Alabama STEM Council
We are beginning our work.

Alabama Math and Science Achievement Indicators

Dashboard User Guide
Version 1.1.0

CONTENTS

INTRODUCTION

The Alabama STEM Council is pleased to present an interactive data dashboard designed to provide insight and visibility into the academic achievement, student demographics, and comparative performance of students enrolled in Alabama's K-12 public education system. This publicly available dashboard has been developed to incorporate the recommendations made by the Data Tracking working group in their presentation submitted to the council on June 30, 2021.

The Alabama STEM Council would like to thank the working group's committee members **Robin McGill (Chair)**, **Matthew Durdin**, **Sandy Ledwell**, **Cynthia McCarty**, **Tina Watts**, and **Tim Wick** for their participation, research, and efforts to help improve our ability to measure progress towards meeting Alabama's strategic goals in STEM education and awareness.

1   QUICK START

The publicly available interactive dashboard can be found by visiting our Tableau Public profile at https://public.tableau.com/app/profile/alabamastemcouncil/.

1.1   SELECT A SCHOOL SYSTEM

Once logged in, the default view will display results at the overall Alabama state level. Users may display results for a specific school system using the dropdown selector (marked in red below) found at the top right portion of the dashboard header. Unless otherwise noted, all displayed data are for the most recently available academic year.
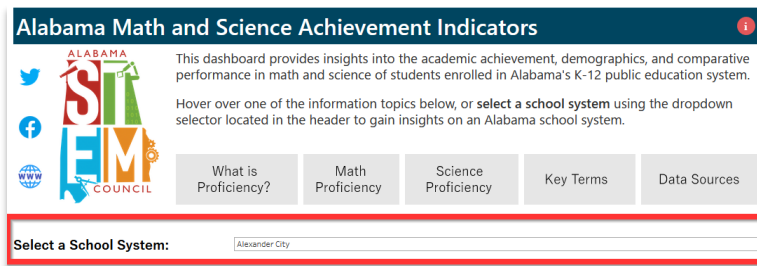
1.2   GET MORE INFORMATION

Definitions and helpful tips are located throughout the interactive dashboard. Hover over one of the information topics on the top left section of the dashboard (in red below) for answers to general questions and definitions, or mouseover any of the ℹ️ icons in the dashboard for contextual information.
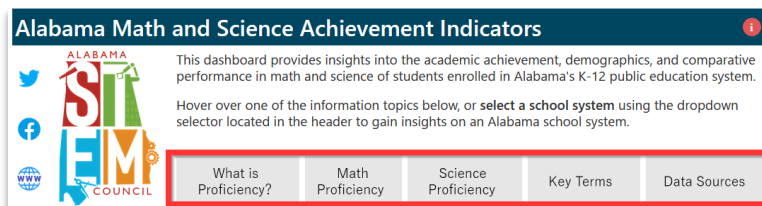
2 CHANGELOG

- **1.1.0 Data Refresh – October 22, 2024**
  - o The dashboard has been refreshed with data for the 2022-2023 academic year.

- **1.1.0 Data Refresh – November 7, 2022**
  - o The dashboard has been refreshed with data for the 2021-2022 academic year.

- **1.1.0 Release – February 21, 2022**
  - o The dashboard has been reorganized into a scrollable, vertical orientation to improve readability.
  - o Accessibility testing for all types of colorblindness was conducted (see Colorblind Accessibility section of user guide for results).
  - o All text on the dashboard has been enlarged to a minimum 12-point font.
  - o The % White column in the Student Demographics table has been removed to accommodate the larger font size. The % Non-white is still present.
  - o Mobile device layout has been improved.

- **1.0.0 Release – January 5, 2022**
  - o Initial release

3 DATA SOURCES

The data used in this dashboard have been obtained from the Alabama State Department of Education (ALSDE) and the National Center for Education Statistics (NCES).

3.1 MATH AND SCIENCE PROFICIENCY

Data on math and science proficiency rates are from the Supporting Data section of the ALSDE's School Report Card page at https://reportcard.alsde.edu/SupportingData_Alsde.aspx.

