Massachusetts Teachers Association
center for education policy and practice

Reestablishing Massachusetts' National Leadership Role in Education:

*A System of Assessment and Graduation Requirements in Support of Deeper Learning and 21st Century Skills and Knowledge**

Introduction

The rejection of MCAS exams by Massachusetts voters as the high school diploma gateway provides the state with a unique opportunity. The state's Graduation Council is considering various options to establish new, statewide graduation requirements that attempt to capture the competencies and characteristics that stakeholders want to see in graduates of Massachusetts public schools. Prior to this moment, expectations of diploma earners statewide were limited to passing standardized tests that assessed assimilation of certain academic knowledge and the ability to show competency in those areas in a highly constrained medium. But academic excellence and true content knowledge in 2025 cannot be adequately nurtured and assessed with these functionally limited measures. The vast majority of states across the nation have come to the realization that these instruments are not adequately preparing graduates across the socioeconomic spectrum for the intellectual, economic, civic and social demands of adulthood. By defining the desired characteristics and competencies of high school graduates and aligning learning experiences and assessments that develop and evaluate those skills, habits and knowledge, Massachusetts can reestablish its national role, going back to the days of Horace Mann, as the leader in public education.

If we want students to be analytically proficient critical thinkers and problem solvers, if we want them to be able to demonstrate knowledge and skill beyond memorization and assimilation of facts, if we want them to be strategic users of artificial intelligence rather than beholden to it, if we want them to be empathetic, productive citizens ready for the adult world, we have to assess their learning and readiness for graduation in complex, authentic, real-world ways. The academic excellence underpinning all these desired graduate characteristics in 2025 requires developing and using authentic measures of student achievement. And we have to establish a state-supported and coordinated system of local innovation to accomplish that goal. This paper will suggest a framework and plan for implementing a system focused on making Massachusetts high school graduates the best prepared in the country for the demands of our modern society and economy.

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This paper will address the following questions:

I. What are the capabilities and qualities we hope for in our high school graduates?

II. How do we best demonstrate that they are ready for the world and what do they need to get there? What learning experiences and assessments are needed to ensure students are prepared and have meaningful pathways for post-secondary life?

III. What does a system look like that can accomplish this task?

The Pillars of a Meaningful System of Graduation Requirements

I. Portrait of a Graduate

Creating a system of graduation requirements that drives public education in the state must begin with an examination of what we want graduates to be able to do and the competencies and characteristics we want them to exhibit before vaulting into adulthood.

The idea of the portrait of a graduate is to provide a well-rounded view of student success, which includes academic skills, social and emotional skills and civic characteristics that students should master as they graduate high school. Ideally, this helps guide school districts in how to undertake teaching and learning that develops the identified skills that students should have by high school graduation. Given the diversity among districts across the state, localities might develop, as many in Massachusetts already have, their own vision for graduates of their schools. A state's portrait of a graduate can establish certain broad, common goals shared across districts as a vision that establishes the skills and aptitudes that the state determines graduates need to be successful as adults, based on stakeholder input.

Surveys of state and local portraits reveal certain basic commonalities that overlap with the Healey administration's proposed Portrait of a Graduate for Massachusetts. The latter asks that students be: Academically Prepared, Creative Problem Solvers, Effective Communicators, Responsible Decision Makers, Intentional Collaborators and Self-Aware Navigators.

The Collaborative for Academic Social and Emotional Learning (CASEL) published a state scan of Portraits of a Graduate in February 2024. The most common characteristics outlined across state portraits were, in descending order of popularity:

- Critical thinking/problem-solving (18 states)
- Social Awareness/being an active citizen (16)
- Communication skills (15)
- Self-management skills (12)
- Academic and technical knowledge (11)
- Collaboration/teamwork (11)
- Responsible decision-making (7)
- Digital literacy, technology tools (7)

- Self-awareness (6)
- Relationship/interpersonal skills (6)
- Creativity, innovation (6)
- Career exploration & development (6)
- Financial literacy (6)
- Lifelong learner, learner mindset (6)

The World Economic Forum's 2025 list of skills that employers most value bears a striking resemblance to the statewide portrait list with analytical thinking, resilience, flexibility and agility, leadership and social influence, creative thinking, motivation and self-awareness, and empathy and active listening being the most-prized employee characteristics.

