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Graduation Requirements and Measures:

A review conducted for the New York State Board of Regents and the New York State Education Department

Region 2 Comprehensive Center

November 2022

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Executive Summary

In February 2019, Chancellor Betty A. Rosa (now Commissioner) committed to rethinking New York State's high school graduation requirements and in July 2019, the Board of Regents (the Board) announced that it would create a Blue Ribbon Commission (Commission) to review these requirements and reconsider what a New York State diploma should signify to ensure educational excellence and equity for every student in the state.

Since then, the Board and the New York State Education Department (NYSED) have undertaken a comprehensive and inclusive review of the state's high school graduation requirements.

Phase I of the comprehensive review process—gathering information—consisted of research in the following three areas: literature review, state and international policy and practice scans, and qualitative analysis of stakeholder input obtained from throughout the state through regional meetings and other information-gathering online.

In late December 2019, NYSED requested support from the Region 2 Comprehensive Center (R2CC), led by WestEd. The R2CC is one of 19 regional comprehensive centers across the United States and its territories. Funded by the U.S. Department of Education's Office of Elementary and Secondary Education, these regional centers provide high-quality, intensive capacity-building services to state educational agencies, regional educational agencies,

and local educational agencies, to identify, implement, and sustain effective evidence-based practices that support improved educator and student outcomes. The R2CC serves Connecticut, New York, and Rhode Island.

In January 2020, the R2CC officially began its work on the Graduation Measures initiative. The R2CC project staff consisted of three teams, each charged with one component of the information-gathering process.

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Information from the three components of the information-gathering process will inform the work of the Commission.

The literature review represents an exploratory synthesis of the literature on the relationship between graduation requirements and educational success. It is not intended to provide support for specific conclusions or recommendations but provides a summary of the evidence base to inform decision-making regarding graduation requirements by NYSED, the Board, and the Commission.

To begin the policy and practice scan, the NYSED team, in consultation with R2CC staff, identified seven states—California, Florida, Indiana, Massachusetts, New Jersey, Ohio, and Pennsylvania—for review of their graduation requirements and policies. Selection criteria included proximity and demographic similarity to New York, positive student outcomes, and/or opportunities for flexible and multiple pathways.

For international comparison, the team selected three Canadian Provinces—Alberta, British Columbia, and Ontario—as well as England, Germany, and Switzerland.

Countries were selected based on a history of high performance as well as strong college and career preparation. Germany and Switzerland were selected specifically because of the pre-apprenticeship and apprenticeship opportunities offered to secondary students and the strong cross-sector partnerships with businesses and employers. Policies and practices in the identified states and countries were reviewed and findings were organized into

LITERATURE REVIEW DRIVING QUESTIONS

Question 1: What is the evidence base on the relationship between college, career, and civic readiness (CCCR) indicators and students' success in college, career, and civic life?

Question 2: Which graduation requirements have an evidence base indicating they contribute to the CCCR of all students, including members of special and vulnerable populations?

Question 3: Which additional high school experiences and opportunities (i.e., those not traditionally required for graduation), including assessments, have an evidence base indicating they contribute to the CCCR of all students, including members of special and vulnerable populations?

Question 4: What is the evidence base that offering flexible pathways to a diploma contributes to the CCCR of all students, including members of special and vulnerable populations?

Question 5: What is the evidence base on diversity, equity, and inclusion (DEI)-informed policies, actions, behaviors, and/or practices that result in or promote student success (i.e., academic, cognitive, civic, social-emotional, and economic success)?

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categories determined by the NYSED team in consultation with the R2CC staff.

In addition to providing the state- and country-specific information, the R2CC team summarized legislation and policy changes enacted across the United States since 2018 related to graduation requirements and measures.

Finally, given the increased state and national attention on equity and opportunity gaps, several states have introduced or enacted policy changes in areas such as financial literacy, civics education, and performance-based assessments. These policy changes are highlighted and summarized in the scan.

NYSED, in collaboration with the Boards of Cooperative Educational Services (BOCES) and the Big 5 school districts, hosted meetings in person and virtually to seek input from broadly representative groups of stakeholders regarding five guiding questions.

In addition to holding these meetings, NYSED sought input from the public via an online survey and ThoughtExchange. The original five guiding questions posed during the in-person regional meetings were posed in the survey that was posted on NYSED's website on January 13, 2020. NYSED took down the survey in December 2021. In November 2021, the R2CC team proposed the use of ThoughtExchange in lieu of the online survey. This proposal was made for several reasons, including built-in translation functions, peer-to-peer interaction opportunities, and streamlined analytic options. NYSED hosted the ThoughtExchange on its website from November 15, 2021, through April 1, 2022.

The comprehensive research and inquiry phase conducted by the R2CC was scheduled to occur between January and June 2020. The regional meetings were initially scheduled to take place between January and March 2020. The R2CC team was scheduled to present a written report of findings to NYSED in June 2020, followed

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STAKEHOLDER MEETING GUIDING QUESTIONS

1. What do you want all students to know and be able to do before they graduate?

2. How do you want all students to demonstrate such knowledge and skills, while capitalizing on their cultures, languages, and experiences?

3. How do you measure learning and achievement (as it pertains to the answers to #2 above) to ensure those measures are indicators of high school completion while enabling opportunities for ALL students to succeed?

4. How can measures of achievement accurately reflect the skills and knowledge of our special populations, such as students with disabilities and English language learners?

5. What course requirements or examinations will ensure that all students are prepared for college, careers, and civic engagement?

by a presentation to the Board at its July 2020 meeting. However, the timeline was impacted by the COVID-19 pandemic. On March 12, 2020, NYSED announced the postponement of all in-person meetings that had been scheduled. In May 2020, when it became evident that school closures would be prolonged, NYSED informed the R2CC that the Graduation Measures initiative would be postponed until further notice. The initiative remained on hold through September 2021.

In addition to prompting changes to the meeting format, the pandemic also changed the R2CC's research, as requested by NYSED. In response to changes in schooling prompted by the pandemic, the social unrest and racial reckoning resulting from the murder of George Floyd and other events, and the subsequent adoption of a new Policy Statement on Diversity, Equity, and Inclusion by the Board on May 6, 2021, NYSED requested that the R2CC research teams revisit the literature review and the policy and practice scans with a sharper and more intentional focus on DEI policies and practices. The R2CC teams resumed their research in October 2021. In collaboration with NYSED, the literature review team

developed a new driving question related to DEI policies and practices.

Summary of Findings

Literature Review

The literature identified college and career success in multiple ways including: college enrollment, college performance and/or persistence, college degree attainment, employment, earnings or wages, and independent living. A variety of CCCR indicators were associated with college and career success.

Targeted college preparation programs (specialized high schools or programs offering targeted learning environments, smaller learning communities, etc.) were positively associated with college enrollment and the attainment of 2-year and 4-year degrees.

Required rigorous, college preparatory curriculum (minimum course requirements or graduation course requirements) in high school had a positive impact on enrollment at 4-year colleges.

- Policies requiring a rigorous, mandatory curriculum did not always lead to higher student achievement or higher graduation rates. Some studies found that these curricula may actually deter some students from graduation. Only studies examining the Michigan Merit Curriculum found positive effects on students' ACT scores and graduation rates; however, many of these effects were found for well-prepared students or those from advantaged high schools.

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High school exit exams did not always lead to more positive student outcomes. Most studies that were reviewed found that these exit exams serve as a barrier to high school graduation and have been found to increase dropout rates. However, one study found that the drop in graduation rates upon implementing high school exit exams was short-lived and eventually graduation rates increased. Alternate pathways, particularly pathways that do not require substituting a different high-stakes exam (e.g., SAT/ACT), can mitigate the dropout effect produced by exit exams.

Optional rigorous coursework (upper-level courses designed to provide rigorous instruction and higher-level material) participants were more likely to perform higher on standardized assessments and graduate from high school. Completing such optional rigorous coursework was also associated with the increased likelihood of enrolling in and completing college, having higher college grade point averages and persistence rates, and having more positive career outcomes, such as employment and higher wages after college.

Mathematics curriculum and math-related experiences (continued enrollment in mathematics courses and exposure to mathematics content) were found to increase the likelihood of enrolling in college and earning a bachelor's degree.

Additional high school opportunities and experiences were also identified as contributing to more positive student outcomes.

- Studies of peer support programs and compulsory attendance policies found that these experiences improved high school graduation. Studies also found that providing students with information about college financial aid and scholarships and Free Application for Federal Student Aid (FAFSA) completion led to a higher likelihood of immediately enrolling in college.

Diversity, Equity, and Inclusion (DEI) literature is still nascent, however, studies found that replacing exclusionary discipline practices with Positive Behavior Interventions and Supports (PBIS), Social and Emotional Learning (SEL), and other trainings can be an effective means to ensure equity in school discipline practices. Furthermore, embedding culturally sustaining approaches throughout the school and explicitly targeting the needs of underrepresented groups can lead to reduced disparities in course taking and graduation.

State and International Policy and Practice Scans

Summary of Policies and Practices in the States Reviewed

- All of the states reviewed have a variety of diploma types, course requirements, and assessment requirements.

- All of the states reviewed are adding new requirements in areas such as civic engagement and civics, financial literacy, and some aspect of work-based learning.

- Little variation was found across states in terms of their day and hour requirements: generally, 180 days and 990 hours for secondary education.

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- Many states offer the opportunity for diploma seals (e.g., seal of biliteracy), but few states require them.

- Career Technical Education (CTE) and career pathway development are becoming more prominent. Ideas about CTE and about college being for everyone are changing.

- There is increased awareness at the federal, state, and local levels that skills gaps in the workforce continue to widen, resulting in increased focus on strategies intended to close these gaps, including, but not limited to, more work-based learning, career pathway development, and CTE opportunities coupled with dual enrollment.

- There is wide recognition that all students need access to information about career options and earlier exposure (e.g., by 5th grade) to a wider range of careers.

- Thirty-six states require some form of career planning such as Individual Learning Plans (ILPs), Individual Graduation Plans (IGPs), and Individual Career Plans (ICPs).

- Although not a graduation requirement, there is increased attention on SEL and it is widely considered to be critical or essential.

- Assessment policies and practices vary widely across the states.

Summary of Policies and Practices in the Countries Reviewed

- Like the United States, the countries reviewed have the equivalent of

"states," and the concept of local control is prominent in these countries.

- Apprenticeships and work-based learning are prominent in the countries reviewed.

- In most countries reviewed, students can pursue an academic *and* vocational path rather than tracking into one or the other in 5th grade. That practice changed in Switzerland about two decades ago and is changing in Germany.

- In the countries reviewed, partnerships between education and business are common. In countries where such partnerships work well, several sectors are interwoven and share a commitment to building a viable workforce and a strong economy.

Analysis of Stakeholder Input

Stakeholder input was initially reviewed based on the five guiding questions; however, the research team found that several themes appeared across questions. To avoid redundancies, the themes were summarized into the following overarching categories:

1. What students should know and be able to do before they graduate (Q1, Q5)

2. How students should demonstrate their achievements in a way that accurately reflects their skills and knowledge (Q2, Q3, Q4)

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What Students Should Know and Be Able to Do Before They Graduate

- Stakeholders across all feedback sources identified 21st century skills as one of their top priorities for students.

- Stakeholders across all regions and types identified social and emotional skills—including collaboration, communication, and self-management—as key to a successful graduate.

- Digital literacy and information processing were frequently highlighted as areas of need for postsecondary success.

- Stakeholders indicated the importance of basic life and career skills for students as one of their top priorities.

  - Stakeholders noted the importance of connecting classroom learning to the world in which students live.

  - The need for civic education and civic readiness was brought up frequently by stakeholders in the 2020 regional meetings and survey.

How Students Should Demonstrate Their Achievements in a Way That Accurately Reflects Their Skills and Knowledge

- Across regions, stakeholders, and years, the top theme was an interest in performance-based assessments.

- Stakeholders would like to see more experiential and work-based learning opportunities in which students can apply knowledge and skills.

- Stakeholders frequently mentioned differentiated and growth-based assessments when discussing accurate measures of achievement for special populations of students, including English language learners and students with disabilities.

- Stakeholders would like to see all students have the option to choose from several types of assessments.

- In addition to recommending assessment choices, many stakeholders argued that multiple assessment measures should be taken into consideration when determining graduation readiness.

- Many stakeholders suggested modifying or dropping Regents Exam requirements, as they felt that the Regents Exams were no longer an adequate measure of student understanding.

Alignment Among the Research and Inquiry Components

The R2CC is pleased to share the findings of the Graduation Measures research and inquiry work with NYSED, the Board of Regents, and the Blue Ribbon Commission.

Each component described above—the literature review, the state and international policy and practice scan, and the analysis of stakeholder input—addressed unique yet complementary questions intended to provide an overview of graduation measures and requirements.

While each team undertook their research and summarized their findings independently, there are several areas of alignment, such as those relating to 21st century skills and support for Career Technical Education. A number of these connections are indicated in the report.

It is the intention of the R2CC that findings from this research and inquiry process serve as a first step in informing the discussions and decisions regarding schooling practices and graduation requirements and policies that prepare all New York State students for success in college, career, and civic life.

Graduation Measures Literature Review Synthesis

The R2CC conducted a literature review to assist NYSED in addressing the following primary question: *What graduation requirements promote educational excellence for all students, including members of special and vulnerable populations?*

This review is exploratory and synthesizes the literature regarding the relationship between graduation requirements and educational success. The review does not prioritize or provide support for specific conclusions or recommendations but rather summarizes the evidence base in order to inform decision-making by NYSED, the Board, and the Blue Ribbon Commission regarding graduation requirements.

To provide focus for the review, the research team worked with NYSED to break down the primary question into the following driving questions:

1. What is the evidence base on the relationship between college, career, and civic readiness (CCCR) indicators[i] and students' success in college, career, and civic life?

2. Which graduation requirements have an evidence base indicating they contribute to the CCCR of all students, including members of special and vulnerable populations?[ii]

3. Which additional high school experiences and opportunities (i.e., those not traditionally required for graduation), including assessments, have an evidence base indicating they contribute to the CCCR of all students, including members of special and vulnerable populations?

4. What is the evidence base that offering flexible pathways to a diploma contributes to the CCCR of all students, including members of special and vulnerable populations?

The social unrest and increased social awareness of 2020 spurred NYSED to revisit the driving questions with additional considerations for diversity, equity, and inclusion (DEI). Subsequently, in fall 2021, NYSED and the R2CC research team added an additional question:

5. What is the evidence base on DEI-informed policies, actions, behaviors, and/or practices that result in or promote student success (i.e., academic, cognitive, civic, social–emotional, and economic success)?

To address driving question 1, the research team identified how the literature defined and operationalized success in college, career, and civic life. The team then identified the CCCR indicators that were associated with success (see Table 1 for a visual summary). These indicators were grouped into the following broad categories:[iii]

targeted college preparation programs and experiences—specialized high schools or programs offering targeted learning environments, smaller learning communities, targeted or intensive supports or interventions (e.g., Early College High Schools, Peer Group Connection (PGC) program,[iv] College Bound program)

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[i] Indicators include benchmarks—such as standardized test scores, grade point averages (GPAs), and course enrollments—that can be used to determine progress toward college and career success.
[ii] Special and vulnerable populations include students with disabilities with an individualized education program (IEP), English language learners, and students who are economically disadvantaged.

