

Science Education Data



Is Valuable for Understanding Student and School Progress

Quality science education can give students content knowledge and analytic skills that will open up many career pathways. Data about students' science education opportunities, outcomes, and instruction gives parents and families a more complete picture of the education their students are receiving. To ensure that parents have access to and can understand this information, state policymakers should make certain that science education data is publicly available on their state report cards and easy for parents to find and use.

Here's what we looked for:

As part of the [Data Quality Campaign's annual review of state report cards](#)—the main tools that states use to communicate with the public about school quality and performance—we reviewed the 2022 report cards for the first time for information about science education. Our review included the following information:

- **Reporting of statewide science test scores:** While the federal government requires testing in English language arts and mathematics in each of grades three through eight and then once in high school, statewide science testing is required only once within three grade spans (3–5, 6–9, and 10–12). We looked at whether states published outcomes of their science tests and, if so, whether that information was broken down by different student demographics such as gender, race, or family income level.
- **Availability and outcomes of advanced science coursework:** This information answers questions such as: Does a school offer Advanced Placement (AP), International Baccalaureate, or other advanced courses in science subjects? Who enrolls in these classes? For those who do enroll, did they receive instruction that resulted in a passing score (3+) on the AP test?
- **Teacher quality among those teaching science classes:** Understanding who is teaching students gives important information about the science education students are receiving. This means providing information about who is teaching science courses, how long they have been teaching science, and what teaching credentials they have (e.g., out-of-field or emergency credentials).

Here's what we found:

- **49 states** include results from statewide science assessments on their state report cards. Of the 49 states that publish some science assessment data, **44 states** provide at least some of this information broken out by different student groups.
- Only **eight states** include information on the availability of advanced science coursework. Of these states:
 - **Two states** break down enrollment data for advanced science classes by student group.
 - **Five states** include information on student science course outcomes, and only **two of those states** provide this information broken out by different groups of students.
- Few states include information on their report cards about the qualifications of their science teacher workforce.
 - **One state** includes information on the number of science teachers with emergency or provisional credentials.
 - **Three states** provide information on the number of science teachers not certified in their field.

Bright Spots

While there is certainly room for improvement and there are areas worth investing in across the board, some bright spots are worth highlighting.



Massachusetts's report card provides assessment data for the state's Science and Technology/Engineering Massachusetts

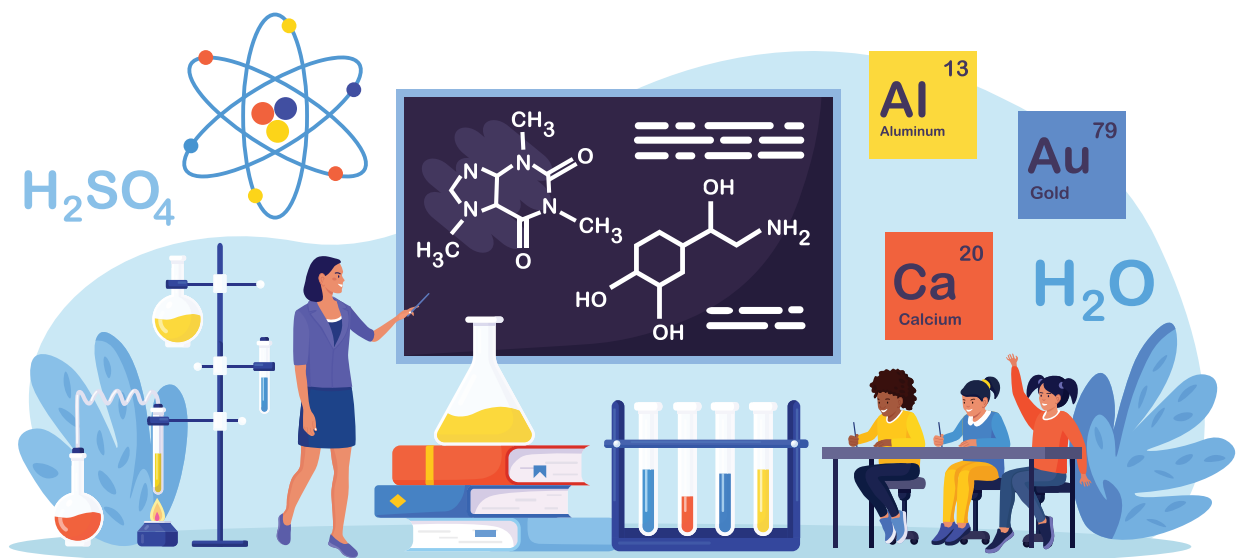
Comprehensive Assessment System tests at the school, district, and state levels, broken down by student group. The state also reports information on the percentage of students completing at least one advanced science course broken down by subject and student group.



In New Jersey, the state's report card provides statewide assessment data broken down by student group. The state also provides the number of students enrolled in AP science courses at the school level. And while teacher experience is not a measure of teacher quality, New Jersey is the only state to report any information on it; the state report card includes the number of science teachers who have been teaching in their district for four or more years. The state's report card also includes a "school narrative" page that provides some information on technology and STEM initiatives at the school.

Conclusion

Providing science education data is essential to the success of all students. But right now, the availability of science data on state report cards is uneven; states must think about how to publicly share a fuller picture of science education in their schools and districts.



For more information on how states are sharing information with parents, families, and the public, see DQC's *Show Me the Data* reports.

ABOUT THE DATA QUALITY CAMPAIGN

The Data Quality Campaign is a nonprofit policy and advocacy organization leading the effort to ensure that data works for everyone navigating their education and workforce journeys. For more information, go to dataqualitycampaign.org and follow us on [Facebook](#) and [Twitter](#).