Each state values slightly different things in its portrait of a graduate. Interestingly, not all states view academic or technical knowledge as essential, preferring to focus on so-called 21st century or durable skills broadly defined. These durable skills, such as those identified by Governor Maura Healy's proposed graduate portrait, are not developed by preparing for standardized tests, nor are they measured by such instruments.

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Determination of whether students have achieved elements of a graduate portrait tends to be a more holistic process embedded in multiple tasks and assessments rather than passing a single instrument. This is particularly true when measuring the skills inherent in demonstrating real mastery of content-specific knowledge (having students be "academically prepared" under the Healey framework), and the so-called "21st Century Skills" like critical thinking, self-regulation, communication and collaboration (all part of the Healey framework). **It is imperative that Massachusetts provides pathways and measures of graduation readiness that encapsulate these skills and provide varied ways for students to demonstrate required competencies and characteristics.**

There are much more effective ways to help students acquire and master discipline-specific knowledge than memorizing content from a textbook and being tested on fact acquisition. Such traditional instruments are no longer a viable or desirable mode of learning given the technology, communication and information associated with complexities of the workforce and societal interactions.[1] Assessments and tasks also should reflect the intellectual processes inherent in a given academic discipline, rather than simple exercises of memorization or formulaic applications. The rise of artificial intelligence, in particular, requires creating tasks and assessments that demand students perform and exhibit applied knowledge in ways that also meaningfully assess their "soft" or durable skills.[2]

1 https://www.theatlantic.com/technology/archive/2025/09/high-school-student-ai-education/684088/

2 The author of the recent Atlantic piece suggests the following: "Student assessments should be focused on tasks that are not easily delegated to technology: oral exams, for instance, in which students walk educators through their thinking process, or personalized writing assignments that are unique to the student or current events. Portfolio-based or presentational grading could be emphasized over traditional exams or pop quizzes, giving students ample time to earn their grades. Students can also be encouraged to reflect on their own work—using learning journals or discussion to express their struggles, approaches, and lessons learned after each assignment".

II. Authentic Assessment Demonstrating Deeper Learning

The Need for Authentic Performance-Based Assessment

Massachusetts needs to assess necessary competencies in a way that enhances the learning process, rather than alienates students from school, and tells us whether students have mastered the skills and knowledge required to function socially, economically, intellectually and politically in modern society.

Authentic assessment — performance-based assessment — is the best way to evaluate the real learning and progress of high school students. Learning is complex; assessment should be too.

Performance-based assessments tell us what students have learned by having them actively demonstrate their knowledge and skills. A tryout for a sports team, a robotics competition, a writeup of science research for a school or district competition, or an audition for a part in a musical are common examples of this type of assessment. They ask students to complete a task or project requiring them to apply knowledge and explain process and methodology in solving a problem, or to explain a phenomenon, answer a question or hypothesis, conduct an inquiry, or create an original work. Performance-based assessments are designed to be authentic to student learning and experience and are connected to actual curriculum taught in the school and classroom. They allow students to demonstrate mastery of learning standards in ways that reward critical analysis, varied modes of expression, depth of knowledge, and student voice and choice. When implemented effectively, assessments are evaluated and graded so as to give the student meaningful feedback toward continuous skill improvement.

Assessing that students have the ability to comprehend complex elements of a topic and can draw meaningful connections across different contexts is difficult to achieve through standardized testing, which is fundamentally dichotomous to the concept of deeper learning.