[iii] This list is not comprehensive of all CCCR indicators that states consider; rather, these are the indicators that emerged from the search terms and inclusion criteria. See the Graduation Measures Literature Review Methodology for expanded detail.
[iv] PGC is a peer-led high school transition program.

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required rigorous, college preparatory curriculum—policies that outline minimum course requirements, sometimes referred to as graduation course requirements, that must be successfully completed to be eligible for a high school diploma (e.g., Michigan Merit Curriculum, which requires 4 years of math and English and 3 years of science and social studies, or other policies mandating a rigorous high school course curriculum)

optional rigorous coursework—upper-level courses designed to provide rigorous instruction and higher level material (e.g., career and technical education dual credit courses, advanced placement classes, honors courses, International Baccalaureate classes, dual enrollment courses)

mathematics curriculum and math-related experiences—continued enrollment in mathematics courses and exposure to mathematics content (e.g., taking 4 years of math in high school, completing Algebra II coursework, having increased time outside of school spent on mathematics homework in grade 12)

nonacademic skills—skills such as social skills, self-care, self-awareness, self-advocacy, and utilization of resources

To appropriately address driving questions 2–4, the team gathered and synthesized the literature on how specific graduation requirements, optional high school experiences, and graduation pathways contributed to indicators of students' CCCR in high school and beyond (see the Graduation Measures Literature Review Methodology for expanded information on how the review was conducted). Many of

these high school interventions and programs aligned with the CCCR indicators outlined in driving question 1; however, the literature search for driving questions 2–4 also identified the following additional programs and activities that contribute to CCCR:

CCCR Indicators	College and Career Success Measures
•Targeted college preparation programs •Required rigorous, college preparatory curriculum •Optional rigorous coursework •Mathematics curriculum and math-related experiences •Assessments required for graduation •Additional high school opportunities and experiences •Nonacademic skills	•College enrollment •College performance and/or persistence •College degree attainment •Employment •Earnings or wages •Independent living

required assessments for graduation—high school exams or other assessments that students must pass to receive their high school diplomas

nontraditional or additional opportunities and experiences—supports such as high school service-learning programming, peer support programs, compulsory attendance policies, fifth-year high school graduation, and financial aid information to support college access and enrollment

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The following narrative presents the research team's synthesis of the evidence for each driving question. The review is organized around the CCCR indicators listed above and college and career success measures identified in the literature. The synthesis includes the language and terminology as found in the literature in order to accurately represent the intent and findings of the authors at the time of their publications. For more information on specific terms, please consult the Glossary.

Driving Question 1: What is the evidence base on the relationship between college, career, and civic readiness indicators and students' success in college, career, and civic life?

The included literature operationalized *college* success into the following broad outcomes: college enrollment, college performance and/or persistence, and college degree attainment. *Career* success was defined in terms of employment, earnings or wages, and independent living.

Key Finding 🔍

Research on *civic life* that met inclusion criteria did not emerge. In some cases, research on civic life predated the time parameters for this literature review or was found outside of peer-reviewed journals.[v]

Students' College Success

College Enrollment

Several studies examined factors that predicted or were otherwise associated with college enrollment as a measure of success. These studies identified the following factors: math-related experiences, targeted college preparation programs,

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[v] While research on *civic life* did not meet the inclusion criteria for the literature review, this topic was mentioned frequently by stakeholders in the regional

meetings and other information-gathering events, as described elsewhere in this report.

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required rigorous college preparatory curriculum, and optional rigorous coursework.

One study[1] found that taking Algebra II in high school increased the probability of attending a 2-year college.

Three studies[2] provided evidence that targeted college preparation programs (i.e., College Bound program, Early College High Schools) had a significant positive impact on college enrollment.

One study[3] found that policies requiring a rigorous, college preparatory curriculum had a positive impact on enrollment at 4-year colleges. This impact was greater among well-prepared students from advantaged schools.[vi] The study found no impact on the 2-year college enrollment rate.

Two studies[4] examined the impact of optional rigorous coursework and found that taking upper-level courses, particularly advanced math courses, increased the likelihood of college enrollment.

College Performance and/or Persistence

Several studies examined factors that predicted or were otherwise associated with performance and persistence during college as a measure of success. These studies identified the following indicators as leading to higher performance and persistence in college: optional rigorous coursework, targeted college preparation

programs, and exposure to greater math curriculum in high school.

Four studies[5] found that students taking optional rigorous coursework—Career and Technical Education (CTE) dual credit courses, Advanced Placement (AP) classes, honors courses, or dual enrollment courses—were more likely to earn more college credits, have higher college grade point averages (GPAs) and college course completion rates, have higher first-year retention rates, and have higher persistence rates than students who do not enroll in rigorous coursework.

Three studies[6] found no difference in students' college performance (e.g., GPA, enrollment in developmental courses in college) or persistence rates for Early College High School and College Bound participants when compared with non–Early College High School and College Bound participants.

One study[7] found that students who completed Algebra II in high school had higher GPAs and higher persistence rates than students who did not complete Algebra II in high school.

College Degree Attainment

A number of studies examined factors that predicted or were otherwise associated with attaining a college degree. These studies identified the following factors: exposure to math-related experiences, targeted college preparation programs, and optional rigorous coursework.

[vi] The study defined "well-prepared" as students in the top quintiles on math standardized assessments and "advantaged schools" as the one third of schools with

the lowest share of students who are economically disadvantaged.

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Three studies[8] provided evidence that repeated exposure in high school to math coursework and/or extracurricular math experiences increased the likelihood of obtaining a bachelor's degree. For example, one[9] found that continuous enrollment in mathematics in grades 9–12 and increased time spent on mathematics homework in grade 12 were found to be a differentiating factor for students who earned a bachelor's degree compared with those who did not.

Three studies[10] examined the evidence for the impact of optional rigorous coursework on attaining a college degree and found that students taking such courses in high school were more likely to graduate and/or earn a bachelor's degree. In one case,[11] a student who took at least one math AP, CTE, or concurrent enrollment course was more likely to graduate from college than a student who did not take such optional coursework. In another study,[12] taking a rigorous course in math, English, social studies, or foreign languages any time in high school was found to increase the likelihood of earning a bachelor's degree within 4 years of graduating from high school.

Three studies[13] examined the impact of targeted college preparation programs (Early College High Schools) and found that Early College students were more likely to obtain a 2-year or 4-year college degree than were non–Early College students.

Students' Career Success

Employment

Two studies examined factors that predicted or were otherwise associated with employment. These studies identified the following factors: optional rigorous coursework and nontraditional or additional opportunities and experiences (i.e., fifth-year graduates). Additionally, there were three studies that specifically addressed nonacademic skills associated with employment for students with disabilities.

One study[14] found that taking optional rigorous coursework (i.e., CTE dual credit courses) was a positive predictor of being employed after college, particularly for male students who chose STEM or manufacturing majors or pursued 1- or 2-year technical diploma programs.

One study[15] identified positive postsecondary and workforce outcomes, including employment, for students who persisted and graduated in their fifth year after beginning high school.

Three studies[16] examined nonacademic skills (as described in the bullets below) that are predictive of employment for students with disabilities. These studies found that an assessment of nonacademic skills and behaviors can provide a more comprehensive picture of the preparedness of students with disabilities to succeed in postsecondary employment than can be gleaned solely from GPA and time in general education.

One of the three studies[17] identified 10 constructs of student nonacademic behaviors associated with postsecondary education and employment for high school students with mild to moderate disabilities: knowledge of strength and limitations, actions related to strengths and limitations, disability awareness, persistence, proactive involvement, goal setting and attainment,

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employment, self-advocacy, supports, and utilization of resources.

Another study[18] examined the literature on predictors of employment for students with disabilities and found 19 predictors that had an evidence base related to postsecondary employment: career awareness, exit exam/high school diploma status, inclusion in general education, paid employment/work experience, parent involvement, self-care/independent living skills, social skills, vocational education, work study, interagency collaboration, self-determination, transition program, community experiences, occupational courses, program of study, parent expectations, goal setting, youth autonomy, and travel skills.

Earnings or Wages

Two studies examined factors that predicted or were otherwise associated with earnings or wages. These studies identified two related factors: optional rigorous coursework and exposure to repeated math curricula.

One study[19] found that taking some optional rigorous coursework (i.e., CTE dual credit courses) was associated with higher reported wages or income for those from STEM-related programs and manufacturing programs in high school and for those from 1- and 2-year technical diploma programs.

Another study[20] showed mixed results for the impact of taking Algebra II in high school on future earnings and wages. Specifically, the authors noted that while

initial earnings are fairly similar regardless of Algebra II completion status, earnings seem higher later in life for those who completed Algebra II. The authors concluded that Algebra II may be more important for college-related outcomes than for career-related outcomes.

Independent Living

One study[21] that reviewed literature on postschool success among students with disabilities identified evidence for five predictors of independent living for students with disabilities: inclusion in general education, paid employment/work experience, parent expectations, self-care/independent living skills, and social skills.

Driving Question 2: Which graduation requirements have an evidence base indicating they contribute to the CCCR of all students, including members of special and vulnerable populations?

Two types of graduation requirements emerged from the literature review under the umbrella of driving question 2: a required rigorous, college preparatory curriculum and assessments required for high school graduation.[vii]

[vii] Although high school exit exams did not surface as a CCCR indicator in the reviews for driving question 1, several studies in the literature search for driving question 2 did surface exit exams.

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Required Rigorous, College Preparatory Curriculum

One large-scale study[22] of nationally representative data from the 1980s and 1990s explored the impact of increased graduation course requirements (GCR) on dropout rates. Exposure to the highest GCR (i.e., six required math/science courses) was associated with a small increase in the likelihood of dropping out of high school, and the increase more than doubled for Black and Hispanic males. Another large-scale study[23] of national data found that state policies to increase the rigor of high school mathematics course requirements (e.g., Algebra, Geometry, Algebra II) may actually prevent some students from completing high school.

The two aforementioned studies also examined the impact of increased math/science GCR on college enrollment. The first study found no impact on college enrollment; the second study found that although the increased requirements may deter some students from completing high school, a greater proportion of those students in states that required upper-level math courses who do graduate from high school enroll in college immediately after high school.

Another study[24] found that although Indiana raised its mathematics graduation requirement from 2 to 3 years (including Algebra I and Geometry) and its science requirement from 1 to 2 years, this state policy had no effect on student math course-taking, math standardized test score achievement, or college enrollment.

One large-scale study[25] using nationally representative data found that students in states that adopted more rigorous GCR policies were still graduating high school without meeting the credit requirements, suggesting that while states might have the authority to impose GCR policies, they may not have the capacity to monitor and enforce such requirements. In addition, students with lower achievement and those exhibiting risk factors for dropping out of school were significantly more likely than their higher achieving counterparts to graduate *without* meeting all requirements.

Two large-scale studies of longitudinal data examined the impact of the Michigan Merit Curriculum (MMC), a college preparatory curriculum that requires all students in the state to pass a set of 18 rigorous academic courses, including four credits each of mathematics and English language arts and three credits each of science and social studies. These studies found that adopting a required set of rigorous courses alone had only a limited impact on overall student achievement and graduation and that impact varied among the students with different academic preparation.

One of the studies[26] explored the impact of the MMC on high school ACT scores and graduation rates and found differential findings for higher and lower performing students. The study showed marginal improvements in ACT science scores for all students, but students with the weakest academic preparation also had greater improvements in their ACT composite scores and ACT science scores. Results showed no clear evidence that introducing the MMC impacted graduation rates

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overall, though the new policy may have had a small negative impact on the likelihood of on-time high school graduation for students with the weakest academic preparation. Conversely, analyses revealed that top-performing students were 5 percent more likely to graduate post-MMC, widening the gap in high school completion compared to the lowest achieving group.

The second study[27] examined the impact of the MMC on high school math credits, math course difficulty, passing rates of required math courses (i.e., Algebra I, Geometry, and Algebra II), ACT scores, and college attendance. Students in the post-MMC cohorts not only took more math courses but took and passed higher level math courses, with the largest increase among the least-prepared students. The study also found that ACT math scores and college-going rates increased post-MMC, but these impacts were driven by well-prepared students.

Key Finding 🔍

Required, rigorous coursework had mixed effects on student outcomes for all students. Well-prepared students experienced positive effects.

There were also mixed effects of high school exit exams **(HSEE)** on student outcomes. HSEEs may have negative effects on graduation for some students.

Assessments Required for Graduation

One study[28] with a large, national data set investigated the effect of high school exit exams on dropout rates. Overall, the study found that HSEEs increase dropout rates for grade 12 students, with especially large effects among Black students. However, alternate pathways, such as allowing students to use other forms of evidence or standardized tests to show proficiency, can mitigate the dropout effect produced by HSEEs. Specifically, dropout rates among grade 12 students in states with HSEEs and no alternate graduation pathways increased compared to students in states with less strict HSEE policies.

Another study[29] using nationally representative data examined the effect of implementing HSEE requirements on high school achievement and graduation rates. The study found no effect of HSEEs on standardized test scores and negative effects of HSEEs on high school graduation in the 3 years following implementation, but these effects were not persistent and graduation rates eventually increased after this short-lived dip.

Two studies that examined the effect of failing an HSEE revealed mixed results on graduation rates. A study[30] of four large school districts found no evidence that failing an HSEE impacted graduation rates for students with test scores near the cut score; the authors posited that the negative effects of HSEEs on graduation rates from prior studies were likely due to students with very low achievement rather than those near the exam score cut point. Conversely, a study[31] of more than 60,000

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students reported that although barely failing the first attempt at the state's HSEE in grade 10 does not affect students' probability of graduating, urban students of low income who are just below the minimum passing score on the mathematics portion of the HSEE have lower graduation rates than their peers who are just above the minimum passing score.

A study from a single urban school district in California[32] explored the relationship between student-level demographic and academic indicators and HSEE performance for students designated as homeless. The study found that students experiencing homelessness who were fluent in English, had high cumulative GPAs, and had previously taken the state standardized math exam were more likely to take and pass the HSEE. Absenteeism and suspensions, both prevalent in this particular student subgroup, were not predictive of exit exam success.

Driving Question 3: Which additional high school experiences and opportunities (i.e., those not traditionally required for graduation), including assessments, have an evidence base indicating they contribute to the CCCR of all students, including members of special and vulnerable populations?

Several additional high school experiences were identified in the literature as contributing to student readiness, particularly to high school completion and college-going. These experiences are categorized under targeted college preparation programs, additional high school opportunities and experiences, and optional rigorous coursework.

Targeted College Preparation Programs

One study[33] found that students who enrolled in Early College High Schools were more likely to take core college prepatory courses in high school and pass those courses. Early College High School students also had lower suspension rates and higher attendance rates than non–Early College High School students. Another study on Early College High School[34] found that these students were more likely to graduate from high school, enroll in college, and attain a degree. These effects were particularly high for female and minority students.