3.2 STUDENT DEMOGRAPHICS

Data on student demographics were extracted from the Supporting Data section of the ALSDE's School Report Card page at https://reportcard.alsde.edu/SupportingData_Alsde.aspx.

3.3 SCHOOL CHARACTERISTICS AND OTHER SUPPORTING DATA

Data on school characteristics (e.g., school name, site type, NCES ID, grade range, etc.) are from the ALSDE's Education Directory of Registered School Information page at https://eddir.alsde.edu/SiteInfo/.

Data on the geographic locations of each school are from NCES's publicly Open Data portal hosted on arcgis.com at the following links. These NCES data were joined to the ALSDE's school directory using NCES ID, where data were available. Schools in ALSDE's directory that were missing or with outdated NCES ID values, were closed, or otherwise not found in the NCES dataset may not all be displayed on the dashboard's maps.

- https://data-nces.opendata.arcgis.com/datasets/nces::public-school-locations-current-1/about
- https://data-nces.opendata.arcgis.com/datasets/nces::school-district-characteristics-2019-20/about

4 GLOSSARY OF KEY TERMS

Proficient: The Alabama State Department of Education (ALSDE) defines "proficient" as students who are testing at or above grade level on the annual statewide assessment exam. Specifically, proficient students are those who achieved levels 3 and 4 (out of a 4-point scale) on each assessment.

The four levels of proficiency are determined by the ALSDE based on statistical cutpoints for different testing instruments utilized each year. Proficiency levels can be used to standardize performance across different tests and their unique scoring systems.

% Proficiency: the proportion of students who tested at or above grade level (levels 3 and 4) on the math and science sections of the annual statewide assessment tests.

% Participation: the proportion of enrolled students who participated in the statewide assessment tests each year.

% Economically Disadvantaged: the proportion of students who are eligible for free or reduced-price meals under the national school lunch and child nutrition program.

% With Disabilities: the proportion of students having one of the 13 disabilities identified in the *Individuals with Disabilities Education Act* (IDEA).

% With Limited English Proficiency: the proportion of students not born in the US, or whose native language is not English, and has difficulty in speaking, reading, writing, or understanding the English language.

Hispanic/Latino: a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race.

5 DASHBOARD FEATURES

5.1 SCHOOL SYSTEM COMPARISONS

A key feature of this dashboard allows users to compare the academic achievement and student demographics of individual school systems against the state's overall average. To make comparisons between a school system and the Alabama average, the dropdown menu next to the **Select a School System** option can be used to select a school system of interest.
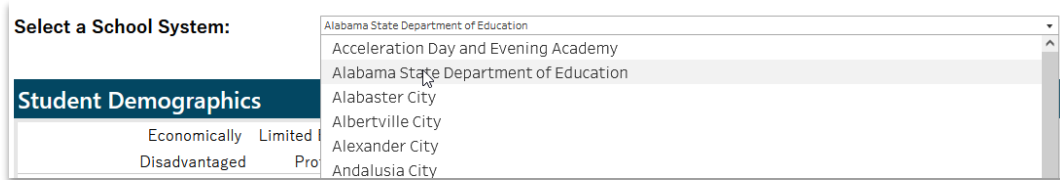
Once a school system is selected, results for the chosen system will be displayed in red while results for the state of Alabama will be displayed in dark gray, such as in the two examples below.
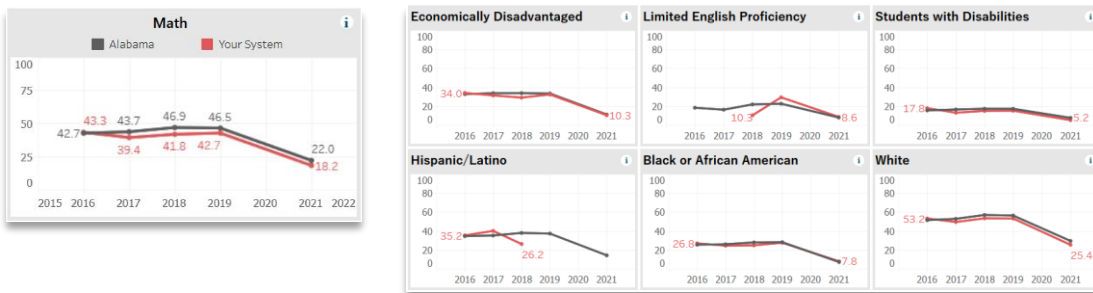
5.2 STUDENT DEMOGRAPHICS