Authentic assessment is rooted in deeper learning, or as Harvard professor Jal Mehta defines it, "the understanding of not just the surface features of a subject or discipline, but the underlying structures or ideas." Deeper learning goes beyond memorizing facts and techniques and is instead focused on students taking their knowledge and skills and applying them in new situations; it incorporates many of the common skills listed in portraits of a graduate, such as critical thinking/problem solving, communication, collaboration, and creativity. Assessing that students have the ability to comprehend complex elements of a topic and can draw meaningful connections across different contexts is difficult to achieve through standardized testing, which is fundamentally dichotomous to the concept of deeper learning. Authentic assessment is thus the only viable means of assessing students' knowledge because it requires students to take what they have learned and apply it to find a context-specific solution to a complex problem. Since such a task can be achieved in multiple ways, authentic assessment can also be a profound demonstration of students' content knowledge, skill development, and deep learning.

A recent (January 2025) paper from the Center for Assessment, by Chris Brandt, Carla Evans and Chris Domaleski, "Assessing 21st Century Competencies: Guiding Principles for States and Districts," evaluates the challenges of transforming assessment to support an

education system that cultivates many of the characteristics outlined in graduate portraits. These characteristics are much better developed and assessed through performance-based assessments at the classroom and school level rather than traditional large scale standardized tests. It is up to the state and district to define the learning construct and develop a clear understanding of how performance is expressed along a continuum from novice to expert. (Developing standards for these 21st century skills can be analogized to the creation of learning standards for content areas.) Once tasks and performance continua are developed, the paper recommends to "pilot and scale 21st century assessments in service of creating robust performance assessments, which have proven useful for instructional purposes."

The Problem with Summative Standardized Tests

If Massachusetts is committed to fostering deeper learning and disciplinary mastery in its high school graduates, adopting a common system of standardized tests would undermine that goal. Here are several important considerations:

1. "Comparability" Should Not Be Determinative

The entire concept of "standardized tests" like the SAT or the MCAS is that they are a) fair because everyone is taking the exact same exam and b) results of different test-takers can be easily compared. But using the same easily scored instrument for everyone defeats the purpose of actually determining what a given individual student knows and can do. Administering the same exam under the same conditions across the entire student population also fails the test of fairness.

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According to Steve Sireci, distinguished professor of educational measurement at UMass Amherst, when using standardized tests, the material tested, the testing conditions and the scoring processes, often are too rigid to provide the intended level playing field. For example, standardized testing conditions may interact with personal characteristics of students that affect test performance but are not construct-relevant. Thus, more flexibility in standardization is needed to account for the diversity of experiences, talents and weaknesses of the incredibly heterogeneous populations of examinees we assess. Traditional standardization procedures grew out of experimental psychology and psychophysics laboratories, where keeping all conditions constant was crucial. Today, accounting for and measuring what is not constant across examinees is crucial to drawing valid conclusions. Sireci introduces the concept of understandardization: ensuring sufficient flexibility in assessment conditions to yield the most accurate measurement of proficiency for each examinee.

Furthermore, the goal of developing criteria for and assessing graduation readiness is to enable students to show what they can do, not how they compare. The continued focus on ranking and sorting students, schools and teachers through test scores only serves to reinforce pre-existing socioeconomic inequalities. As long as criteria are developed and normed for levels of mastery in key subject areas and skills, adequate

comparability can be achieved without undermining the entire purpose of graduation requirements that meet the portrait of a graduate framework.

2. The Teach to the Test Problem is Real and is a Problem: How We Assess Impacts How We Go About Learning

If passing a standardized test is the end goal of a course of study, learning time will be dominated by preparation for that test. The larger the grade component of an end-of-course exam, the more students and teachers will be preoccupied with doing well on that exam. A standardized exam reduces the amount of flexibility afforded a teacher to individualize learning and renders any authentic discipline-specific assessments to second-class status. Summative standardized assessments skew classroom pedagogy towards test preparation and facilitating memorization: they do not give students the opportunity to engage in inquiry, work through more difficult and challenging problems, or have critical voice in the content of their learning. Inquiry-based knowledge and skill acquisition is demanded by the modern graduate portrait; standardized tests impede that style of education.

3. Standardized Tests are Poor Measures of Graduation-Level Knowledge and Skills (They Capture Basics, not Mastery)

These kinds of tests are very poor yardsticks of student learning. They are weak measures of the ability to comprehend complex material, write, apply mathematics, understand scientific methods or reasoning, or grasp social science concepts. Nor do they adequately measure thinking skills or assess what people can do on real-world tasks. Standardized tests also prize speed over depth of thought and thus are testing something far less relevant to the real world.

