IES Institute of Education Sciences

Factors associated with grade 9 math success in Denver Public Schools

The National Center for Education Evaluation and Regional Assistance at IES

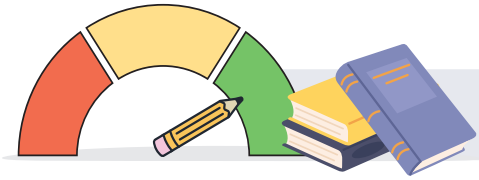
Math success in middle school and in grade 9 is widely recognized to predict high school achievement and graduation.

Grade 9 math success—receiving a passing grade in a student's primary grade 9 math class—is one indicator of a successful high school transition. To help Denver Public Schools (DPS) increase the number of students who pass grade 9 math, Regional Educational Laboratory (REL) Central conducted a study that identified which student characteristics and experiences (factors) were strongly associated with grade 9 math success.

This study analyzed DPS data from the 2014/15–2022/23 school years.

In 2023, nearly **one in five students** in DPS **did not pass** their grade 9 math course.

Three factors associated with being successful in grade 9 math for DPS students



1. Meeting or exceeding proficiency benchmarks on middle school English language arts standardized exams

The skills assessed by the ELA exam may be transferrable to grade 9 math success, perhaps more so than the skills covered by the math exam.

2. Higher middle school attendance

Higher attendance increases the amount of instruction a student receives and may reflect greater motivation to succeed in school, as well as a more stable, safe home environment.

3. Attending a high school with above-average enrollment of Hispanic students

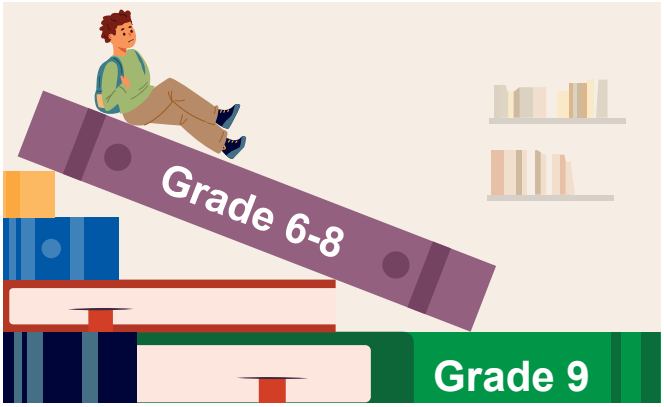
More than half of DPS students in the study sample were Hispanic.

Three factors associated with being unsuccessful in grade 9 math for DPS students

1. Receiving a suspension in middle school

The strong negative association between suspension and grade 9 math success was larger than the association for any other factor studied.

2. Receiving a failing grade in a middle school math course



3. Attending a high school with above-average enrollment of students eligible for the National School Lunch Program

A school with above-average enrollment would have 60–70 percent of students eligible for the NSLP.

What can DPS do next with these study findings?

Learn more about what drives strong associations with grade 9 math success.

Consider high school composition

Investigate factors that shape success at schools with high enrollment of Hispanic students, or students eligible for the National School Lunch Program.

Study attendance

Examine existing programs that aim to increase attendance or pilot new evidence-based attendance interventions.

Investigate discipline

Explore how suspensions relate to grade 9 math success, the experiences of students who are suspended, and whether implementing school discipline practices could help performance.

Create and evaluate an early warning system to identify students for extra support using factors associated with grade 9 math success

The early warning system could focus on middle school students who are suspended, receive a failing grade in a math course, have lower attendance, or do not achieve proficiency on their language arts standardized exam.

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