The Student Demographics table of the dashboard displays the percentage of the student body considered to be one of the five selected metrics including:

- Economically disadvantaged
- Limited English Proficiency
- Students with Disability
- Hispanic/Latino
- Non-White

Results for the overall state of Alabama are also included, as well as a third row that displays the difference in demographics in absolute percentage terms. The ▲ symbol indicates that the selected school system is higher than Alabama in this metric, whereas the ∇ symbol indicates that this metric is lower than the state.

The example in the table below shows that 53% of the currently selected school system is considered economically disadvantaged compared to 51% for the state of Alabama, or 2 percentage points higher.

5.3 SCHOOL LOCATIONS

The School Locations panel displays the geographic locations of the selected school system and its individual schools.

The statewide map on the right displays the county(s) in which the school system's schools are located. The county map on the left is a zoomed-in view of the highlighted county, where each dot represents each of the individual schools in the system. Hovering the mouse cursor over one of the schools on the county map will display the school's name, grades served, and street address.
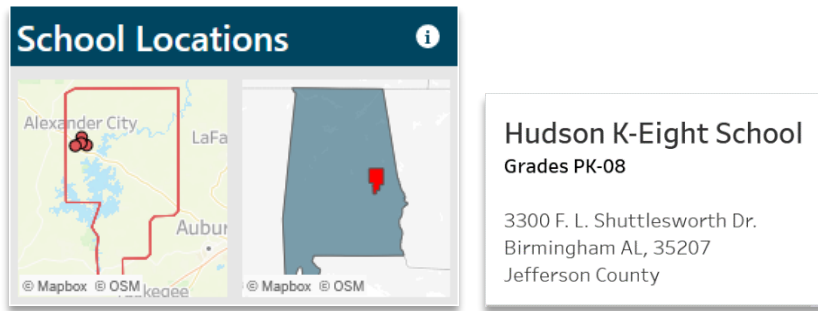

5.4 % PROFICIENCY - OVERALL SYSTEM LEVEL TRENDS

The overall system level trends panel always displays the % proficiency metric for the selected school system and in comparison with the state overall. Two panels are provided so that users can quickly see how the selected school system is performing on the math and science sections of the annual statewide assessment tests.

The reporting period labels are equivalent to the calendar year in which the academic year ends. That is, results for academic year 2020-2021 (for example) would be displayed as 2021 on the line charts. Users can mouse over the information icon for a list of all years and their equivalent reporting periods.

In the example below, the selected system's math proficiency score was 19.5% in reporting year 2016 and 3.9% in 2021. During the same period, the statewide average was 42.7% and 22%, respectively, as indicated by the lines in dark gray. In this example, the selected system's math and science proficiency scores are below the state's overall results and generally following the state's trend over time.
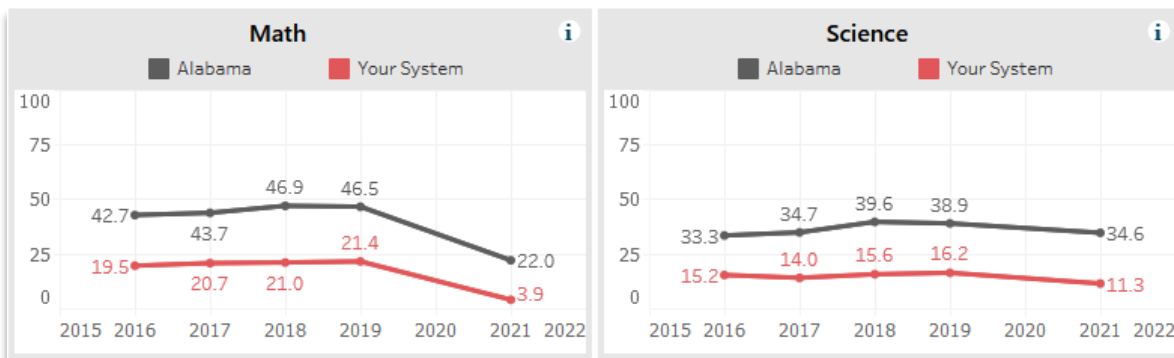
5.5 TRENDS BY SUBGROUP