They can capture whether a third-grader can decode and understand text or compute fractions. They cannot capture whether a high school graduate can solve a non-routine math problem, understand the scientific method, or carry a logical argument in oral or written form from an initial premise to a conclusion.

They do not test creative problem solving, they don't ask students to communicate, and they do not evaluate capacity for responsible decision making.

Additionally, multiple-choice, paper-pencil or computerized examinations assess virtually none of the most common components of state-level Portraits of a Graduate, including those proposed by Governor Healey. They do not test creative problem solving, they don't ask students to communicate, and they do not evaluate capacity for responsible decision making. They are solitary tasks in which effective collaboration is, in fact, forbidden, and they do not assess whether students are self-aware navigators. They simply are not measures of any of the human tools needed for civic life. And, as explained above, although they attempt to measure some form of academic preparedness, they are woefully inadequate for that task given the complexities of modern learning.

Authentic Performance Assessments in Practice

The following examples represent several approaches to a system of authentic assessment. As explained below, they are not novel approaches but have been used successfully in classes, schools and districts across the country, including in Massachusetts, with excellent results. A local district could adopt whichever modality it determines best allows it to determine whether students are graduation ready, and that best meets the academic and social needs of its population. Districts are probably well-served to provide more than one option for students, but do not necessarily need to develop all modalities. In all cases, authentic assessments allow for engaging students in real-world tasks that demonstrate a range of competencies, skill acquisition, and content knowledge.

Course/Subject-Specific Performance-Based Assessments

In determining whether students have acquired disciplinary knowledge and skills in both core academic areas and other important sectors defined as essential by the district (e.g. world languages, visual and performing arts, civic engagement), educators develop performance tasks that align with learning standards and afford students the opportunity to demonstrate competencies and eventual levels of mastery. Because the tasks are done over time and are subject to real-world processes of critique, revision and collaboration, and they reflect the processes inherent in the given discipline, they are authentic assessments of student learning.

Before a final graduation-level project, students must practice and develop the requisite knowledge and skills over the course of their secondary school careers. Interim performance tasks and assessments build up to final demonstrations of mastery and final projects, whereby students show that they have attained a level of proficiency that warrants graduation and shows they truly understand the thinking, core content and intellectual processes of the subject. These are developed at the school level and ideally are shared and critiqued through supported professional development and collaborative fora across classrooms, schools and districts. Tasks for interim assessments in Massachusetts can be found in the resource of MCIEA Tasks. The New York Performance Standards Consortium (NYPSC) has established an entire methodology for the development and quality control of performance tasks and interim assessments that can be accessed here: Interim assessments in Consortium schools.[3]

Graduation-level performance-based assessment tasks (PBAT) in the core academic disciplines involve students undertaking an individual project that culminates in a written or multimedia product that the student presents to panels of educators and members of the community. Levels of mastery are assessed using common rubrics that reflect the discipline-specific skills and knowledge determined to be at the core of mastery demonstration. In the NYPSC, the core academic graduation tasks are:

3 The success of the Consortium Performance Based Assessment System in producing successful outcomes for even the most socioeconomically challenged populations has been documented in several studies, notably the **CUNY validity study**. See Fine, M., & Pryiomka, K. (2020). Assessing college readiness through authentic student work: How the City University of New York and the New York Performance Standards Consortium are collaborating toward equity. Palo Alto, CA: Learning Policy Institute.

