*****Massachusetts Department of***

***Elementary and Secondary Education***

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| Jeffrey C. Riley  *Commissioner* |  |

# MEMORANDUM

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| **To:** | Members of the Board of Elementary and Secondary Education |
| **From:** | Jeffrey C. Riley, Commissioner |
| **Date:** | December 7, 2021 |
| **Subject:** | High School MCAS Chemistry and Technology/Engineering Tests |

At the December 17, 2021, meeting of the Board of Elementary and Secondary Education, I will present my recommendations for phasing out – as of spring 2024 – two of the four MCAS high school science and technology/engineering (STE) subject tests that are currently available to students seeking to meet the competency determination (CD) requirements for graduation.

**Background on High School STE MCAS Program**

Students in the class of 2010 were the first class required to take and pass an MCAS test in one of four STE subjects (biology, introductory physics, chemistry, or technology/engineering) to be eligible to graduate from high school. The Board adopted the current Science and Technology/Engineering Curriculum Framework in 2016, and the Department subsequently began developing next-generation MCAS assessments in biology and introductory physics. After some delays due to the pandemic, the next-generation tests in biology and introductory physics will be given for the first time in spring 2022.

As I have discussed with the Board previously, the number of students taking the chemistry and technology/engineering tests has always been low, and over the past few years the numbers have declined significantly. For that reason, the Department has not pursued the development of new tests in chemistry and technology/engineering; the expense of creating and maintaining next-generation tests for a relatively small number of students is not a prudent use of our limited resources. We have also explored the availability of off-the-shelf commercial tests in these subjects, but have not identified any that are sufficiently aligned to our curriculum framework and that would meet the requirements of federal law.

To summarize the data: In 2019, the last year of full testing in high school STE, 69,381 students (97 percent) took a biology or introductory physics test, while only 2,319 students (3 percent) took a chemistry or technology/engineering test.

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| **Year** | Number of students participating | | | |
| **Biology** | **Introductory Physics** | **Technology/**  **Engineering** | **Chemistry** |
| 2015 | 51,103 | 16.061 | 2,709 | 1,168 |
| 2016 | 51,903 | 15,378 | 2,807 | 879 |
| 2017 | 53,432 | 14,178 | 2,601 | 769 |
| 2018 | 54,391 | 15,512 | 2,357 | 459 |
| 2019 | 54,490 | 14,891 | 1,931 | 388 |

The Regulations on MCAS and the Competency Determination, [603 CMR 30.00](https://www.doe.mass.edu/lawsregs/603cmr30.html?section=all), call for students to “take a discipline-specific high school STE MCAS test approved by the Board, by grade 10.” 603 CMR 30.03(4). Under this regulation, the Board has flexibility to consider enrollment numbers and other relevant factors and determine by a policy vote which subject area MCAS high school science tests will be offered to students in order to meet the CD standard. I am recommending that the Board vote to phase out the chemistry and technology/engineering tests, as follows.

**Summary of Recommendations**

1. To accommodate the small number of students and schools who still participate in the chemistry and technology/engineering tests on a regular basis, I am proposing to continue offering these two tests for two additional years—in spring 2022 and spring 2023. This deferred elimination allows students in the class of 2025 (who are in 9th grade this year) to take either of these two tests at the end of either 9th or 10th grade and gives high schools time to adjust their course sequences if needed.
2. Beginning in spring 2024, the chemistry and technology/engineering tests would no longer be available, and only tests in biology and introductory physics would be offered to students in the class of 2026 and beyond. To support students and schools during the transition, we would continue to allow students in the class of 2025 and earlier to submit performance appeals in chemistry and technology/engineering.

Eliminating these MCAS tests does not mean eliminating courses in chemistry and technology/engineering. Our high school MassCore requirements include three years of a laboratory science, so most students will have opportunities to take either or both of these subjects. Only one science test is required to earn the competency determination, and as a practical matter most students take the test corresponding to the first subject in their high school science sequence. Traditionally that has been biology, although many high schools have moved in recent years to begin with introductory physics, which is foundational for both technology/engineering and the natural sciences. The Department will support that trend by offering an additional mid-year testing opportunity in introductory physics beginning in February 2023.

**Proposed Next Steps**

At previous Board meetings we have discussed the possibility of phasing out the chemistry and technology/engineering MCAS tests. The Department has studied the options and engaged with the field. Over the years, we have heard from a number of educators and organizations who support continuing MCAS tests in these two subjects. The Department appreciates the advocacy for these subject areas. Students will continue to have opportunities to take chemistry and technology/engineering courses in high school. With respect to the MCAS tests, however, the number of students who take these particular tests is declining and the cost of test development would be significant. Given those realities, I am recommending a thoughtful phasing out of these tests.

I recommend that the Board consider this matter and then vote on it at the January meeting, so the Department can provide fair notice to students and to high schools for their course planning. Rob Curtin, chief officer for data, assessment, and accountability, along with Associate Commissioner Michol Stapel and Lucy Wall of our legal staff, will join us for the discussion on December 17.