Historical Science MCA-III Benchmark Reports Quick Guide

Assessments are designed to provide information about student learning, but there is no single assessment that can provide the full perspective of what a student has learned. These assessments provide one data point that should be considered in the context of additional evidence of student learning.

Benchmark reports are no longer available for Science MCA-III beginning in 2025 due to the transition to the new assessment Science MCA-IV.

The Science MCA-III Benchmark Report served as a guidance tool available to educators to learn about performance at the school and district level on each benchmark from the Minnesota Academic Standards. The Minnesota Academic Standards identify the knowledge and skills that all students are expected to learn in each content area by the end of a grade or grade band. These standards are divided into one or more benchmarks which provide details about what students are taught in that content area.

Benchmark performance for Science MCA-III was calculated by comparing students' observed performance on test content aligned to a benchmark to the expected performance of the "Meets" achievement level cut score for a benchmark at the school or district.

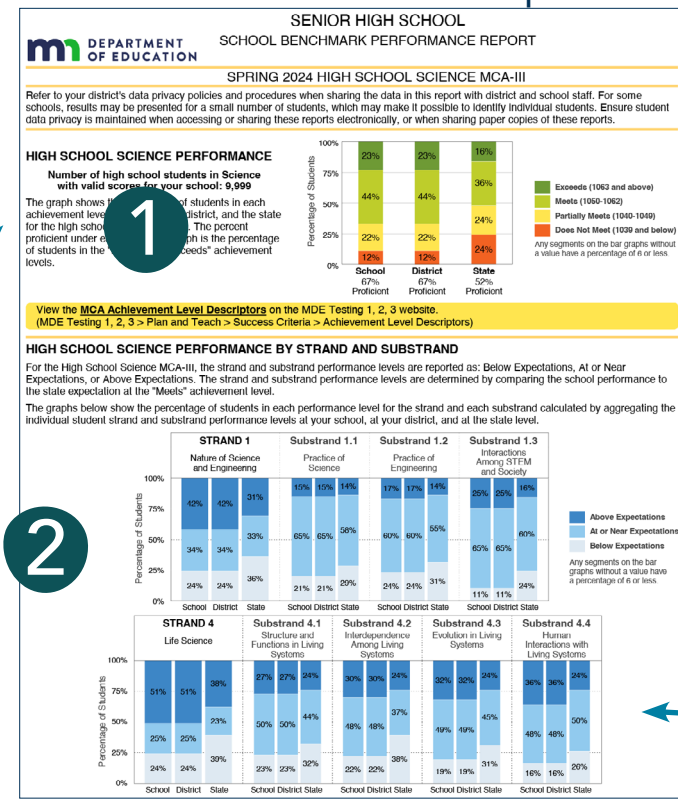
Report Considerations

The Science MCA-III was a fixed-form assessment, so each year, all students are administered the same items that count for their score.

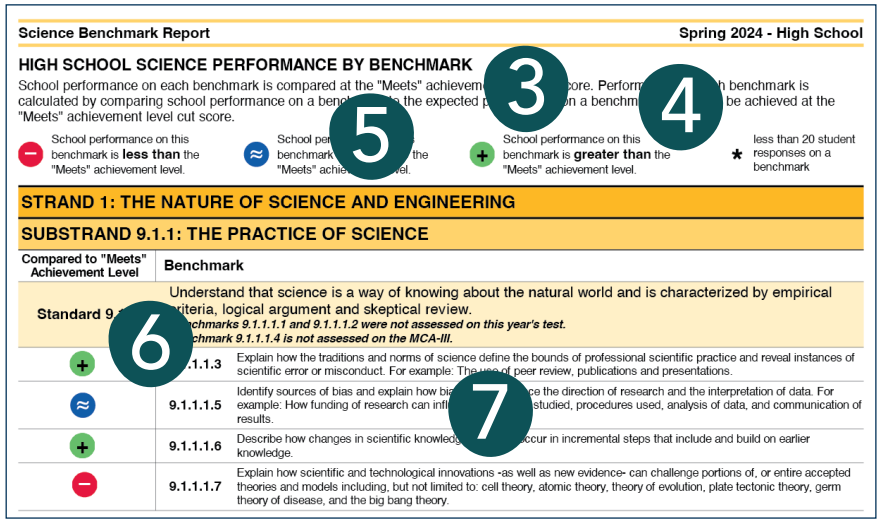
- All tests met the "blueprints" or requirements in the test specifications, which describe how the standards are assessed on the test and in what proportions. However, not all benchmarks were assessed each year on the Science MCA-III.
- Benchmarks not assessed are noted on the report.

Note: Science MCA-III Benchmark Reports are available in PearsonAccess Next through October 2026. Historical Science MCA-III Benchmark Reports are not moving to the new ADAM platform. Download any reports you would like to keep for your records.