Additional High School Opportunities and Experiences

Several studies identified additional opportunities and experiences in high school that contributed to students' CCCR. One study[35] found that peer support beginning in grade 9 increased the probability of high school graduation, particularly for males identified as being at risk for dropout. Another study[36] found that compulsory attendance for students in upper-level high school grades was successful in improving grade progression throughout high school (during grades 11 and 12) and eventually improving high school graduation rates. These impacts were stronger for students who were eligible for free- or reduced-price lunches.

Findings from one randomized controlled trial[37] indicated that providing students with information about applying for college and financial aid increased students' applications for and enrollment in higher education. Further, the study found that providing scholarships to students with low income affects students' decisions to attend college, which is noteworthy given that students with low income are likely to apply to less selective colleges despite having similar test scores as their peers with high income. Another study[38] found that students who complete the FAFSA have a greater chance of immediately enrolling into college after high school.

Finally, a meta-analysis[39] of 62 studies indicated that students participating in

service-learning programs demonstrated significantly higher gains in five outcome areas compared to students who did not participate in service-learning programs: attitudes toward self, attitudes toward school and learning, civic engagement, social skills, and academic performance. While most of the participants in these programs were college undergraduates, high school students were also represented.

Optional Rigorous Coursework

Several studies examined the impact of rigorous coursework and found positive impacts related to college readiness and success.

One study[40] examined the effects of rigorous coursework, which was defined as taking any AP, International Baccalaureate (IB), or honors course. The study found that students who take rigorous coursework in grade 9 or 10 were more likely to graduate from high school and attend a 4-year college. Furthermore, the study found that a switch from taking no rigorous coursework to just one AP, IB, or honors course in any subject resulted in an increase on high school standardized test scores. Another study found[41] that students who enrolled in AP English and math courses were more likely to be college ready, as defined by the study authors as performance on ACT scores, than students who did not enroll in these courses.[viii]

Studies of dual enrollment programs demonstrated positive effects on students'

[viii] According to the study, "college readiness was defined by students' American College Testing (ACT) sub scores in English, reading, and mathematics. The Tennessee Board of Regents (TBR) regulates the minimum sub score for each sub section that a student must obtain to be college ready."

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postsecondary outcomes. In one study using nationally representative data,[42] participation in dual enrollment was found to increase first-year college GPA and decrease the likelihood that students would enroll in remedial or developmental courses in college, and these findings were consistent across students from all socioeconomic status categories.

Another study using a similar nationally representative data set[43] found that students who participated in dual enrollment programs were more likely to attain a college degree than were their nonparticipating counterparts, even after accounting for covariates. Further, the likelihood of first-generation students attaining a postsecondary degree (any attainment) or a bachelor's degree was higher for dual enrollment students.[ix] This study also found that dosage mattered: Analyses revealed little influence on degree attainment for students who took three dual enrollment units, but students who took six units were more likely to attain a degree.

Other studies showed evidence that dual enrollment programs provided benefits that could prepare students for college using other types of assessments and constructs. One study[44] found that dual enrollment students were more likely to display three characteristics associated with college readiness, as determined by a scale with four domains: cognitive strategies, content knowledge, learning skills, and technology.

Another study[45] found that students enrolling in college who completed at least one dual enrollment course in high school were more likely to enroll in college and had higher persistence rates from the first to the second year in a 2-year or 4-year college compared to students who did not complete a dual enrollment course. Students were also more likely to complete college with a degree. This study also found dual enrollment was associated with these benefits for students in all demographic groups.

Two papers presented the results of systematic reviews of the literature on college preparatory interventions and noted that while some individual programs have been shown to benefit students' college choice, access, and success, the quality of the programs and their implementation ultimately determined the extent of impact. One of these studies[46] noted that research on students' perceptions of AP and IB courses showed that simply providing access to advanced coursework does not seem to consistently positively affect students' success, particularly for students of low-income; students still require additional supports to succeed in these classes and beyond. The other study[47] investigated the impact of school completion interventions and found it was important for schools and communities to work together to ensure that these school activities, curricula, and interventions are coordinated and implemented in a culturally and contextually relevant way.

[ix] First-generation college students are defined as students whose parents did not attend college.

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Key Finding

Early college experiences and advanced coursework were associated with higher student achievement, college enrollment, and college graduation.

Additional experiences in high schools such as information to families on financial aid and FAFSA completion improved college going among students.

Driving Question 4: What is the evidence base that offering flexible pathways to a diploma contributes to the CCCR of all students, including members of special and vulnerable populations?

Only two studies emerged that met the inclusion criteria for driving question 4. The majority of research on *pathways to a diploma* was not published in peer-reviewed journals and did not meet What Works Clearinghouse standards. Pathways-focused research that met these criteria examined other "pathway" topics, including career pathways, college pathways, or content/subject pathways. The dearth of research that met inclusion criteria makes it challenging to summarize research related to this driving question. An appropriate next step would be adjusting inclusion criteria to identify a broader range of research on this topic.

One study[48] used a large national data set to examine the effect of HSEE on dropout rates and whether the effect on dropout rates is mitigated by alternate graduation pathways. Findings indicated that alternate pathways that allow students to demonstrate proficiency without passing the state-mandated exam appear to mitigate the effect of exit exams on dropout rates. Specifically, in states with alternate pathways to graduation, exit exams do not have an effect on dropout rates. Conversely, in states without alternate pathways to graduation, exit exams substantially increase dropout rates; the dropout rate is higher in states with exit exams and no alternate pathway to graduation.

Further, subgroup analysis found the effect of exit exams on dropout rates in states without alternate graduation pathways was especially pronounced among African American students; dropout rates for African American males in states with an alternate pathway to graduation are less than half as high as dropout rates in states with no alternate pathway. Alternate pathways to graduation do not impact dropout rates for Hispanic students, and in states without alternate pathways to graduation, dropout rates are higher for females than males.

Another study,[49] based on self-report data from high school counselors in Indiana regarding the implementation of Indiana's Graduation Qualifying Examination (GQE) waiver procedure, examined how the state's alternatives to a diploma were being used across general education students and students receiving special education

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services. Findings indicated that general education students and students receiving special education services receive GQE waivers at similar rates. Thus, the authors note that the waiver does not appear to be viewed simply as a "special education" provision.

> ### Key Finding 🔍
>
> **Alternate pathways to graduation** can mitigate the negative impacts of exit exams for some students. Evidence shows these alternatives were used consistently across student groups, suggesting students from different academic backgrounds seek alternatives.

Further, the consistency of the waiver applications in schools across the state and the fact that the number of applicants for a GQE waiver appeared relatively consistent across schools' demographic differences would indicate that schools are not using the waiver as a way to circumvent school or student inequities, such as those impacting students who live in poverty or students who have been exposed to poor teaching. One caution offered by the authors: The overall application rates for waivers are low compared with the number of students failing the GQE, meaning that more data are needed to determine who is encouraged to apply for a waiver and if those who are eligible to apply are unable or unwilling to take advantage of this alternate pathway.

Driving Question 5: What is the evidence base on DEI-informed policies, actions, behaviors, and/or practices that result in or promote student success (i.e., academic, cognitive, civic, social–emotional, and economic success)?

As the evidence base for the impact of DEI-informed policies on student outcomes is quite nascent, the literature search on this topic did not yield research that examined policies and practices that were explicitly DEI-informed; rather, it identified relevant resources on policy and practice areas that fall within the DEI construct, including equity concerns around high school completion, school discipline, taking advanced courses, culturally sustaining education practices (learning environments that affirm students' identies and view them as assets to honor and explore through the learning process), and diverse family and student engagement. These topics do not necessarily represent all of the DEI topics; rather, they are the topics that emerged while applying the decision tree to the database search results.

Equity in Graduation

One study[50] examined high school graduation trends across the nation from 2011 to 2018 and assessed completion gaps for students with low-income, Black and Hispanic students, students experiencing homelessness, students with disabilities, students identified as English learners, and

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students attending high schools with low graduation rates.

The report provided policy and practice recommendations for addressing high school completion gaps for these student groups, including tackling equity gaps highlighted by the COVID-19 pandemic, aligning diploma requirements with college- and career-ready standards, examining credit recovery programs, strengthening the transition from high school to postsecondary education and careers, expanding the use of early warning systems, and drawing on evidence-based nonprofits to provide additional capacity to schools to support students and teachers, such as through providing supplemental academic support and strengthening pathways from school to work.

Equity in Culture and Climate

One study[51] examined exclusionary discipline practices, such as out-of-school suspensions and arrests, which can result in loss of instruction time and difficulty attaining course credits. The report highlighted that suspensions for minor infractions of school rules (e.g., disrupting class, tardiness, dress code violations) have increased for students of color, particularly Black students, and school policing continues to disproportionately target students of color.

The report noted that in addition to the short-term impacts of suspension, such as lost instructional time, students who are suspended one or more times in grade 9 are twice as likely to drop out of high school. The report suggested policy alternatives to suspension, such as changing codes of

conduct to ensure exclusion is not overused, implementing Positive Behavioral Interventions and Supports (PBIS), providing training for teachers and staff, and using social–emotional learning (SEL) strategies and/or restorative practices.

Two studies[52] indicated that suspensions and the presence of campus police officers could contribute to lower feelings of student belonging and connectedness, which could in turn increase the likelihood of high school attrition over time.

One study[53] noted that a decrease in suspensions for nonviolent infractions was associated with increased high school completion. The findings suggested that state policymakers could consider implementing evidence-based strategies such as publicly reporting disaggregated suspension data, creating data systems that provide schools with information to assess patterns in exclusionary practices, providing support for teachers to learn classroom management techniques, reevaluating systems that incentivize the exclusion of students with low achievement (such as test scores), and appropriating funds for evidence-based strategies that support systemic change.

Equity in Advanced Coursework

Two studies noted that disparities remain in the share of Black and Hispanic students who take advanced courses and highlighted policies and practices to narrow the course-taking gap.

The first[54] found that high school math students with a same-race/ethnicity teacher are more likely to advance into more

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rigorous math courses (e.g., AP, honors) and to have higher math course grades, demonstrating the importance of teacher diversity.

The second study[55] analyzed data from districts that developed initiatives to address inequities in AP participation and found that district strategies focusing on all students increase AP participation overall but do not reduce disparities in representation. The report highlighted the importance of explicitly targeting the needs of underrepresented groups to ensure that color-neutral policies do not reinforce existing inequities.

Equity Through Culturally-Sustaining Approaches

Four studies focused on different culturally sustaining approaches to improving equity.

One study[56] presented ethnographic research on a culturally sustaining community schools model implemented in New York City, illustrating how community schools can draw upon local knowledge and community resources for a holistic, social justice–focused educational experience for students. The report suggested that community schools should be designed by and run in close collaboration with the people impacted by the injustices they seek to overcome and should ensure opportunities for culturally sustaining learning, particularly through community partnerships.

A second study[57] used qualitative methods to examine the multiculturalist and anti-racist education approach at a high-performing urban school. This study found

that students demonstrated increased achievement and appreciation for multicultural education as a result of the school's implementation of an African-centered curriculum and pedagogy, which focuses on ancestral history and cultural empowerment.

The third study[58] presented a literature synthesis on components of culturally responsive school leadership (CRSL), distilling key behaviors of culturally responsive school leaders in the four areas of critical self-reflection around leadership behaviors, contributing to culturally responsive teaching and curricula, promoting culturally responsive school environments, and engaging parents and students in community contexts. The synthesis highlighted that leadership preparation programs should prioritize CRSL to better serve minoritized students. Furthermore, the authors noted that federal, state, and local accountability systems could promote data-driven CRSL, such as through equity audits.

The fourth study[59] used qualitative methods to examine the impacts of applying a contrastive analysis approach to language instruction, whereby students' primary language, in this case African American Language, is used to teach proficiency in American English. The authors critically examined issues around linguistic oppression and the fostering of positive attitudes toward the primary language. The study highlighted the relationships between language and identity, society, and power, and the importance of helping students see their primary language as an asset and of making language classrooms safe places

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that preserve students' culture and heritage.

Diverse Family and Student Engagement

One study[60] found that parent participation in school functions is associated with higher levels of student engagement, which can in turn lead to increased graduation rates. However, some engagement efforts fall short when districts employ an overly generalized approach to interacting with diverse families. The research base suggested that school officials should prioritize diversity and attempt to build trust through culturally sensitive, welcoming outreach.

The research also indicated that student feelings of connectedness and engagement can be improved through attendance in after-school programs. An issue brief published by the Afterschool Alliance[61] linked attendance in after-school and summer learning programs to higher graduation rates for Black and Latino students. The brief argued that the caring mentorship given to Black and Latino students in these settings helps to foster feelings of belonging and school engagement.

Conclusion

This exploratory review was conducted for NYSED, the Board, and the Commission to help understand the graduation requirements that promote success for students. WestEd's R2CC conducted this review by examining and cataloguing relevant articles that met the inclusion

criteria (see the Graduation Measures Literature Review Methodology). Although this review does not represent the full breadth of articles covering CCCR indicators and student success, the review does provide a synthesis of a substantial amount of recent peer-reviewed published literature on the topic.

Driving question 1 explores the relationship between CCCR indicators and outcomes in college and career. Driving questions 2–4 examine the programs and interventions at the high school level that lead to greater CCCR.

The search produced studies that found that optional rigorous coursework, college preparatory programs, and greater exposure to math in high school tend to yield more positive college outcomes. The search also found studies demonstrating that optional rigorous coursework, greater exposure to math, and nonacademic skills lead to greater career outcomes.

Student completion of optional rigorous coursework (designed to provide rigorous instruction and higher level material) has a positive impact on college enrollment, college retention (continued enrollment), and bachelor's degree attainment. Certain college preparatory programs—such as Early College High School—have positive impacts on high school attendance, college enrollment, and college completion, particularly for female and minority students. Additionally, student exposure to a mathematics curriculum and math-related experiences has a positive impact on college enrollment (at 2-year colleges), college GPAs, and bachelor's degree attainment.

The studies identified in the search found that policies requiring rigorous curriculum have mixed results. Specifically, the implementation of required curriculum, (sometimes referred to as graduation course requirements or GCR) appears to have a positive impact on enrollment at 4-year colleges. However, some studies found that adopting a required set of rigorous courses alone has only a limited impact on overall student achievement and that impact varies among the students with different academic preparation. Further, in some cases such policies are associated with a small increase in the likelihood of dropping out of high school, particularly for Black and Hispanic males.

Assessments required for graduation—like high school exit exams (HSEEs)—were not positively associated with any college or career outcomes. The search identified studies that demonstrated the benefit of alternate pathways for students, which can mitigate the effects of failing an HSEE. Other interventions—such as peer support groups—also lead to greater high school completion.