- Analytical essays that are designed to assess students' reading, writing and comprehension skills through critical inquiry of various literary texts.
  Example: A student explored the writings of Italo Calvino and wrote an analytical essay looking at the conceptions of reality in "Swimming Against Time" and "The Flash." He discussed his paper with a panel of two teachers and an outside evaluator.
- Social studies research papers that require students to develop a persuasive argument on a topic using evidence to support their thesis. Students must also do an oral presentation before a panel on a topic of their choice.
  Example: A student wrote a 15-page research paper using both primary and secondary sources and examining whether certain post-Watergate government reform laws were effectively designed to have had an actual positive impact on corruption in government.
- Lab reports of original science experiments or engineering designs which are created, carried out and analyzed by students. Students complete written work to document their experiences or designs and then orally present to their teachers and external evaluators.
  Example: A student designed, conducted, reported and discussed an experiment to test the efficacy of antibiotics on bacteria. She answered the question "What are the effects of penicillin, tetracycline and chloramphenicol on E.aerogenes, B.cereus, and S.lutea?"
- Mathematics performance-based tasks which are open-ended, typically non-routine complex problems that are open to multiple methods for problem solving. These tasks can be given by the teacher or co-created between students, and students are required to document the mathematical processes they underwent to solve the problem. Similarly to the other examples, students present and defend their work orally before a panel of members with mathematical expertise.
  Example: A student devised a proof and formed an equation to solve the Josephus or Last Man Standing problem. Reasoning and mathematical analysis were presented in a paper and defended orally to three math teachers.

Individual schools also add tasks in the arts, art criticism, world languages, internship or other areas.

Capstones

Capstones are locally driven culminating projects at the conclusion of an academic experience in which students design and execute an important project that demonstrates the interdisciplinary knowledge and skills they have acquired. They are typical culminating activities for undergraduate majors or masters-level programs (including those in the state that train education administrators). Oftentimes, capstones include significant portions of self-reflection throughout the process and are ideally the product of the development of a variety of portrait of a graduate embedded durable skills.

One example, the Capstone Project at Cañon City High School in Colorado, is a culminating project aimed at evaluating graduating students' mathematics, English language arts and other "essential skills." Cañon City High allows students the flexibility and creativity to design a capstone project of their choice, but all projects must include a portfolio, an oral presentation before a panel of members including faculty, staff and community members, and an additional presentation before other graduating students. One alumna's capstone project, which underscores the authenticity embedded in capstones as a performance

assessment, was from a 2023 graduate, Chloe Martin. Chloe was passionate about the performing arts, and for her capstone project she designed several costumes that transformed on stage for Cañon City's Cinderella play. Chloe took her love of acting and sewing and became a self-described "costume engineer," combining skills gained across different disciplines such as researching and communicating designs (English language arts), identifying correct measurements for garments and using reasoning skills to increase efficiency (mathematics), and adapting different processes to fit the show (innovation and solution seeking). Chloe's sewing capstone project is an example of how authentic assessments challenge students to creatively apply knowledge and skills gained over the course of their high school years to demonstrate their deep learning in connecting theory to practice.

For graduating students in Career Technical Education pathways, capstone projects typically involve the application of in-classroom knowledge to a work-based learning experience in an area of interest for the student. Students are paired with industry professionals who serve as mentors as students complete the project. In some states, like Pennsylvania, students who are in CTE programs complete capstone projects to fulfill the Industry-Based Competency Assessment requirement, which provides these students with an opportunity to showcase their ability to work in such environments as future employees. Fixing a car, developing a working smartphone app, developing and carrying out a plan for irrigating a greenhouse, cooking for and operating a school cafe/restaurant are some examples of CTE capstone-like activities.

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In all these examples, the capstone project is developed out of a particular course of study unique to the local program and the student pathway. Common scoring rubrics for particular skills and content knowledge produce requisite common guidelines. Having all students undertake the same fully standardized project defeats the educational purpose of the culminating demonstration.

Portfolios of Student Work

Portfolios are collections of student work which provide evidence of what they have learned and how they have grown academically over time. They are student-created digital records that include a collection or artifacts of students' course-related work that capture student learning. Ideally, students include reflections on each artifact to document and explain their thinking in context, which can allow them the ability to tailor this demonstration of their skills to a specific audience, i.e., college admissions, future employers, etc. The format, skill demonstration presented, content and emphases of a digital portfolio can be designed or selected by a school or local district to meet their students' needs and the districts' interpretation of the state and its own Portrait of a Graduate. The portfolio also would be aligned to state learning standards.