The trends by subgroup panel displays a user-selected metric for each of the 6 selected subgroups. Using the drop down menu, the user has the ability choose to display one of 4 possible metrics, including:

- % Proficiency – Math
- % Proficiency – Science
- % Participation – Math
- % Participation – Science
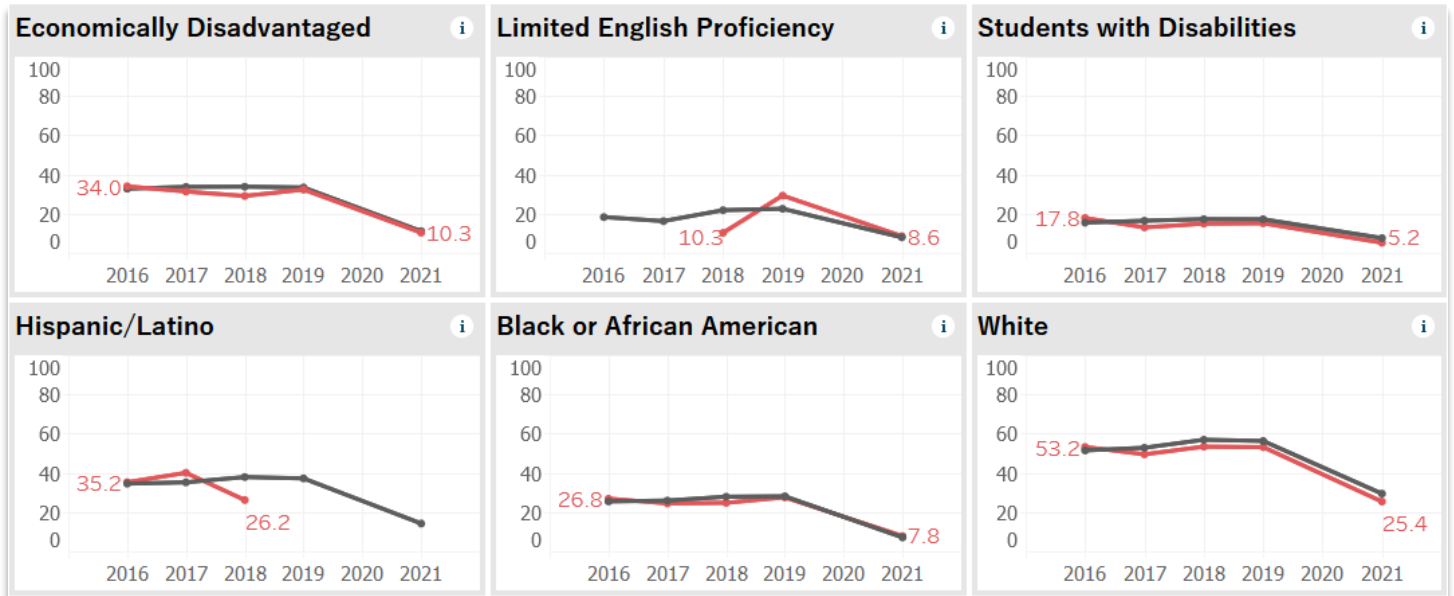
5.6 % PROFICIENCY – QUARTILES BY SUBGROUP

The proficiency quartiles by subgroup panel displays boxplot charts to help users examine and understand the distribution of math and science achievement scores across the state of Alabama.