Lastly, the literature review identified a number of studies on DEI-informed policies, actions, behaviors, and practices that promote student success (driving question 5). These studies advocated for policies to support equity in high school completion (e.g., aligning diploma requirements with college- and career-ready standards, examining credit recovery programs); equity in school discipline (e.g., implementing PBIS, SEL, and reducing exclusionary practices); equity in advanced courses (e.g., targeting the needs of historically minoritized groups to increase access and success); equity through culturally sustaining practices; and diverse family and student engagement. The studies identified for addressing driving question 5 reiterated the importance of examining how policies and practices impact students from different backgrounds, a finding that also cut across almost all studies identified in the literature review.

Moving forward, NYSED, the Board, and the Commission can use this literature review to inform stakeholder conversations about CCCR indicators and to identify the graduation requirements that will support success for all students in New York State.

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Table 1. CCCR Indicators and Success Measures

	College enrollment	College performance and/or persistence	College degree attainment	Employment	Earnings or wages	Independent living
Optional coursework	*	*	*	*	*	
College prep programs	*		*			
Math curriculum	*	*	*			
Additional experiences	*					
Non-academic skills						*
Required, rigorous curriculum	*					
Graduation assessments						

Note: * indicates positive association between the CCCR indicators in the far-left column and CCCR success measures in the top row.

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State-Level and International Reviews of Graduation Policies

The New York State Education Department (NYSED) Graduation Measures team requested a state-level and international policy and practice review as part of a comprehensive inquiry into graduation requirements and measures. The NYSED team identified seven states (California, Florida, Indiana, Massachusetts, New Jersey, Ohio, and Pennsylvania) based on their demographic similarity to New York, diverse populations and reputation for high performance in selected areas. In addition, the team selected four countries (Canada, Germany, England, and Switzerland) for review to provide NYSED, the NYS Board of Regents, and Blue Ribbon Commission with examples of policies and promising practices that could be considered as they evaluate the state's current graduation requirements and consider policy changes.

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This part of the report provides a summary of key findings, followed by a review of the seven states' primary graduation policies and then a review of practices in four countries as examples of international benchmarks. Appendix B includes the state summary documents (one for each of the seven states) and key information from the international scan.

Key Findings

States have begun to rethink their high-stakes assessment graduation requirements, with some temporarily waiving these requirements during COVID and others offering a "menu" of assessment options, such as the ACT, SAT, or IB. The pandemic also shone a light on uneven access to resources, such as access to the internet and devices enabling remote learning. The discrepancy between the severity of COVID's impact on students and families from low-income backgrounds versus its impact on students and families from high-income backgrounds was evident, and many states began to examine policies that disproportionately impact traditionally underserved communities, including students of color, students with disabilities, and students living in poverty.

Based on the review of the seven states, key skills and knowledge areas emerged as critical to students' postsecondary readiness, and several legislative and policy changes were highlighted that will impact graduation requirements for future classes of U.S. students. The policy changes emphasize such things as proficiency in financial literacy, digital equity, increased access to career planning and work-based learning, civic engagement, and the opportunity to earn diploma seals or badges. All seven states reviewed provide varied pathways to graduation, an increased focus on career planning, and/or increased personalization rather than the more traditional one-size-fits-all approach. These graduation requirements and pathways are discussed below.

> *All seven states reviewed provide varied pathways to graduation, an increased focus on career planning, and/or increased personalization rather than the more traditional one-size-fits-all approach.*

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State Policy Review

NYSED's Graduation Measures team, in consultation with the Region 2 Comprehensive Center (R2CC) project team, selected a sample of seven states that have a national reputation for high performance as well as demographics similar to New York.

For each state, researchers reviewed data and criteria in the following categories:

- assessment requirements
- career planning components
- civic readiness
- course requirements
- credit requirements
- diploma options
- high school exit requirements
- pathway opportunities
- social emotional learning
- time in learning

In addition to requesting information in these categories, the NYSED team also requested information on other topics and policies that several states have been pursuing, including competency-based or proficiency-based assessment, work-based learning, demonstration of proficiency in civics and consumer education, community service, and opportunities to earn an industry diploma seal. Throughout the document, terms are used according to state nomenclature. For example, one state may use the term units, while another uses credits, and a third uses hours to describe the Carnegie Unit. States use varied terms to describe policies as well as student groups and those varied terms are represented in the narrative.

A summary of each state follows.

California

As a large and diverse state, California is included in this policy scan for its CTE and civic readiness policies and practices. California's graduation requirements[1] include 3 years of English, 2 years of math (including Algebra I), 3 years of social studies (U.S. history and geography; world history, culture, and geography; one semester of American government; and one semester of economics), 2 years of science (biology and physical science), 2 years of physical education, and 1 year of either foreign language or visual/performing arts or career/technical education. California's statewide higher education system has established a minimum set of course requirements for admission as a first-year student.

The California Department of Education and State Board of Education provide career/technical education (CTE) frameworks and CTE model curriculum to support instruction in public schools, grades 7–12. Additionally, the Work Experience Education (WEE) program[2] combines internships and on-the-job training with the work-based academic curriculum and the school-to-career transition. In the area of civic readiness, the State Board of Education has proposed criteria for the State Seal of Civic Engagement (SSCE).[3] The criteria include an understanding of the U.S.

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Constitution and the California State Constitution, an understanding of government structures, participation in action-based civics project(s), presentation of a reflection on a civics engagement project, and a letter of recommendation.

California has recently passed legislation (Assembly Bill No. 101[4]) requiring designated high school coursework to meet an ethnic studies graduation requirement.

Florida

Florida is included because of the state's apprenticeship opportunities and pathways. Florida's graduation requirements offer two kinds of pathways: an 18-credit Academically Challenging Curriculum to Enhance Learning (ACCEL) pathway and a CTE pathway.[5] In July 2018, Florida passed legislation (HB495[6]) allowing high school students to use time spent in an apprenticeship or pre-apprenticeship program registered with the Department of Education to meet credit requirements for fine or performing arts, speech and debate, practical arts, or electives. High school students may choose a pathway for graduation by completing a 24-credit program that includes four English language arts (ELA) and math courses; three science and social studies courses; one course in fine or performing arts, speech, debate, or practical arts; and one course in physical education. High school students must choose one of the following: a 24-credit standard diploma, an 18-credit ACCEL pathway,[7] a CTE pathway,[8] the Advanced International Certificate of Education (AICE) curriculum, or the International Baccalaureate (IB) Diploma curriculum.[9]

Starting in the 2022/23 school year, Florida will replace the Florida Standards Assessment (FSA) with progress monitoring for school accountability. In lieu of the FSA, Florida students will have three short check-ins instead of multi-day, end-of-year, high-stakes tests for English Language Arts and Mathematics. [10] Prior to this change, students were required to earn a passing score of 350 on the Grade 10 ELA FSA11 and a score of 497 on the FSA algebra end-of-course assessment. Students are given up to five chances to pass the ELA or algebra assessment. Alternatively, students may meet this requirement by earning a comparative score on the ACT, PSAT, or SAT. Also, legislation passed in 2018 (HB495[12]) allows students to place out of an end-of-course assessment required for graduation if they earn the minimum score necessary for college credit on a corresponding Advanced Placement (AP), IB, or AICE course assessment.

In July 2021, Florida's governor enacted legislation[13] requiring civics education for students in kindergarten through postsecondary education. Starting in 2021/22, all students taking a U.S. Government course are required to participate in the Florida Civics Literacy Exam. Students earning a passing score will be exempt from the postsecondary civics literacy assessment requirement.[14]

Additionally, Florida's student literacy bill (HB7011[15]) outlines guidelines to earn credit for 75 hours of tutoring students with a substantial deficiency in reading to satisfy the state's community service graduation requirement.

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Indiana

Indiana is included in this scan because of its options for diploma designations and varied pathways to graduation. Indiana authorizes four options for a diploma: Core 40 Diploma, Core 40 with Academic Honors, Core 40 with Technical Honors, or the General Diploma. "Core 40" refers to the required 40 state credits that are designed to prepare students for college.

Core 40 with Academic Honors requires additional coursework, a minimum of a "C" in all courses counting toward graduation, a minimum GPA of a "B," and a choice of either taking Advanced Placement or college level courses, or passing a college entrance exam with a minimum score. Core 40 with Technical Honors likewise requires a minimum of a "C" in all courses counting toward graduation and a minimum GPA of a "B."

In addition, the technical honors designation requires 6 credits in the college and career preparation courses in a state-approved College & Career Pathway and a choice of either earning an industry-based certification or credential in their designated pathway, or six dual college credits in their pathway.

The General Diploma requires fewer mathematics, science, and social studies credits, as well as less testing than the "Core 40," but still requires 40 semester credits. Fourteen percent of Indiana's students who receive the General Diploma enroll in college, compared to 46 percent of students who earn the Core 40 Diploma and 89 percent who earn the Honors Diploma.[16]

In addition to the diploma requirements, Indiana students must demonstrate

employability skills in one of three pathways: project-based learning, work-based learning, or service-based learning. In each pathway, students are evaluated based on national standards in that area of work.

Finally, Indiana requires at least one of the following postsecondary readiness competencies: earning an Honors Diploma, passing one of four identified standardized assessments, earning an industry-recognized credential or certification, completing a federally recognized apprenticeship, completing at least two CTE courses (CTE concentrator), earning a passing grade on AP/IB/Dual Credit/Cambridge International courses or CLEP exams, or completing a locally created pathway as approved by the State Board of Education.

Indiana is one of several states to recently pass legislation adding new civics requirements for middle school students. Pursuant to HB 1384, this new requirement will take effect for the 2023/24 school year.[17]

Massachusetts

Massachusetts is included in the scan because of its student outcomes and its national reputation as a high-performing state. Massachusetts authorizes one regular high school diploma for all students attending publicly funded schools, including students with an individualized education program (IEP). Although graduation requirements are locally determined, the state requires physical education (G.L. c. 71, § 3) and American history and civics (G.L. c.

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71, § 2) for all students. In November 2018, Governor Baker signed Bill S.2631, An Act to Promote and Enhance Civic Engagement, which requires public high schools and school districts serving grade 8 students to provide at least one student-led, nonpartisan civics project for each student.[18]

In addition to meeting locally determined graduation requirements, students must meet the state's competency determination (CD) by earning a passing score on the Massachusetts Comprehensive Assessment System (MCAS) grade 10 assessment in English Language Arts and Mathematics as well as on one of the high school Science, Technology/Engineering tests. Students who meet all local graduation requirements but do not earn a CD are eligible to receive a Certificate of Attainment, provided they meet all the criteria.[19]

Although there are few legislative requirements for graduation, the state education agency provides guidance, toolkits, and professional learning opportunities to support local education agencies (LEAs) in preparing students for postsecondary success. Adopted by the Board of Elementary and Secondary Education in 2007, Mass Core is a state-recommended program of study intended to provide LEAs with high school coursework that is aligned with college and workforce expectations. The program entails completing four units of English, four units of mathematics, three units of a lab-based science, three units of history, two units of a foreign language, one unit of the arts, and five additional "core" courses.[20]

The state provides work-based learning opportunities through Connecting Activities,[21] a state-funded initiative that establishes public–private partnerships through the 16 local MassHire Workforce Boards to connect schools and businesses.[22] Akin to Individualized Learning/Success Plans in other states, Massachusetts' My Academic Career and Academic Planning (MyCAP)[23] is a student-driven, multiyear planning process focused on the academic, career development, and personal/social domains necessary for postsecondary success. Although the state does not require students to complete the MyCAP, many LEAs have made it a local requirement.

New Jersey

New Jersey was selected because it is adjacent to New York, has similar demographics, and is well known for high student performance. In New Jersey, each course is worth five credits and the state requires at least 120 credits to graduate and the state mandates minimum requirements in each content area. Each LEA may require additional credits and coursework.[24] Students in New Jersey are also required to demonstrate proficiency through both state ELA and mathematics assessments. The class of 2022 had the choice of taking the New Jersey Student Learning Assessments (NJSLA)/Partnership for Assessment of Readiness for College and Careers (PARCC) 10 or meeting the designated cut score on an alternative assessment, such as the SAT, the ACT, or ACCUPLACER. Alternatively, they could submit, through the district, a student portfolio appeal to the New Jersey Department of Education. The new

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assessment for the class of 2023 and beyond is the New Jersey Graduation Proficiency Assessment (NJGPA) in mathematics and ELA.[25] Those students will also have the choice of meeting the designated cut score on an alternative assessment or submitting a portfolio appeal.

Although the state requires 120 credits and a proficiency determination (or portfolio), students have multiple pathways available to earn those credits. Students can pursue dual enrollment and early college opportunities if their LEA has an agreement with an institution of higher education. As an example, students may pursue technology-focused pathways through Pathways in Technology Early College High School (PTECH),[26] a CTE pathway through the National Career Clusters Framework,[27] or the Work Experience Career Exploration Program (WECEP).[28]

New Jersey standards include a focus on career planning, outlining what students need to know and be able to do to be "career ready" and to achieve financial independence. The standards include 12 Career Ready Practices that research has shown to be essential to career readiness and that outline the skills all individuals need to be adaptable, reflective, and proactive in life and careers. The state's career planning standards also include civic readiness practices such as self-reflection and use of effective collaboration and communication skills to interact with a global society.

Ohio

Ohio is included in the policy scan for its evolution of statewide graduation requirements. Over the past few years, Ohio has gradually adjusted and refined its graduation requirements. In 2022, graduates were expected to pass the Ohio Graduation Test (OGT) in five subjects (math, reading, writing, science, social studies) or complete one of the following alternative pathways: earn at least 18 graduation points on seven End-of-Course Ohio State Tests (Algebra I or Integrated Math I, Geometry or Integrated Math II, American Government, American History, English I, English II, Biology), earn a remediation-free score on the ACT or SAT, or earn a "work-ready" score on the WorkKeys assessement which has three sections: applied math, graphic literacy, and workplace documents, and earn a total of 14 points across the three sections.

For the class of 2023 and beyond, students must meet three requirements: complete a minimum of 20 credits in core or elective courses; demonstrate competency in English Language Arts (ELA) and math by passing the English II and Algebra I tests or through the College Credit Plus, career-focused activities, ACT or SAT scores, or military enlistment; and demonstrate readiness by earning two diploma seals. In June 2021, Ohio passed HB82,[29] a bill to permit parents or guardians of high school students to opt students out of taking a nationally standardized college admissions assessment (i.e., SAT or ACT).

In the past five years, Ohio has introduced a Social Studies and Civic Engagement Honors

Diploma[30] that requires elective coursework in social science or civics in addition to taking core courses and earning a minimum 3.5 grade point average. To be eligible for this diploma, a student must achieve a designated minimum ACT or SAT score and complete a field experience and a portfolio of work based on the student's fieldwork and area of focus. On January 27, 2022, Ohio passed legislation (SB1[31]) requiring high schools to teach financial literacy and allowing students to substitute a half-credit unit in financial literacy and a half-credit unit in mathematics for the one unit of mathematics required for graduation.

Pennsylvania

Pennsylvania was selected because of its pathway options, civic readiness requirements, and career readiness requirements. Course and credit requirements are determined locally by the LEAs in Pennsylvania. To earn a diploma in Pennsylvania, students must choose one of four pathways, two of which require passing the Keystone Exams, a set of exams that assess proficiency in Algebra I, Biology, and Literature.