Sections of the Benchmark Report



1. Overall performance, including:
   - The number of students with a valid, reportable score at the organization level for the grade and subject combination of the report.
   - An achievement level bar graph at the school, district, and state level, with the percentage of students at each achievement level.
   - The percent proficient, shown under each bar graph, is the combined percent of students at the "Meets" and "Exceeds" achievement levels.
2. Strand and substrand performance, including:
   - Content area strand and substrand names and performance level percentages at the school, district, and state level.
   - Performance level categories include:
     Below Expectations, At or Near Expectations, and Above Expectations.
     Expectation is defined as the school's performance on each strand/substrand compared to the "Meets" performance level cut score.



Science Benchmark Report — Spring 2024 - High School

HIGH SCHOOL SCIENCE PERFORMANCE BY BENCHMARK

School performance on each benchmark is compared at the "Meets" achievem[illegible]core. Perform[illegible]h benchmark is calculated by comparing school performance on a bench[illegible] the expected p[illegible]on a benchm[illegible] be achieved at the "Meets" achievement level cut score.

- School performance on this benchmark is **less than** the "Meets" achievement level.
- School per[illegible] benchmark [illegible] the "Meets" achie[illegible]vel.
- School performance on this benchmark is **greater than** the "Meets" achievement level.
- * less than 20 student responses on a benchmark

STRAND 1: THE NATURE OF SCIENCE AND ENGINEERING

SUBSTRAND 9.1.1: THE PRACTICE OF SCIENCE

Compared to "Meets" Achievement Level	Benchmark	
Standard 9.[illegible]		Understand that science is a way of knowing about the natural world and is characterized by empirical [illegible]riteria, logical argument and skeptical review. *[illegible]chmarks 9.1.1.1.1 and 9.1.1.1.2 were not assessed on this year's test.* *[illegible]chmark 9.1.1.1.4 is not assessed on the MCA-III.*
+	[illegible].1.1.3	Explain how the traditions and norms of science define the bounds of professional scientific practice and reveal instances of scientific error or misconduct. For example: The [illegible] of peer review, publications and presentations.
≈	9.1.1.1.5	Identify sources of bias and explain how bia[illegible]ce the direction of research and the interpretation of data. For example: How funding of research can infl[illegible] studied, procedures used, analysis of data, and communication of results.
+	9.1.1.1.6	Describe how changes in scientific knowled[illegible]ccur in incremental steps that include and build on earlier knowledge.
−	9.1.1.1.7	Explain how scientific and technological innovations -as well as new evidence- can challenge portions of, or entire accepted theories and models including, but not limited to: cell theory, atomic theory, theory of evolution, plate tectonic theory, germ theory of disease, and the big bang theory.

3. Benchmark performance description
4. Three performance symbols specific to the benchmark report used to represent school or district performance on each benchmark, including less than, similar to, or greater than the "Meets" achievement level.
   An asterisk (*) indicates there were less than 20 student responses for that benchmark and results are not available.
5. Strand and substrand number and titles.
6. Minnesota Academic Standards code reference and description.
7. Benchmark performance, benchmark code, and description.
   For science, the five-digit code (such as, 9.1.1.1.5) lists, in order, the grade (9), strand (1), substrand (1), standard (1), and benchmark (5).
   Grades 5 and 8 benchmark reports have benchmark codes numbered for multiple grades (such as, standards for grade 5 test include benchmarks that start with 3, 4 and/or 5).
   High school science benchmark reports have benchmark codes that start with 9 for grade 9, though instruction may occur outside of grade 9 in grades 10, 11, or 12.

Caution When Interpreting the Benchmark Report

Benchmark performance symbols do not correspond to overall achievement levels for Science MCA (Does Not Meet, Partially Meets, Meets, or Exceeds the Standards), and the color/shape of each symbol does not reflect benchmark difficulty.

Use of the Benchmark Report in Your Classroom, School, or District

The Science MCA-III Benchmark Reports served as a resource available to educators to use to evaluate and compare performance on benchmarks at the school, district, and state levels. Note: These questions were most relevant when using the benchmark reports and evaluating instruction aligned to the 2009 Minnesota Academic Standards and the Science MCA-III.

Guiding questions when reviewing and discussing benchmark reports:

1. Are the students who completed the assessment representative of the total student population at your school or district?
2. Where and how are specific benchmarks taught in a course's scope and sequence?
3. What do you notice about the benchmark data? What surprises you?
4. How does the data compare with what you saw in the classroom?
5. What additional information do you have about student learning of the benchmarks?
6. What may be some reasons for the benchmarks that have symbols indicating performance above the "Meets" achievement levels?
7. What may be some underlying causes for benchmarks below the "Meets" achievement level?
8. Are there additional emerging themes in all the information?
9. What are your next steps after reviewing your benchmark data?

Contact for Questions

Contact MDE at **mde.testing@state.mn.us** for questions related to the historical Science MCA-III benchmark reports or the new Science MCA-IV test.

Science MCA-IV was first administered in 2025. Detailed score reports appropriate for the new assessments are in discussion for development in a future year.