Algebra I in middle school.
Lower percentages of high-scoring, economically disadvantaged students passed Algebra I and earned a college preparatory diploma compared with the overall study population, regardless of when they completed Algebra I. **This suggests a need to address inequitable success in high school.**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Students who completed Algebra I</th>
<th>Passed Algebra I</th>
<th>Graduated with a college preparatory diploma</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GRADE 7</strong></td>
<td>80% Economically Disadvantaged</td>
<td>90% Overall Population</td>
<td>62% Economically disadvantaged, 80% Overall study population</td>
</tr>
<tr>
<td><strong>GRADE 8</strong></td>
<td>81% Economically Disadvantaged</td>
<td>89% Overall Population</td>
<td>60% Economically disadvantaged, 75% Overall study population</td>
</tr>
<tr>
<td><strong>GRADE 9</strong></td>
<td>71% Economically Disadvantaged</td>
<td>76% Overall Population</td>
<td>33% Economically disadvantaged, 44% Overall study population</td>
</tr>
</tbody>
</table>

We all have a role in achieving equitable access and success.

**Classroom Teachers**
- Hold high expectations for all students.
- Provide equitable, rigorous, and challenging mathematics learning experiences for everyone.
- Employ effective, evidence-based teaching practices, including visual representations and engaging students in multiple problem-solving strategies.

**School and District Education and Policy Leaders**
- Consider the placement criteria used to determine when students are eligible to take Algebra I. Maximize the use of objective measures (e.g., performance on a standardized test) instead of subjective measures that have potential for personal perspectives, opinions, and biases (e.g., letters of recommendation).
- Beyond written policy, examine how course placement happens in practice (e.g., guidance counseling conversations, teacher recommendations).

**State Agency and Policy Leaders**
- Conduct similar studies in other states in mathematics and across disciplines to determine the extent of challenges in achieving equitable access and success.
- Provide guidance to local policy leaders related to graduation requirements, course pathways, and high expectations for coursetaking and college preparatory diploma attainment.

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