Other graduation pathways are the Evidence Based Pathway, the Alternative Pathway, and the CTE Pathway. The Evidence Based Pathway allows a student who did not achieve proficiency on any of the Keystone Exams to demonstrate competency by achieving grade-level requirements and providing three pieces of evidence consistent with the student's goals and career plans.

The Alternative Pathway allows for more flexibility for students who do not achieve proficiency on any of the Keystone exams. This could include concurrent enrollment courses at a community college, a pre-apprenticeship program, or acceptance to an accredited, 4-year, nonprofit institution of higher education.

The CTE Pathway requires successful completion of locally established grade-based requirements in all areas in which the student does not achieve proficiency on the Keystone Exams plus attainment of an industry-based competency certification related to the CTE Concentrator's program of study. Alternatively, students can demonstrate a high likelihood of success on an approved industry-based competency assessment or readiness for continued meaningful engagement in the CTE Concentrator's program of study.

Career planning is required in all LEAs in Pennsylvania and is tracked through Individualized Career Plans that must be submitted to the Pennsylvania Department of Education (PDE). The PDE provides guidance on the development and implementation of career plans, including a toolkit and professional development modules for educators.[32] As of the 2019/20 school year, students must demonstrate proficiency on a locally developed assessment that incorporates U.S. history, government, and civics.[33] The PDE provides guidance for LEAs on assessment of civic knowledge.[34]

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Additional State-Level Graduation Requirements

In addition to requesting the review of the aforementioned seven states, NYSED requested that the R2CC team highlight other areas that have resulted in legislation or policy changes related to graduation requirements. While this is not a systematic 50-state scan, the following sections provide examples of state legislation or policy change beyond the seven states.

Other State Policy and/or Practices Related to Graduation

Civics education (37 states)

Computer science education (5 states)

Consumer education/financial literacy (7 states)

Individual career plans (34 states)

Performance Assessments (at least 17 states)

STE(A)M Education (varies greatly by state)

Work-based Learning and CTE (34 states)

Financial Literacy

Recognizing the need to better prepare students for their financial future, states are including financial literacy standards in their graduation requirements. Twenty-two states have financial literacy standards, with seven requiring students to take a full semester course before graduating.

- **Rhode Island** made proficiency in personal finance and financial literacy a requirement for high school graduation beginning with the class of 2024. All public high schools will be required to offer a standards-based course starting in 2022/23.[35]

- **Illinois** requires a semester-long course in financial literacy starting with students who entered high school in 2021/22.[36]

- **Arizona** created a state seal of personal finance proficiency, which allows students to obtain a seal after attaining the required score on one personal finance assessment approved by the state board of education, successful completion of an approved personal finance program, participation in a personal finance curricular or extracurricular program, and creation of a college- and/or career-readiness plan demonstrating personal finance proficiency.[37]

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Civics

States are at various stages of implementing civics education graduation requirements.

- **Arizona**[38] and **Tennessee**[39] passed legislation for a state seal of civics literacy or Governor's Civics Seal in 2019.

- **Utah** established a civics engagement pilot program in 2020.[40]

- **South Carolina** requires a civics course for high school and postsecondary graduation.[41]

- In 2021, **New Hampshire** passed legislation to add high school civics to their graduation requirements.[42]

- **Oregon** now requires a half credit in civics education.[43]

- **New Hampshire** and **Tennessee** require a passing score of 70 percent on a civics test to graduate.[44]

- States such as **Minnesota**, **North Dakota**, and **Wisconsin** require civics for high school students. North Dakota and Wisconsin students must pass civic exams to graduate high school, whereas Minnesota students have to pass the exam but not as a graduation requirement. Kansas legislators passed such a requirement in 2021, but the measure was vetoed by Governor Laura Kelly.[45]

Community Service

The Education Commission of the States (ECS)'s 2019 comparison of state graduation requirements reported that only Washington, DC explicitly requires community service as a graduation requirement (in DC, high school students are required to spend 100 hours doing community service).[46]

Other states, such as Indiana, offer credit for community service—as part of an elective, for example—but it is not a graduation requirement. Virginia has a combined service-learning and community service component as part of its graduation requirements, providing students with a choice of one or the other. The enacted legislation HB2662[47] by the Virginia Board of Education establishes high school graduation requirements that "require students to complete a senior capstone project, portfolio, performance-based assessment, or structured experiment that relates to a work-based learning, service-learning or community engagement activity and aligns with and further develops the knowledge and skills attained through such work-based learning, service-learning, or community engagement activity."

In states where graduation requirements are determined locally, such as MA, LEAS have the option of requiring a minimum number of community service hours.

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Performance Assessments

Performance assessments are a method of assessment where students demonstrate their knowledge by constructing an answer, producing a product, or performing an activity.[48] At least seventeen states require or encourage performance assessments to measure college and career readiness and/or graduation competencies in addition to other minimum course or assessment requirements.

Rhode Island,[49] for example, requires the completion of a portfolio, capstone project, or exhibition for high school graduation. Some of the seventeen states also include legislation to allow for flexibility in student assessments to graduate. For example, Oregon high school students[50] can demonstrate proficiency in the state's Essential Skills through assessment options such as the statewide assessment, local district assessments, or locally developed performance assessments.

Other states, like New York, include networks of districts and schools that are using performance assessment. The New York Performance Standards Consortium is a long-standing network of 38 schools which has used performance assessments and portfolios for graduation since the 1990s.[51] New Hampshire's Performance Assessment of Competency Education (PACE)[52] assessment system allows schools and districts to opt into a system of locally developed performance assessments tied to grade and course competencies.

Additionally, the Massachusetts Consortium for Innovative Education Assessment

(MCIEA) is a consortium of eight districts formed in 2016 to explore alternative ways of measuring student learning and school accountability beyond standardized assessments. MCIEA is an independent consortium and is not necessarily supported or endorsed by DESE.

Science, Technology, Engineering, Arts, Mathematics, and Computer Science (STEAM + CS)

> *Five states (Mississippi, Missouri, Nevada, Oklahoma, and South Carolina) require computer science credit for graduation.*

In its May 2022 Policy Brief, *Who's Who in STEAM-Education-State-Governance*, ECS identified six states as "leading the way" in STEAM education: Arizona, Georgia, Illinois, Nevada, Ohio, and Oklahoma.[53]

- In **Georgia**, school level STEAM certifications recognize schools that have implemented interdisciplinary instruction and business and community partnerships at two levels: program or whole-school.[54]

- In July 2020, **Illinois** became the first state in the country to have a lottery fund specifically supporting STEAM education.[55]

- The **Ohio** Department of Education assigned the STEM Learning Network, a non-profit partner, to manage the school STEM designation process.[56]

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- **Nevada** established a statewide, cross-sector STEAM subcommittee of the Nevada STEM Advisory Council, "consisting of both Arts & STEM professionals and community advocates committed to supporting arts integration across all disciplines of study".[57]

- **Pennsylvania** included STEAM education as a priority for its 21st Century Community Learning Centers as part of its 2019 ESSA Consolidated State Plan.[58]

- **Virginia** and **Idaho** have passed legislation for a diploma seal in STEM.[59]

According to a 2019 report comparing graduation requirements across the 50 states, published by ECS, five states (Mississippi, Missouri, Nevada, Oklahoma, and South Carolina) require computer science credit for graduation.[60] To support science, technology, engineering, and mathematics (STEM) learning, states have made allowances for computer science electives to count toward a mathematics or science course or to substitute credit for a language.

For example, Wyoming, Alabama, Missouri, Florida, and Washington have all passed legislation that introduces computer science into the high school curriculum.

- **Wyoming** allows for 1 year of computer science, and **Alabama** allows for one credit of computer science to satisfy 1 year (or one credit) of the science or mathematics graduation requirements.[61] Both states also require LEAs to provide educational programs in computational thinking.

- **Missouri** allows for one credit in a computer science course to be substituted for required credit in mathematics, science, or practical arts if the student has taken or is on track to take the courses requiring end-of-course examinations in math and science.[62]

- In 2020, **Virginia** passed a bill that allows students to substitute a credit in computer science for a credit in world language; the LEA must notify parents and students about any implications this substitution could have on college entrance requirements.[63]

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Individualized Learning, Career, and Graduation Plans

> *When students see the connection of their courses to their futures, they are more inclined to see the relevance of school.*

States and LEAs vary with respect to career planning in terms of when, how, and where it occurs. Research has shown that career planning done early and often and facilitated by a caring adult reduces student truancy, tardiness, and the propensity to drop out of school. When students see the connection of their courses to their futures, they are more inclined to see the relevance of school. This is especially true for students of color and traditionally marginalized students.[64]

Thirty-four states—including Connecticut, Colorado, Iowa, Pennsylvania, and Rhode Island—require that each student has an individualized career plan—also called an individualized learning or graduation plan, student success plan, or rolling plan.[65] Massachusetts does not require career planning at the SEA level but has developed state guidance and a curriculum for career-planning implementation and has invested in the development of professional learning modules and institutes. Several LEAs now require the implementation of career planning—such as Boston Public Schools' adoption of the MyCAP[66]—even though it is not required by the state.

Work-Based Learning and Career and Technology Education

As the demand for career awareness and exploration has increased, so has the opportunity for students to participate in work-based learning and CTE. In 2021, 73 bills in 34 states were enacted regarding CTE, many of which focused on work-based and experiential learning. The 2021 ECS report, CTE in Secondary Education,[67] outlines various initiatives for funding, access, support, and connection to postsecondary education.

As an example, Virginia students can earn a CTE credential by completing an industry certification, state licensure exam, national occupational competency assessment, or Virginia workplace readiness assessment.[68] The Virginia Department of Education requires students to demonstrate "Virginia's 5 C's" (critical thinking, creative thinking, collaboration, communication, and citizenship) as part of the Profile of a Virginia Graduate.[69] Alabama, Florida, and Texas have organized CTE programming by career cluster, groups of occupations requiring similar skills, identified by Advance CTE.[70]

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Diploma Seals

To recognize high school students that complete a series of accomplishments, such as achieving proficiency in related coursework, completing an additional examination, or completing an extracurricular task, several states have recently passed legislation to add various diploma seals (see Appendix B) or have existing diploma seal programs already in place.

- **Virginia** has an advanced studies diploma seal as well as seals for CTE, STEM, civics, biliteracy, and excellence in science and the environment.[71]

- **Ohio** awards a number of seals including science, technology, citizenship, biliteracy, OhioMeansJobs Readiness, College-Ready, Honors, Industry-Recognized Credential, and Military Enlistment, as well as three locally defined seals for districts to choose from and develop local guidelines: community service, student engagement, and fine and performing arts.[72]

- **Arizona** awards seals in biliteracy, civics literacy, arts proficiency, and personal finance.[73]

- **Georgia** offers three types of career-ready diploma seals, including an employability career seal, a pathway career seal, and a leadership career seal.[74]

- **South Carolina** offers three types of diploma pathway seals of

distinction: Honors Seal, College-Ready Seal, Career Seal, as well as a Specialization Seal of Distinction which can be earned in the areas of STEM, world language, military, or the arts.[75]

Review of Graduation Policies and Practices in Other Countries

The NYSED Graduation Measures team was interested in learning more about countries that have varied graduation pathways and provide apprenticeship opportunities and also share similarities with New York State's demographic profile. Accordingly, Canada, England, Germany, and Switzerland are included in the scan. England and Canada, more similar demographically to New York than most other countries, were selected because of their varied pathway options. Germany was selected because of its apprenticeships and school and industry partnerships. Switzerland was selected because it is considered the "gold star of apprenticeship models."[76]

In a November 2019 webinar celebrating the release of *Vocational Education and Training for a Global Economy: Lessons from Four Countries*,[77] Nancy Hoffman, senior advisor at Jobs for the Future, noted several themes across high-performing systems, including that any country boasting a high-performing education system views teaching as a highly respected, high-status profession.

As well, teenagers are viewed as responsible, independent adults and are given autonomy for their education and career choices far earlier than in the United

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States. In Switzerland, 16-year-olds are seen as adults, competent in social–emotional learning and project management. In countries that rely on student apprenticeships, pathways are permeable and students can change tracks.

> *In Germany and Switzerland, employers are seen as critical to and invested in training youth; for example, they pay to support training programs.*

Canada: Alberta, British Columbia, and Ontario

Canada does not have a central, federal-level education ministry; rather, each of the 10 provincial governments is guided by its own Education Act[78] to allow each individual jurisdiction to make decisions appropriate to the interests of its specific populations. Each province has its own Ministry of Education that sets the academic standards, determines the curricula, allots funding to schools, manages the school support systems, and handles teacher certification. The focus on a strong teacher force is a commonality across the country. Local school boards work in conjunction with the provincial government to operationalize practices and policies.

The Council of Ministers of Education (CMEC) shares information and standards across provinces to identify areas of collective action and common priorities. One of the priorities of the CMEC strategic plan (2017–2021) was sustainability of postsecondary education,[79] with a focus on the role of employers in helping prepare students for employment postgraduation. Another major focus over the last few years has been a focus on equity for Indigenous populations who historically have lacked the same opportunities as other Canadians.

School attendance is generally compulsory across Canada from ages 6 to 16. The exceptions are in British Columbia, where the children start at age 5, and in Ontario (along with Manitoba and New Brunswick), where students are required to stay in school through age 18. Most provinces have centralized funding for schools, except for some First Nations schools which receive federal funds (about 45% of First Nations citizens live on reserves) and receive new investments in special programming to create stronger links with postsecondary training opportunities, among other priorities.

The Pan-Canadian Assessment Program (PCAP)[80] is a national-level assessment that a random sample of Canadian students take in reading, mathematics, and science at ages 13 and 16. The results are used to determine progress across the provinces every 3 years. Other accountability is at the provincial level. Assessments broadly include formative (ungraded informal feedback), summative (end-of-unit evaluation tools), and a few other standardized assessments across Canada. Most of the provinces share a grade 12 assessment for graduation—with the exception of Ontario, which requires students to pass the Ontario Secondary School Literacy Test (or, if they do not pass, complete a literacy course in grade 12) to earn a high school diploma.

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In Alberta, which arguably has the most extensive assessment procedures in Canada, students are assessed in math and English language arts in grades 3, 6, and 9 as well as in science, social studies, and French language arts (where applicable) in grades 6 and 9. There are 11 courses for which there are credentialing exams in grade 12, and students must pass 6 of them to get a diploma. British Columbia assesses reading, writing, and numeracy in grades 4, 7, and 10 and has credentialing exams in grade 12 in numerous subjects.[81]

There are varied approaches to vocational education across Canada. At the secondary level, courses are offered either with academic courses in a comprehensive school or sometimes in separate vocational schools, depending on the province. The Canadian Council of Directors of Apprenticeships (CCDA) serves as an interprovincial body to promote collaboration and alignment on apprenticeship training and trade certification. To encourage businesses to take on apprentices, the government offers a business tax credit equal to 10 percent of the wages paid to apprentices. At the end of the apprenticeship, students take a vocational skills exam to earn their qualification. While some provinces have their own qualifications framework, the most popular vocational qualifications are the Red Seal credentials, which are recognized across all provinces.[82]

The Red Seal Program sets common standards to assess the skills required for a trade, the national standards of which are developed in conjunction with the federal government and provinces or territories

that have apprenticeship certifications. The CCDA is responsible for the program, with the federal government and provinces as members. A Red Seal credential shows that a person has the required skills for a trade at a national standard.