One example of a portfolio is the Mastery Transcript Consortium (MTC), a company that constructed a redesigned high school transcript that attempts to capture rubric-assessed competencies and portfolios of student work on a transcript that would be

recognized for college admissions purposes. Many schools across the country — mostly private, independent schools — use a version of this digital transcript. The MTC Transcript provides outcome ratings in categories designated by the school or district, including core academic area — mathematics, language arts, history, sciences, world language — and within those areas has the capacity to offer assessment of discipline specific skills, including depth of research skills, understanding of scientific method, literary analysis and written communication. Schools also can include broader durable skills categories, such as collaboration and critical thinking. With the digital portfolio component, student work can be uploaded and mapped onto these areas to provide a holistic picture of student growth and performance.

Another type of portfolio is the Unrulr ePortfolio, which captures student work cumulatively, showing their evidence of growth over time. Students upload their work and tag each piece of evidence with COGS: concepts, outcomes, goals and skills. These COGS connect students' posts to learning objectives, which are visible to audiences including educators, peers or other Unrulr users. At Cañon City High in Colorado, teachers turned to Unrulr to push for more student-driven documentation of learning to meet three goals: (1) track student learning on a weekly basis; (2) give students agency during the capstone process and in documenting their learning and; (3) connect students' learning to characteristics listed in their portrait of a graduate and Individual and Career Academic Plan (ICAP) quality indicators. Data from the fall of 2024 showed that through Unrulr's COGS, Cañon City High students' top ICAP indicator was Self-Awareness, and their top skills from their portrait of a graduate were Innovation and Solution-Seeking and Tenacity and Self-Reflection. E-Portfolios, like Unrulr, are a useful tool for helping make student learning visible as students document and reflect on their work throughout high school.

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The point of portfolios is to monitor and give relevant feedback on student progress over time. Ideally, students would then have examples of authentic work, demonstration of growth and proof of relevant skills needed for higher education and the workplace.

Development and Implementation of Common Grading Rubrics

Reliability and validity of educator-developed assessments can be established through development of, training in, and study of the application of well-designed grading rubrics. Rubrics can be constructed to evaluate student progress and achievement across a variety of desired skills, content areas and domains. Graduation-level performance-based assessment tasks in the NYPSC are evaluated by external assessors using Consortium rubrics for both writing and oral presentations.

Ideally, assessments are developed by educators, individually and in grade-level and discipline-specific committees in consultation with school administrators and members of local communities. Grading rubrics can be standardized for different discipline-specific tasks. There are various pathways to demonstrate certain academic/content area skills: the understanding of the scientific method can be shown through conducting an experiment in physics, botany, environmental science, chemistry, immunology or biology. Inter-rater reliability studies — teams of assessors from different schools, or even districts

independently grading the same work, using the same rubric — can establish whether rubrics are functioning in their intended manner and if scoring is consistent across classrooms, schools and districts.

Accountability Through Public Demonstrations

True school accountability comes from the school community, as student work should be available for demonstration and community inspection. This is very much in the Massachusetts tradition of local school committees and districts being responsible for meeting the needs and expectations of their communities. Transparency of student work helps build stakeholder and community trust in the public school. Performance assessments, capstones and portfolios of student work allow for public demonstrations of student achievement that shine a light on the quality of the work, the intellectual growth of the student, and the workings of the school. Public performances of student culminative assessments allow for parents and the community at-large to bear witness to high-level student achievement or to call into question the demands placed upon and work quality of the students, accountability functions that spur school improvement. The precedent for this kind of public display of student achievement is obvious: sports contests, debate tournaments, art exhibitions, school plays and musicals, and band and ensemble concerts are all public measures of student achievement that can be evaluated by the community. In fact, it is in these, usually extra-curricular activities, that skills like persistence, collaboration, communication and deeper learning are most likely to be developed (see Mehta & Fine, In Search of Deeper Learning) in the current system, where standard academic classes rely on standardized tests taken behind closed doors rather than authentic assessments for student evaluation.

Public demonstrations of student work also provide incentives for students to take their work seriously and expend genuine effort.