The selected school system is always displayed as a red ▼ icon on the boxplot charts.
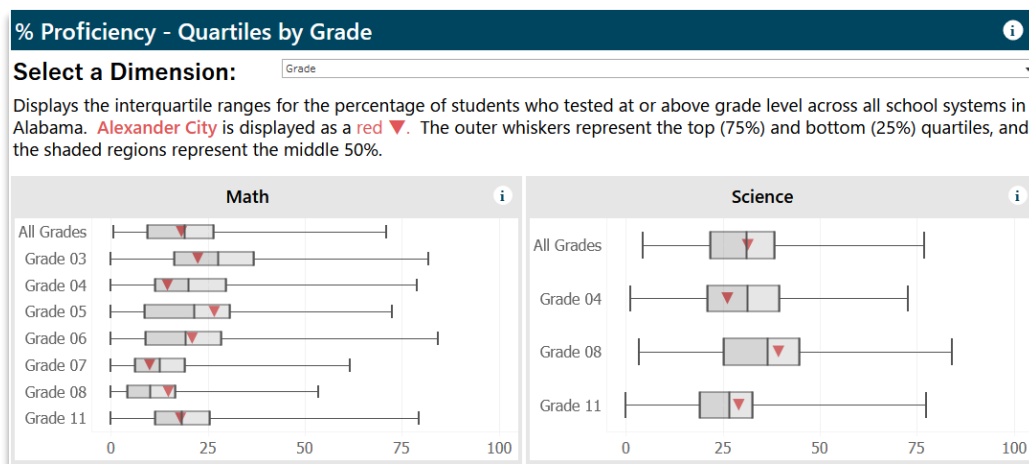
Users have the ability to pick and choose which subgroup to display data for. By default, the selection is to show drilldowns by student grade level, but the drop-down selector may be used to choose one of the following:

- Grade
- Race
- Gender
- Subpopulation
- Workforce Region

Boxplots are useful tools to help assess the distribution and relative performance of an individual school system in the context of others. They help to reduce the risk of drawing incomplete or misleading interpretations of complex data that are difficult to summarize using just a single number. Knowing how other school systems are performing provides important context to help ensure users' conclusions are well informed.

In the example below, the red ▼ icon indicates that this school system has a % proficiency in the high 20s. The box and whiskers go a step further to describe the distribution of all other school systems using the same metric. The two whiskers on the far ends represent the minimum and maximum scores observed in the data, while the shaded box describes where the majority of school systems are located. From this chart, we can gather that a) no school scored higher than approximately 80%, b) the selected school system's score is better than 50% of all other school systems, and c) the selected school system's performance is near the average performance of all other school systems.
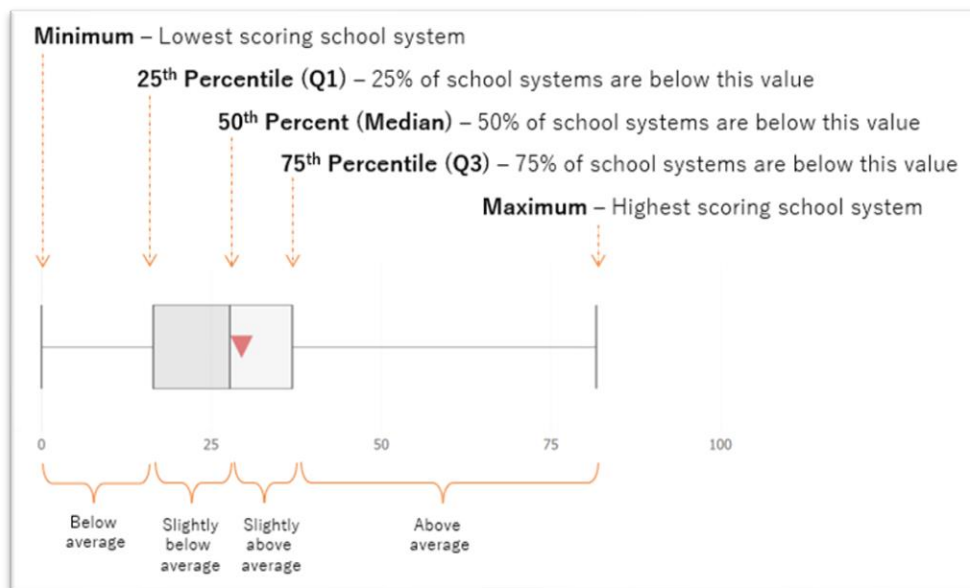
5.7   TOP SCHOOLS/SYSTEMS DRILLDOWN TABLE