The following sections provide more detail on the education systems in the three selected provinces.

Alberta

Education is compulsory for children ages 6–16, though local education authorities may offer full-day kindergarten or other early childhood services for younger children.[83] About 10 percent of the population of Alberta is immigrants.[84]

The Alberta Ministry of Education mandates the curricula for schools across the province and determines the content that students must learn but the method of delivery is left up to the teachers. The ministry's curriculum framework stresses the principle of pluralism, offering many choices in how to achieve the same skill or level of knowledge to incorporate different cultural practices, and strives to be highly inclusive of diverse perspectives. Some courses may require an end-of-course diploma examination.[85]

Flexible programming is encouraged; for example, the Career and Technology Studies dual-credit program (apprenticeship pathway) allows students to enroll in courses that, upon completion, allow them the opportunity to take an exam for "advanced standing" in the initial period of training for their trade.[86]

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Also offered is the Registered Apprenticeship Program, which allows full-time secondary students to become apprentices in the trade of their choice and allows the transfer of credit to the apprenticeship after high school.[87] School boards may offer alternative programs that "emphasize a particular language, culture, religion or subject matter, or use a particular teaching philosophy." Examples of such programs include specialization in fine arts, French immersion, German, hockey, science, and Montessori.[88]

British Columbia

> *Career development is highly prioritized…. to carry out the "Skills for Jobs Blueprint," which aims to expand hands-on learning in the classroom, increase the number of dual-credit programs available… and advocate for partnerships between school districts and industries.*[89]

In British Columbia, education is compulsory for children ages 6–16, though full-day kindergarten is available to 5-year-olds.[90]

The British Columbia Ministry of Education recently implemented a new curriculum, "Building Student Success," that is competency-driven, flexible, and aimed at encouraging students to pursue relevant topics of interest to them.[91] The ministry provides curriculum frameworks which determine the content that must be taught, and provides tools and resources for implementation. However, teachers are given the freedom to choose their teaching

methods. A similar flexibility is extended to local school districts, which can determine how they support students who need additional support. Boards may provide an alternate education program for those students who are not properly accommodated by a traditional school program.[92]

Career development is highly prioritized, and the Ministry of Jobs, Tourism, and Skills Training joined forces with the Ministries of Education and Advanced Education to carry out the "Skills for Jobs Blueprint," which aims to expand hands-on learning in the classroom, increase the number of dual-credit programs available (which simultaneously count toward high school and college degrees), and advocate for partnerships between school districts and industries.[93] The Ministry of Education also encourages the inclusion of a "Career Zone" to upper secondary students that would allow them access to courses, certifications, and work opportunities within four routes: apprenticeship, certificate/diploma, degree, and direct-to-work.[94]

Students in grades 10–12 have two required career education courses: Career Life Education and Career-Life Connections. A small percentage of students also take additional career-focused elective courses, which sometimes count toward completion of postsecondary apprenticeships. The curricula for the two required career education courses are designed to be flexible for different school structures, grade groupings, and delivery methods. The Career-Life Connections course requires students to complete 30 hours of work experience or career life exploration, which

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can be a school-approved work placement, community service, paid student employment, fieldwork, entrepreneurship, or projects focused on an area of deep interest.

There is also a required capstone project for graduation to reflect a student's competency development in and out of classroom learning. Students are required to take three Provincial Graduation Assessments: Literacy Assessment and Numeracy Assessment in grade 10 and only Literacy Assessment in grade 12.[95]

Ontario

Ontario has a diverse population and received the highest number of immigrants in the fourth quarter of 2021.[96] The provincewide curriculum is mandated and accessible to teachers with policy and resource documents on the ministry website to serve as a guide.[97] Students must take the Ontario Secondary Literacy Test in grade 9 and must successfully complete the exam to earn a diploma.

Ontario provides a variety of program and schooling options to fit the needs of the vast student population. For those with educational needs not satisfied by the traditional schooling system, school boards may offer Alternative Schools.[98] The Toronto District School Board, for example, offers schools with a particular focus (such as democratic education). To accommodate all students, the Ministry of Education initiated the "Student Success Strategy," which led to the inclusion of experiential learning in the curriculum.[99]

The Ontario government is committed to work-based learning opportunities and has increased related funding in recent years. The career/life planning program begins with students in kindergarten and is designed to build a student's career-related knowledge and skills through learning experiences and community activities across the K–12 grade span.

At the secondary level, all students are required to take a Career Studies half-credit course in grade 10 to graduate from high school. For grades 11 and 12, students are required to take a defined bundle of credits within their chosen sector, complete sector-

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specific certification and training, participate in experiential learning, and develop essential skills and work habits. School boards may offer two specialized programs: the Specialist High Skills Major,[100] which allows secondary students to complete courses in the field of their choice and graduate with both a diploma and industry certifications, and the Ontario Youth Apprenticeship Program,[101] which gives students ages 16 and up the opportunity to become registered apprentices while remaining full-time secondary students.

England

England has compulsory schooling for ages 5–16, with a national curriculum that includes English, math, and science. Starting at age 16, most students take a public exam, the General Certificate of Secondary Education (GCSE). After completing compulsory education at 16, students are then able to choose either employment (with or without apprenticeship) or continue their formal education in a secondary school/college or academy known as sixth form or further education. After the completion of a GCSE, students are encouraged to pursue subject-based Advanced Level qualifications (A Levels) offered by schools and colleges. A Levels are recognized for entrance to higher education institutions in the United Kingdom (UK) for students ages 16–18.

In 2016, the Department of Education's Minister of State for Skills in the UK presented a Post-16 Skills Plan that set out a framework to support individuals in sustaining skilled employment that keeps pace with the evolving needs of the economy.[102] In designing equally rigorous academic and technical options for students after age 16, the plan requires that courses must allow students to be able to access both options.

The technical option includes not only college-based but also apprenticeship education. In addition, there is approved technical-level qualification (T levels) for one or a cluster of occupations, with the granting of licenses upon achievement of the necessary requirements. There is up to a year of flexible supports for students not ready to access these technical options at age 16. A list of providers is available to those students needing the Transition Programme to develop their English, math, and digital skills along with work experience and personal development.[103]

Introduced in September 2020, T Levels brought new 2-year courses following the completion of GCSEs and are the equivalent of three A Levels.[104] The courses are intended to cover content that meets industry needs and to prepare students for work. These courses combine classroom learning and 45 days of on-the-job experience, leading to skilled employment, further study, or apprenticeship. The T Levels are one of the choices for students after completing the GCSEs in addition to apprenticeships for those seeking training in a specific occupation or A Levels for students choosing to continue their academic education. T Levels have the same standards as apprenticeships (1,800 hours over 2 years). However, the apprenticeship is 80/20 on-the-job/classroom for those

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ready to enter the workforce in a specific occupation.[105]

> *Apprenticeships[106] in the UK are designed to be "widely recognized and respected as a highly effective means for all businesses to build their pipeline of skilled future staff in all parts of the country."[107]*

The vision for Apprenticeships 2020 was for employers to take ownership of the content of standards and assessments. A Digital Apprenticeship Service is an online portal to help employers navigate the apprenticeship system as well as training and assessment. Across all sectors of the economy, apprenticeships are available in areas such as media, aerospace, dentistry, computer science, energy, life and industrial sciences, tailoring, surveying, law, and accountancy.

Germany

Possessing the European Union's largest economy, Germany was chosen because of its dual system of vocational educational training, which is considered an important pillar of the German economy. Some of the country's largest industries include manufacturing, wholesale and retail trade, and health and social care. Germany has a highly skilled workforce, a high employment rate, and strong job growth but suffers from age challenge, with at least one third of the population being 50 or older, and an expected increase in job demand in service industries, energy supply services, and transport and storage.[108]

The education system in Germany is decentralized, with each of the 16 German states responsible primarily for its own education system. Traditionally, German students have chosen an academic or vocational pathway by age 10, but that tradition is becoming less common and students are choosing later in their education. The Abitur (Abi) is the culminating exam that students typically take at the end of 2 years of exam preparation at an academic "Gymnasium" school. The Abi is used to assess qualifications to enter higher education (university), so it is taken at the end of secondary schooling, typically at age 18.

Realschulabschlus is the culminating exam for students enrolled at a "Realschule" in grades 5–10. It is used to assess qualifications for entry to a vocational or professional training course and, as it is less rigorous than the Abi, it does not qualify students for university-level courses. However, it does prepare them to enter the workforce.[109]

The German vocational education and training system (VET), also known as the dual training system, is highly recognized worldwide due to its combination of theory and training embedded in a real-life work environment. The dual system is firmly established in the German education system and is regulated by law. The main characteristic of the system is cooperation between companies (mostly small- and medium-sized companies) and publicly funded vocational schools.[110] Approximately half of German students choose VET at the upper secondary level.

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Students in this dual system can pursue a full-time, school-based VET program or can choose an apprenticeship pathway within VET—with 70 percent of learning time taking place in a company and 30 percent in a vocational school. Over two thirds of German students in the VET system choose the apprenticeship model, which is a collaboration among industry partners both within and beyond Germany. VET credentials are transferable across the European Union, contributing to the broader economic growth of the union.

Switzerland: Spotlight on Apprenticeship Models

> *Nearly two thirds of Swiss youth ages 16–18 participate in the pre-apprenticeship model, allowing them to gain valuable work experience while in school.*

The research team reviewed Switzerland with a focus on learning more about its renowned apprenticeship model. With one of Europe's highest per capita GDPs and low unemployment, Switzerland credits its apprenticeship model as one of the four or five top factors contributing to the country's low youth unemployment, high wages and living standards, and highly productive economy.[111]

Nearly two thirds of Swiss youth ages 16–18 participate in the pre-apprenticeship model, allowing them to gain valuable work experience while in school, simultaneously preparing the next generation of qualified managers and skilled workers. During these 2 years, which are the equivalent of the last

year of high school and first year of college in the United States, students are highly engaged in learning to work and learning about work. Students see the relevance in their schooling and are supported to gain the life and work skills they need to thrive in their postsecondary lives. Unlike the German apprenticeship model, the Swiss model is unique in its "permeability." That is, students are not locked into a specific career path and may transition to another pathway or to university.

The Swiss government is committed to keeping skills training broad enough so that the employees develop transferable skills they can take anywhere—across industries and to other European countries. Employers participate by developing standards through professional associations and investing heavily in apprenticeship training. In turn, employers get the talent they need at a relatively low cost and help to prepare the country's next generation of leaders and workers.

This model requires a strong partnership among the federal government, the "state" level (cantons), and the private sector. Several U.S. delegations have visited Switzerland to learn about the apprenticeship models, and several U.S. states—including Colorado, Indiana, Maryland, Pennsylvania, and Wisconsin— have been launching apprenticeship models based on the Swiss system. Swiss companies in the United States have been implementing the apprenticeship model in the states to build a well-trained, well-prepared workforce. [112]

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The pre-apprenticeship and apprenticeship programs in other countries are successful largely because of broad and deep partnerships with businesses and community-based organizations. These relationships are mutually beneficial; the students are gaining meaningful work experience for pay and gaining the skills they will need to succeed in the current

workforce. The businesses have the opportunity to train the next generation of workers and gain highly trained, highly skilled employees. The economy and public at large benefit from graduates who are prepared to contribute positively to their community, creating the conditions for lower unemployment and higher living standards.

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Qualitative Analysis of Stakeholder Input

Introduction to the Stakeholder Engagement Process

To inform the work of the New York State Education Department (NYSED), the Board of Regents (the Board), and the Blue Ribbon Commission, input was gathered from stakeholders across the state, including parents, students, educators, administrators, school support staff, representatives of higher education, the business community, and the general public. The goal was to understand the perspectives of New York State residents who were actively engaged in the education system and/or the workforce with regard to the current graduation requirements and what changes they would like to see to those requirements. These efforts began in earnest in 2020 with in-person regional meetings hosted by NYSED in collaboration with Boards of Cooperative Educational Services (BOCES) and Big 5 school districts

(Buffalo, New York City, Rochester, Syracuse, and Yonkers).

The Board and NYSED sought to gather feedback from stakeholders through a variety of avenues to allow for synchronous and asynchronous participation. These feedback opportunities included in-person and virtual regional meetings and an online survey (which was replaced in 2021 with an online discussion platform). This section provides an overview of the questions stakeholders responded to as well as a timeline for collecting feedback.

Stakeholders were asked to share their thoughts on five guiding questions that were developed by the Board. NYSED refined these questions in October 2021 to address concerns about clarity raised by participants in the 2020 regional meetings. The most recent version (2021/22) is as

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follows (see Appendix C for original wording and for variations used in the various data-gathering efforts beyond the regional meetings and survey):

1. What do you want all students to know and be able to do before they graduate?

2. How do you want all students to demonstrate such knowledge and skills, while capitalizing on their cultures, languages, and experiences?

3. How do you measure learning and achievement (as it pertains to the answers to #2 above) to ensure they are indicators of high school completion while enabling opportunities for ALL students to succeed?

4. How can measures of achievement accurately reflect the skills and knowledge of our special populations, such as students with disabilities and English language learners?

5. What course requirements or examinations will ensure that all students are prepared for college, careers, and civic engagement?

Regional meetings were initially scheduled to take place from January to March 2020. By March 2020, 16 regional meetings had been completed; however, due to the outbreak of COVID-19, all remaining scheduled meetings were postponed while the state and local education agencies focused on pandemic-related challenges.

The regional meetings resumed virtually in December 2021 and continued through spring 2022, with NYSED, in collaboration with the BOCES and the Big 5 school districts, hosting eight online meetings. In addition to the regional meetings, one meeting in spring 2022 was devoted exclusively to students, and another meeting was held for members of the higher education and business communities (see Appendix C). In total, more than 3,000 individuals participated in the stakeholder feedback meetings.

In addition to convening the regional meetings, NYSED developed an online survey that was shared on the Graduation Measures website starting in December 2019.[i] A link to the survey was sent to all stakeholders who registered to attend a regional meeting to provide an additional opportunity to give detailed input and feedback. To promote the survey, information about it was included in all meeting handouts and the survey was announced by facilitators during the closing remarks of meetings. Included in this report is an analysis of the more than 800 responses received by July 2020.

When outreach resumed in 2021, in lieu of using the online survey, NYSED utilized ThoughtExchange, an online discussion platform that allows participants to respond to an open-ended overarching question and to rate their agreement with other comments. Two ThoughtExchange

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[i] NYSED began receiving survey responses in January 2020.

questions[ii] were developed based on the five guiding questions that had been asked in the regional meetings and on the survey. This platform was chosen for several reasons, including built-in translation functions, peer-to-peer interaction opportunities, and streamlined analytic options. The two ThoughtExchange questions garnered responses from more than 1,850 stakeholders, including nearly 2,500 thoughts and 34,800 ratings.