Public demonstrations of student work also provide incentives for students to take their work seriously and expend genuine effort. The motivating factor of public shame should not be discounted. Public affirmation of student work through community recognition provides a powerful boost to student self-worth and confidence.

Provided that exhibitions and demonstrations are available for community and public inspection, assessments are judged according to clearly defined task-appropriate standards and rubrics, and tasks are aligned to learning goals and standards, performance-based assessments are valid and reliable evaluations of student learning. They more validly and reliably assess the range of factors and skills that are important to student learning and development than standardized tests.

III. A System to Support Deeper Learning, Academic Mastery and Student Success Pathways: Graduation Requirements and State Support for Local Innovation

Several states have allowed for and supported performance-based assessment in varying degrees of scale. Making room for and supporting such assessments that develop deeper learning and critical thinking skills in students is good educational policy. **It can certainly be a way to assess graduation level competencies — both academic and "durable" — across schools and districts** that can accommodate student difference while ascribing a common standard of measurement.

To best realize the state's vision for Massachusetts students under its developing Portrait of a Graduate, we recommend adoption of the following measures:

- **Course Requirements.** To receive a high school diploma, students across the state will have to complete (with passing grades) a baseline common course of study (**not** a uniform curriculum), resembling the current MassCore. Several different courses can be offered to attain the same state learning standards. For example, a "World History" requirement could be met through a class on the "Global History of Trade," "Colonialism and Imperialism," "Comparative Empires," or "Ideas and Social Movements." Required courses include:
  - English Language Arts: 4 units. All students will take a version of ninth- and tenth-grade ELA. Units 3 and 4 will be more ELA courses, as defined by the district, that correspond to students' chosen course of study/graduation pathway.
  - Mathematics: 4 units including completion of algebra 2 or the integrated math equivalent or a course designed by a local district in conjunction with a particular graduation pathway, e.g. "Probability and Statistics," "Business Math" or "Logic."
  - History/Social Studies: 3 units, including "World History" and "American History." Elements of "Civics" should be embedded in the course curriculum.
  - Science: 3 units, including lab-based science. One physical science and one biological science recommended.
  - World Language: 2 units of the same language.
  - Physical Education: As required by current law.
  - Arts: 2 units. Participation in a local district-sanctioned, after-school arts activity, e.g. band, choir, drama or photography, can count for one of the two arts units.
  - Additional courses: 5 units. These 5 elective units can be deployed to meet the needs of multiple graduation pathways.

  Currently, MassCore is followed by 83 percent of students, and while all high schools should have the resources to offer a college-preparatory course of study for students who opt for it, we must establish a baseline course of study that allows for multiple pathways. The state must provide adequate funding so that all high schools have adequate resources both for the college-preparatory course of study and for certain additional locally designed pathways. Furthermore, our statewide framework encourages other areas that are often seen as "peripheral." The periphery should be

brought to the center, in the words of Jal Mehta and Sarah Fine.[4] Students wishing to pursue graduation pathways in the arts will have ample school time and course flexibility to do so if offered by the district

- **Built in Flexibility: Multiple Pathways to a Single Diploma.** In complying with the required graduation course of study, there needs to be flexibility to allow for multiple, equally valid, pathways toward a high school diploma. Districts should have the time to develop vocational/CTE options (many exist currently), International Baccalaureate diplomas, early college pathways, performing and visual arts specialization, college preparatory pathways, world language mastery specialization, STEM-related concentrations, public service pathways, business concentration, agriculture training, etc., as needed and desired by their communities.[5] By allowing for particular flexibility in Math and ELA units beyond Grade 10, the graduation-required course completion allows learning time for districts to create multiple pathways.

- **An Individualized Learning Plan for High School and Beyond.** As in Kentucky and Washington state, students should develop, together with counselors and their parents, an individualized learning plan for course and learning experience selection in high school. This plan should be subject to periodic revision as students solidify their chosen pathway in the latter part of high school. The pathway should be connected to the post-secondary goals of the student.