The top school/systems drilldown table is a powerful tool to gain quick insights on school systems (if Alabama State Department of Education is selected) or individual schools (if a school system is selected). This table provides users with the ability to sort the list of schools by one of 6 key metrics including:

- Number of Enrolled
- % Of Students non-white
- % Of Students Hispanic or Latino
- % Of Students Economically Disadvantaged
- % Proficiency – Math
- % Proficiency – Science

In the example below, the table has been sorted to show the top schools by number of enrolled students. Because the user has selected Alabama State Department of Education as the current system, the table displays results that have been aggregated at the school system level.

Top Schools/Systems by Enrolled - Alabama State Department of Education

Sort this table by: Enrolled

This table displays systems if Alabama State Department of Education is selected in the dashboard header, or individual schools if a specific system is selected. The drop down menu can be used to sort this table by any of the displayed metrics in order to quickly identify systems or schools of interest.

System	Schools	Enrolled	Non-white	Hispanic/Latino	Economically Disadvantaged	Math Proficiency (%)	Science Proficency (%)
Mobile County	84	53,134	60.0%	5.0%	66.0%	15.0	31.1
Jefferson County	54	35,697	55.0%	12.0%	58.0%	8.8	21.1
Baldwin County	43	30,215	22.0%	11.0%	48.0%	32.9	47.0
Montgomery County	49	27,704	89.0%	8.0%	61.0%	9.1	21.4
Huntsville City	43	23,183	54.0%	15.0%	40.0%	21.4	35.4
Birmingham City	43	21,901	95.0%	9.0%	69.0%	3.9	11.3
Shelby County	27	20,637	25.0%	9.0%	30.0%	30.3	47.0
Madison County	27	18,857	35.0%	6.0%	33.0%	26.6	42.3
Tuscaloosa County	32	18,735	40.0%	11.0%	46.0%	20.8	34.2

If the user had selected a specific school system for analysis, the table would instead display the individual schools within the selected system, as in the example below for Decatur City Schools.

School	Grades	Enrolled	Non-white	Hispanic/Latino	Economically Disadvantaged	Math Proficiency (%)	Science Proficency (%)
Baldwin County Virtual School	07-12	1,619	23.0%	8.0%	45.0%	21.4	50.4
Fairhope High School	09-12	1,460	15.0%	6.0%	24.0%	43.4	47.5
Daphne High School	09-12	1,301	24.0%	6.0%	35.0%	41.4	43.5
Foley High School	09-12	1,247	30.0%	26.0%	65.0%	24.2	30.2
Robertsdale High School	09-12	1,159	16.0%	14.0%	57.0%	33.6	39.4
Baldwin County Elementary Virtua..	OK-06	1,072	35.0%	8.0%	54.0%	25.0	48.2
Spanish Fort High School	09-12	1,037	16.0%	5.0%	19.0%	43.7	49.8
Robertsdale Elementary School	PK-06	922	23.0%	19.0%	69.0%	24.9	33.3
Rockwell Elementary School	PK-05	915	16.0%	6.0%	16.0%	46.1	54.3

6 SUPPORT AND ASSISTANCE

The Alabama Math and Science Achievement Indicators Dashboard has been developed by Associated Research and Knowledge Specialists, LLC. For questions regarding technical and data issues or requests for additional information, please contact us via phone or e-mail below.

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