Stakeholder Recruitment and Participants

NYSED began sharing information about the Graduation Measures initiative and regional meetings in July 2019. Stakeholders from each region, including educators, parents, students, institutions of higher education (IHE) representatives, and community members, were invited to register online to attend a regional meeting. Registration was also available upon arrival. NYSED used the following methods to communicate to stakeholders about the regional meetings:

- Board presentations;
- news releases;
- social media campaigns;
- emails to listservs, including for New York State superintendents and principals;
- NYSED Commissioner's newsletter to parents;

- communication from district superintendents to their communities; and
- a link to the Graduation Measures initiative on the homepage of NYSED's website.

NYSED also asked the following organizations to share information about the regional meetings with their constituents: New York State Parent Teacher Association, New York State Council of School Superintendents, New York State School Boards Association, Big 5 school districts, and BOCES. Big 5 school districts and BOCES were also provided with communication toolkits translated in 12 languages.

Asynchronous feedback methods, including the survey and the two ThoughtExchanges, were made available on the Graduation Measures website, and links to them were shared during regional meetings and via email to registered attendees.

The following table contains approximate numbers of survey and ThoughtExchange participants by stakeholder type. These numbers may not be precise, as participants may have chosen not to report their role or, despite being asked to select one choice, may have identified across multiple stakeholder types, such as an educator who is also a parent. The number of participants per regional meeting is not reported because attendance records varied by

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[ii] ThoughtExchange #1: What knowledge, skills, and/or experiences do you think are important for ALL students to have by the end of high school? ThoughtExchange #2: How would you like students to show that they have the knowledge, skills, and/or experiences necessary for graduation?

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location. Additional details on stakeholder participants can be found in Appendix D.

Table 2. Online Feedback Participants

	2020 Survey	2021/22 ThoughtExchange #1	2021/22 ThoughtExchange #2
Educator	608	693	265
Parent	136	219	65
Student	29	179	77
Community member/IHE representative	63	76	37
Government official	19	19	5
Other	1	106	28
Total	856	1,292	477

Methodology of Analysis

The research team used three sources of qualitative data for its analysis: regional meeting notes and chat logs, open-ended survey responses, and ThoughtExchange responses. The team used Dedoose, a web-based qualitative research application, for data management and analysis.

The research team developed an initial codebook of a priori codes based on the five guiding questions. The team then coded the first few files for each source of feedback (i.e., meeting notes and chat logs, survey responses, and ThoughtExchange responses) together to establish interrater reliability and develop additional themes based on the analysis. The lead researchers divided the remaining media files among the coders and convened regular meetings to discuss additional emerging themes and check for understanding. During the analysis process, the researchers shared themes with the policy and literature review teams to inform their work, as well as with the NYSED team.

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In reviewing the stakeholder feedback from the meetings, survey responses, and ThoughtExchange responses, the research team also considered the following questions:

1. Are there regional differences in the stakeholder feedback?

2. Does feedback from the various meetings, survey, and ThoughtExchanges differ by stakeholder type?

3. Are there differences in stakeholder feedback from the 2020 meetings compared to the virtual 2021/22 meetings?

Table 3. Stakeholder Feedback Sources

Feedback source	Year	Description
Regional meeting notes and chat logs	2020, 2021/22	At each regional meeting, participants were seated in groups of 8 to 10. A designated facilitator took notes on participants' responses to each of the five guiding questions. Notes were taken in real time and submitted through an online form at the end of the meeting. If a facilitator was not able to submit an online form (e.g., due to technical difficulties), a hard copy was submitted to the meeting hosts. Starting in 2021, NYSED, BOCES staff, and Big 5 school districts identified facilitators and notetakers who were assigned to each virtual breakout room. Prior to the meeting, each was provided with a 1-hour virtual training, which included guidance on how to facilitate stakeholder conversation and record feedback. A chat monitor also provided support and saved the chat logs.
Survey	2020	Stakeholders were invited to respond to the five guiding questions via an open-ended survey. The survey link was made available on the Graduation Measures website, starting in December 2019, and was shared with all registered regional meeting participants during the meeting and in a follow-up email.
ThoughtExchange	2021/22	Stakeholders were invited to respond to two questions related to the five guiding questions via an interactive online platform. Links to each question were made available on the Graduation Measures website, starting in December 2021, and were shared with registered regional meeting participants during the meeting and in a follow-up email.

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Limitations

There are notable limitations in how feedback was collected, particularly with respect to the regional meetings. The 2020 regional meetings took place in person at local schools and BOCES offices prior to the outbreak of COVID-19, whereas the 2021/22 regional meetings were all virtual. Although information about the 2021/22 regional meetings was shared widely, it is important to acknowledge that interested parties without access to reliable internet may have been excluded from participation. Also, meetings were conducted in English, with interpretation services available upon request.

The gap in time between the 2020 and 2021/22 regional meetings is an added challenge for data collection and analysis. In 2021/22, NYSED and BOCES did not conduct additional meetings with the regions for which in-person meetings took place in 2020. Further, the feedback collection methods varied substantially between the 2020 regional meetings and the 2021/22 regional meetings.

During the 2020 meetings, each table was provided with a laptop or iPad and asked to submit notes at the end of the meeting. Participants were not provided with additional notetaking guidance and, in several cases, they experienced technical difficulties with submitting the form and emailed the form instead.

When meetings restarted in 2021, NYSED, BOCES, and Big 5 school districts' designated staff members and volunteers

who were not participating as stakeholders to act as notetakers and facilitators in each breakout room. An additional staff member acted as a chat monitor and provided technical support.

The research team developed a facilitator's guide and notetaking template and provided three 1-hour trainings for all staff prior to their meeting dates. Notetakers documented feedback by role (educator, parent/family member, community member, etc.), although specific feedback was not attributed to individuals (see Table 3. Stakeholder Feedback Sources). As role-level feedback was not documented for the 2020 meetings, it was not possible for the researchers to analyze differences between the 2020 and 2021/22 meetings by role.

Lastly, the 2020 survey and ThoughtExchange were designed as opportunities to gather feedback from stakeholders unable to attend meetings and a majority of the responses were from educators (see Appendix D). The lower response rates for parents or family members, students, community members, and IHE representatives should be taken into consideration when reviewing the findings in this report. As a result of the limitations described in this section, it was difficult to make comparisons across groups (i.e., between roles, regions, and pre-/post-pandemic). While the pandemic likely shifted thinking about what was important for students to know and be able to do, it was difficult to capture these changes conclusively.

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The following sections contain results from a systematic review of the statewide stakeholder feedback. Wherever possible, the research team has maintained the exact language used by stakeholders, so the terminology may not always be consistent with current practice. Working definitions for major themes are included in Appendix E.

Key Findings

Stakeholder feedback was initially reviewed based on the five guiding questions; however, the research team determined that there were several themes that appeared across questions. To avoid redundancies, the themes from the stakeholder feedback were split into the following overarching categories:

1. What students should know and be able to do before they graduate (Q1, Q5)

2. How students should demonstrate their achievements in a way that accurately reflects their skills and knowledge (Q2, Q3, Q4)

The research team also included additional stakeholder feedback pertaining to overall school learning environments and student needs.

What students should know and be able to do before they graduate

Stakeholders were asked to identify what students should know and be able to do before they graduate high school as well as what courses and requirements should be included as part of the high school experience. Answers to both questions were largely consistent across stakeholder type, region, and the year in which stakeholders provided feedback.

Overall, stakeholders emphasized the need for students to be able to think critically, communicate, and connect what they learn in the classroom to the world around them. These skills are often referred to as 21st century skills by stakeholders in New York (see Appendix E). Students, in particular, emphasized the importance of social and emotional skills, while business and higher education representatives focused on the importance of 21st century skills and basic academic skills such as literacy.

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Figure 1. What Students Should Know and be Able to do Before They Graduate as Reported by Stakeholders
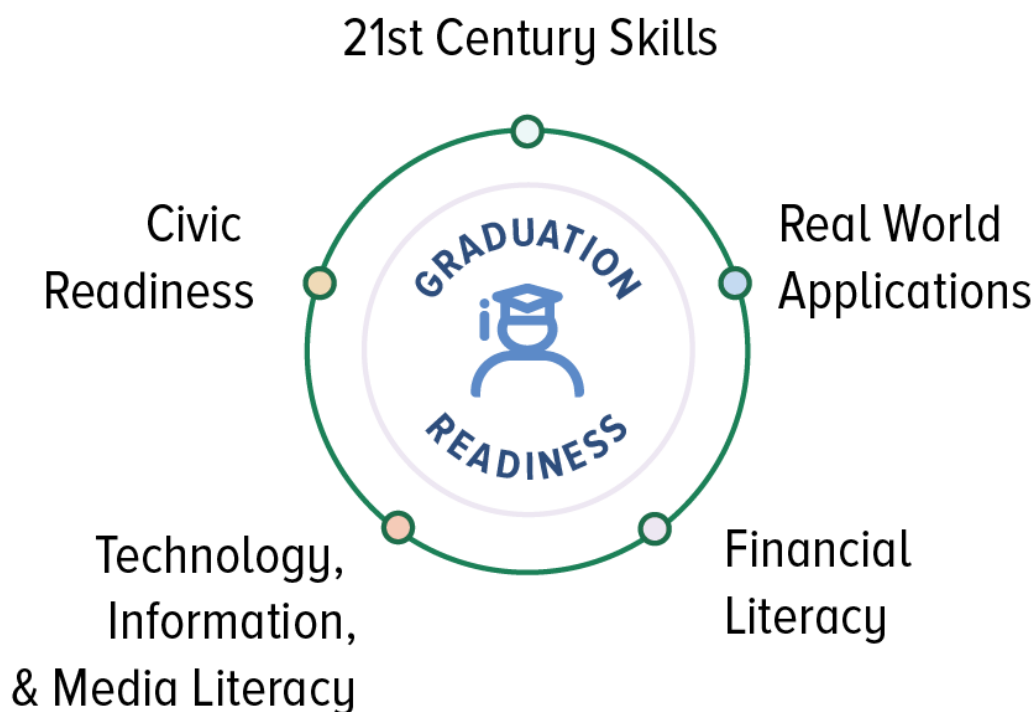
21st Century Skills

Civic Readiness

Real World Applications

GRADUATION READINESS

Technology, Information, & Media Literacy

Financial Literacy

Stakeholders across all feedback sources identified 21st century skills as one of their top priorities for students. The top response across all feedback opportunities and stakeholder types was 21st century skills, which encompass a broad variety of skills, including critical thinking, creativity, collaboration, communication, time management, and teamwork. Stakeholders heavily emphasized the need for critical thinking and problem-solving, asserting that students need to be prepared to address complex issues that cut across content areas.

"Problem Solving/Independent Thinkers. Students will face difficulties in and outside the classroom and need to be prepared and equipped with the mindset and tools needed to succeed." (ThoughtExchange, 2021/22)

*

"Being able to do real problem solving; contextualize everything; know where to go to solve the problems that are before them." (Regional Meeting, 2020)

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Based on stakeholder feedback, the analysis team further split 21st century skills into several subcategories, including social and emotional skills and information, media, and technology skills.

Stakeholders across all regions and types identified social and emotional skills—including collaboration, communication, and self-management—as key to a successful graduate. The importance of social and emotional skills was stressed by nearly all participants across the 2020 and 2021/22 feedback opportunities. A distinct component of the overarching category of 21st century skills, this focus emphasizes the importance of self-advocacy, persistence, self-management, empathy, and cross-cultural skills (see Appendix E).

Stakeholders remarked on the importance of developing individuals who can empathize with each other and reach across boundaries to engage in difficult, productive conversations. Stakeholders also acknowledged the importance of exposing students to different cultures and experiences, both within their community and broadly, prior to leaving high school. The importance of social and emotional skill development is also evident in the Literature Review, which includes three studies that demonstrate the importance of nonacademic skills (defined as social skills, self-care, self-awareness, self-advocacy, and utilization of resources) in the prediction of employability for students with disabilities.[1]

"We need to have 21st century learners who can work on teams, to collaborate to find common solutions to problems. They must also have strong communication and critical thinking skills and be motivated to excel. I also believe that 'giving back' is extremely important, as is learning to have empathy for people and situations you may not otherwise have. We all need to learn to cohabitate in this world together and that can only be accomplished with empathy." (Survey Participant, 2020)

*

"Social-emotional learning should be incorporated so students can learn about one another and how to communicate with each other." (Student Forum, 2022)

Digital literacy and information processing were frequently highlighted as areas of need for postsecondary success. Participants in the 2022 regional meetings and ThoughtExchange emphasized the need for students to be able to understand, evaluate, and use information; analyze and process information from the media; and navigate and apply technology effectively. Stakeholders were particularly concerned with the ability of students to effectively and critically engage with news and media sources. Participants in the 2020 regional meetings and survey also commented on the need for digital literacy, noting that the ability to use technology responsibly and the need for understanding modern

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information systems were key to college and career success.

> *"All students should graduate high school with the skills to research and identify credible information. Living in the age of technology, misinformation is rampant. We want students to be critical thinkers and differentiate between real and false info."* (ThoughtExchange, 2021/22)
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> *
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> *"High school graduates need to be literate, be able to communicate and solve problems effectively, and have a grasp of practical numeracy. They need to learn and practice digital literacy, analytical skills, and critical thinking. (Survey Participant, 2020)*

Across all feedback opportunities, stakeholders called out the importance of basic life and career skills for students as one of their top priorities. Across all regional meetings and online feedback opportunities, stakeholders called out the need for basic practical skills, including how to write a resume and cover letter, interviewing for a job, cooking, automotive maintenance, and computer skills. The most frequently identified need was that of financial literacy, including managing a budget and understanding common financial processes such as loans, interest, and taxes. Many stakeholders noted that it is often assumed that such knowledge and skills can be taught at home, but often families are not able to do so.

> *"ALL life skills for independent living, ex: career development; finances; nutrition/food prep; community; citizenship; conflict resolution, etc. Too many adults do not have a grasp on these concepts, which is not beneficial for them or the community they live in."* (ThoughtExchange, 2022)
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> *
>
> *"Learning about how to manage money and credit cards, knowledge of taxes, heath care, leasing property, mortgages, retirement, anything regarding financial or economic topics in society."* (Student Forum, 2022)

Stakeholders, particularly business and higher education representatives, also emphasized the importance of basic literacy and competencies for all students to be successful in a work environment. Stakeholders pointed to the Career Development and Occupational Studies (CDOS) pathway and other work-based competencies as examples of where best to prioritize student learning. Participants in the 2020 survey and regional meetings placed slightly greater emphasis on examining Career and Technical Education (CTE) requirements and providing vocational training for students, compared to participants in the 2021/22 regional meetings.