- **Culminating Experience.** Determined and developed by the local district from a menu of state-sanctioned and supported category possibilities. Districts must offer at least two possible culminating experiences for students to pursue among the following. Each culminating experience must have an oral public performance component:

  - Graduation-level, performance-based assessments in at least three core academic disciplines.
  - An interdisciplinary final capstone project linked to academic standards in at least two disciplines.
  - A cumulative portfolio of student work, including work in four core academic disciplines, student reflections and a final project reflecting student-selected demonstration of mastery in a chosen concentration area.
  - A demonstration of mastery through a capstone project, internship completion, or earning of industry-certification pursuant to a vocational or CTE pathway.
  - An independent district-created culminating experience (proposed to and approved by the state) that demonstrates graduation-level competencies reflecting state learning standards and the Portrait of a Graduate.

- **Support for Systems of Locally Developed Performance Assessments.** To enhance capacity in local districts across the state to build assessment systems that are performance-based and reliably and validly assess and enhance deeper learning, the

4 Mehta, J., & Fine, S. M. (2019). In search of deeper learning: The quest to remake the American high school. Cambridge, MA: Harvard University Press.

5 Some states, notably Ohio, have adopted a badge system that encompasses some of these pathways. We are suggesting something deeper and more intellectually robust as befits Massachusetts.

state can adopt several measures of support without mandating curriculum or centrally creating and requiring standardized assessments. Successful systems of performance-based assessments contain infrastructure and networks of practice and oversight to support the school-based work. Banks of performance tasks and project possibilities, development of common rubrics, professional development to exchange ideas and practices, inter-rater reliability studies, and partnership with research academics to study practices and outcomes, are all important elements of improvement in practice and adequate scaling so that a local performance-based assessment system can be incorporated into a mechanism for accountability.

- The existing performance-based assessment approach of MCIEA can be utilized as a template for districts and groups of districts. The state should encourage adoption of these approaches and should encourage collaboration across districts. Districts can choose multiple culminating experiences that are discipline specific and build interim performance tasks and assessments that lead to final demonstrations of graduation-level mastery.
- Over time, interim assessments that are performance based must be developed to support the state's and districts' vision for graduation requirements that fulfill the promise of a Portrait of a Graduate. Assessment systems built in this way are part of an educational paradigm that values inquiry, intellectual curiosity, reflection and revision of work toward an ever-evolving definition of excellence, and school as a community of learning and support that uplifts the talents and capabilities of all students. See NYPSC Core Values.
- The state should encourage and support local education providers in developing assessments and assessment systems that are: (a) authentic to student discipline-specific learning, experience and the demonstration of performance-based learning; (b) related to curriculum taught in school; (c) evaluated and graded in a manner that provides the student with meaningful feedback that can be used for academic improvement; (d) developed by teachers in consultation with school administrators and the community; and (e) available for demonstration and community inspection.
- As part of its support for local development and implementation of performance-based assessment systems, the state could:
  - Support pilot networks of local education providers and schools, e.g. MCIEA or similar networks, that shall develop and implement effective performance-based learning and assessment models.
  - Support local education providers and schools in forming communities of assessment practice across schools and school districts in which ideas and innovations are exchanged, and innovative practice is critiqued and supported.
  - Maintain a statewide resource bank of materials, tasks and assessments developed by local education providers and schools.
  - Create and facilitate professional development opportunities statewide, including demonstrations of effective teaching and performance-based assessment practices from members of the pilot networks.

- Support local education providers in rubric design and standard setting that support assessment and accountability systems, conducting reliability exercises to ensure scoring commonality, and engaging in an iterative process of setting benchmarks for various competencies and skill mastery.
- Partner with universities and research institutions to study and support performance-based assessments.

Conclusion

Opportunities presented should not be squandered. In rethinking its graduation requirements, as mandated by the voters of the state, Massachusetts has an opening to develop the kind of teaching, learning and assessment that addresses current societal, technological, political and social challenges. Doing so will require a shift in emphasis and commitment of resources to develop and sustain the innovations required, supporting practitioners in the field beyond the mere announcement of new requirements. But by giving young people greater ownership of their learning and emphasizing the development and assessment of skills and knowledge including but beyond traditional academics, Massachusetts can reassert its place as a national leader in education reform and quality.

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