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"It's also great to start thinking about the core literacy and math proficiencies to help them to fill the skilled jobs as well. The basic competencies would include the ability to pass the simplest workforce test." (Regional Meeting, 2021/22)

*

"Students should have numerous pathways for graduation and should be exposed to 'non-traditional' options (i.e., non-4-year college options) early. Existing programs that allow students to gain certifications, vocational training, and real job experience should be better funded. Students should be able to join these programs earlier than they currently do because too many students have become unmotivated and disengaged by their third year of high school." (Survey Participant, 2020)

Stakeholders noted the importance of connecting classroom learning to the world in which students live, whether by asking students to apply their work to a community-based project, bringing in real-world examples, or encouraging interdisciplinary learning to demonstrate how skills and concepts can be applied across traditional academic subjects.

College and career readiness was also frequently mentioned in the context of stakeholders wanting students to be ready for the realities of these settings rather than simply having subject matter knowledge. The literature review, which identified the relationship between college, career, and

civic readiness (CCCR) indicators and student success as an area of focus, includes one study that suggests that students who enrolled in Early College High Schools were more likely to take core college prepatory courses in high school and pass those courses.[2]

When referring to making real-world connections, respondents noted a variety of strategies, such as encouraging civic understanding, capturing student interests and engagement, building practical skills, and supporting experiential learning.

"Optimize our kids' ability to work on real-world problems, solving problems in their communities; generate solutions; present solutions; implement solutions." (Regional Meeting, 2022)

*

"We need more interdisciplinary work. The ELA, Math, Science, Social Studies, etc., buckets are meaningless. Students need to do real projects, like an architecture project, which would incorporate ELA (writing a plan), math, mechanical engineering, social science (i.e., human usability of the building), project management, communications/public speaking, etc. The current Regents requirements make it impossible to do innovative cross-disciplinary work when students need a certain number of credits in the traditional academic buckets." (Survey Participant, 2020)

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The topic of civic education and civic readiness was brought up frequently by stakeholders in the 2020 regional meetings and survey. Participants described civic education as including an understanding of government systems, rights, and the importance of and how to engage with local government, history, and citizenship. Stakeholders emphasized the need for students to graduate with a practical understanding of civic engagement as well as the historical context and understanding of government structures. While still a frequent subject, civics was slightly less emphasized by participants in 2021/22.

> *"Students need to be comfortable with civics at every age, a shared responsibility across all grade levels, with age-appropriate materials available online, through websites, or teacher driven. Civics need to resonate with ALL students in order for them to grow into adults that understand the responsibilities of adult citizenship and do their part. Knowing the constitution and its amendments help, as well as court cases and current social and economic issues affecting society today, and if those issues are law abiding or not." (Survey Participant, 2020)*
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> *"We should learn more about civic life and why we need to exercise our rights. We talked about registering to vote in one of my classes and a lot of students didn't understand why this is important." (Student Forum, 2022)*

The themes described above were the most frequently mentioned by stakeholders but by no means represent the totality of the knowledge and skills that stakeholders indicated they would like to see students in New York State obtain. Stakeholders also emphasized the continued need for core academic subjects, access to the arts, and CTE. Stakeholders, particularly students, also brought up the need for cultural competency and learning languages other than English in order to succeed in a global environment.

How students should demonstrate their achievements in a way that accurately reflects their skills and knowledge

Overall, stakeholders across regions would like to see a shift toward assessment measures that allow students the flexibility and opportunity to demonstrate their knowledge and skills in ways that incorporate their interests and strengths. There was an emphasis on applying learning through performance-based assessments such as projects, portfolios, and presentations. Stakeholders also acknowledged the need to incorporate multiple measures into the assessment process rather than using single, summative exit exams to assess student learning. The following section details the top themes about how stakeholders believe students should demonstrate knowledge and skills and highlights notable differences by region, stakeholder type, and year in which feedback was collected.

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Figure 2. Assessing Learning
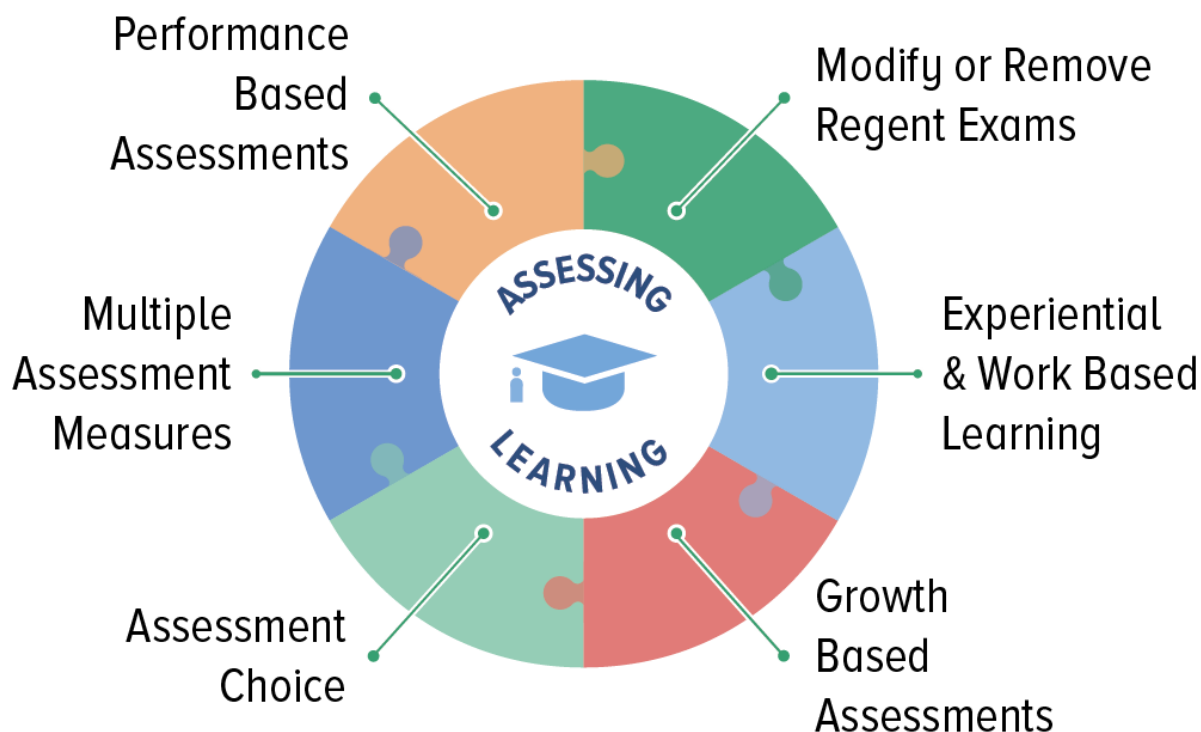
Across regions, stakeholders, and years, the top theme was performance-based assessments. Stakeholders indicated that performance-based assessments tell a better story of what students have learned than test scores do. Stakeholders shared several positive aspects of performance-based assessments, including applying knowledge learned to real-world scenarios and having more equitable assessment opportunities for English language learners and students with disabilities. Participants mentioned that performance-based assessments allow teachers the flexibility to tailor assessments to students' unique learning styles. Participants acknowledged that performance-based assessments allow students to show what they have learned in a variety of ways. Participants also saw performance-based assessments as opportunities for students to practice skills (such as conducting a research project or giving a presentation) that are needed for career or postsecondary success.

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> *"Performance-based assessments: When we're thinking about making this equitable across all students, it needs to be with effective rigor that we do this and come up with alternative methods to meet the needs of all learners and still allow them to graduate with more than a CDOS diploma." (Regional Meeting, 2021/22)*

Stakeholders cautioned that although performance-based assessments should allow flexibility in demonstrating students' knowledge and skills, these assessments should still be rigorous and standardized in some way. Many participants, especially in the 2020 regional meetings, mentioned the use of rubrics for standardizing performance-based assessments.

> *"Although fraught with many challenges, formal assessments (i.e., tests) are certainly the most rigorous measures and demonstrate knowledge. However, that is only one part of learning. Measuring achievement of learning objectives through more experiential assignments can be done with the use of common rubrics for different types of assignments. The use of rubrics is helpful in creating more equitable assessment across schools and districts. They can be used in writing assignments, including reflections on community service and work experiences." (Survey Participant, 2020)*

Stakeholders would like to see more experiential and work-based learning opportunities in which students can apply knowledge and skills. Although this theme was common across stakeholder roles, regions, and years, 2020 regional meeting and survey participants were particularly vocal about the need for students to demonstrate their knowledge and skills beyond the classroom. Stakeholders discussed different types of experiential learning—from internships to community service projects to hands-on experiences that are connected to classroom content. Student Forum participants saw experiential learning opportunities as a means to explore different career and postsecondary possibilities.

> *"A work-based learning experience [would help students] to practice the knowledge gained in the classroom and also allows for debriefing with experienced professionals. This can also help students (ELLs, especially) [understand] that knowing more than one language is a professional asset." (Regional Meeting, 2021/22)*
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> *"I know from experience that students learn so much more when they apply the skills they are learning. Experiential Learning and internships are critical." (Survey Participant, 2020)*

Feedback about experiential learning also included the desire for students to pursue diploma pathways that align with their interests. In the regional meeting notes,

surveys, and ThoughtExchanges, participants advocated for pathways that prepare students to enter the workforce after graduation, noting that many students may not be interested in attending a 4-year college. Feedback from the ThoughtExchanges and 2020 regional meetings advocated for all students to create postgraduation plans as a requirement for high school graduation.

> *"[Students should] create a portfolio with a well thought out and researched career plan. This can be college, apprenticeship, work, trade, interview process, etc. This helps students know what steps to take to achieve their goals and if it's not what they expect, they can change their plan prior to pursuing it."* (ThoughtExchange, 2021/22)

Stakeholders frequently mentioned differentiated and growth-based assessments when discussing accurate measures of achievement for special populations of students, including English language learners and students with disabilities. When asked about assessment measures that accurately reflect the skills and knowledge gained by New York State's diverse student populations, many stakeholders said that the Regents exams were not an accurate or equitable measure of learning. Many (but not all) stakeholders believed that teachers should be allowed to differentiate assessments based on student needs and that these differentiated assessments can be an accurate measure of graduation readiness. One frequently mentioned example of differentiation was

allowing English language learners to take assessments in their home languages. Stakeholders also advocated for the performance-based assessments discussed earlier as being appropriate for English language learners and students with disabilities.

> *"We don't give modified exams to ELLs that take language into account. We could have different versions of the exams for different groups of students, where the content would be the same. Exams are currently one-size-fits-all, but they should be different for different groups."* (Regional Meeting, 2021/22)
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> *"Right now it's a one-size-fits-all. Assessments don't accurately reflect skills that students do have. Colleges are moving to and using menu options for students to demonstrate what they have learned. 11th and 12th graders buy into menu options a little more as they are close to getting out."* (Regional Meeting, 2021/22)

In addition to highlighting differentiated assessments, stakeholders mentioned growth-based assessments that measure student learning from one point in time to another and that also examine attainment of standards. This desire to meet students "where they are" through a more personalized, student-centered approach to education was supported by a number of comments across regions and stakeholder roles. Stakeholders were also concerned about a lack of rigor in instruction and

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assessment for English language learners or students with disabilities. For example, participants at the Bronx regional meeting were concerned about low expectations for students with disabilities. They pointed to growth-based and differentiated assessments as solutions that would allow students with disabilities to engage with rigorous, grade-level content.

> *"In terms of [students with disabilities]—having acceleration and grade-level standards and high expectations are extremely important—more access to high-quality accelerated instruction on their grade level—allow the test to be read to ascertain critical thinking and comprehension—more scaffolds on tests [such as Test Read software] would give us a more realistic understanding of the student's current level of performance." (Regional Meeting, 2021/22)*

Stakeholders would like to see all *students have the option to choose from different types of assessments.* In line with feedback regarding student-centered instruction, many stakeholders across regions, roles, and years suggested that students be provided with the option to choose from different types of assessments to demonstrate their knowledge. Stakeholders noted that while this process might be especially beneficial for students with disabilities or English language learners, all students should have the opportunity to demonstrate their learning in a way that is interesting to them. Student Forum participants noted that assessment choices

would support greater engagement and class participation.

> *"The goal should not be to try to get all the kids the same test scores so you can say their education was 'equitable.' The goal should be to personalize education so that each individual gets to explore their interests, show their strengths, and reach their potential."* (ThoughtExchange, 2021/22)
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> *"Students could have a choice in what way they would express how they learn—i.e., read a book, then have a choice between a posterboard, PowerPoint, or an essay. It's just as much work for all of them but the students can express themselves better if they have a choice. It would encourage participation too."* (Student Forum, 2022)

In addition to recommending assessment choices, many stakeholders argued that multiple assessment measures should be taken into consideration when determining graduation readiness. Across regions, stakeholder roles, and years, the need for multiple measures of assessment was a recurring theme. Stakeholders suggested that New York State move away from single point-in-time assessments to a variety of measures that capture student learning in different ways. Participants of the Higher Education and Business Communities Forum were strong advocates for this system.

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Many ThoughtExchange participants and 2020 survey participants mentioned including coursework or course credits among these possible measures. Other stakeholders pointed out that a system of multiple measures would still require students to take written exams but earning their diploma would not be solely dependent on a single measure. Similar findings are reflected in the literature review, which includes one study suggesting that allowing students to use other forms of evidence or standardized tests to show proficiency can mitigate the dropout effect produced by high school exit exams.[3]

> *"I do many kinds of assessment in my classroom. I ask the students to write, discuss, and work through many concepts so they become thinkers when they leave my classroom. I want them to be informed citizens who can be productive members of society. Their score on a test doesn't measure that alone." (Survey Participant, 2020)*
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> *
>
> *"Our methods of measuring learning are crude. You get an A-minus. What does that tell you? We need multidimensional measuring so learning can be on a record of a certain measure, but by skills." (Higher Education and Business Communities Forum, 2022)*

Many stakeholders suggested modifying or dropping Regents exam requirements, as they felt that the Regents were no longer an adequate measure of student understanding. Although participants were not asked specifically about the Regents exams, a number of stakeholders commented on the value of the Regents as a graduation requirement and questioned whether the current exams were adequate for demonstrating and measuring student achievement. The majority of participants suggested modifying the Regents exams or getting rid of them entirely, though a few preferred to keep the Regents in order to ensure rigor across the state. Participants in the 2020 regional meetings and survey were slightly more likely to prefer keeping the Regents exams than those in 2021/22; however, there was minimal variation by stakeholder type or region.

> *"Perhaps use a variety of indicators to demonstrate readiness. There are numerous other options available. Regents should be offered on a rotational basis—if we must keep them. We need less lock and key approaches and [should] be more future driven. The current mandates are not helpful." (Regional Meeting, 2021/22)*

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"Students should complete course requirements and continue to be tested 10 week, 20 week, 30 week, and final exams. By this they are displaying a knowledge of the material. Regents exams are stressful and impossible for many students and not an indication of mastery of the material. Instill lifelong learning by helping them be successful instead of setting them up for failure." (Survey Participant, 2020)

Learning conditions

While stakeholders mainly focused on the five guiding questions, they also shared thoughts on several topics beyond the scope of graduation requirements and measures. The feedback in this section focuses *not* on graduation requirements for students but instead on learning conditions and structures that stakeholders feel are needed to support students in achieving success. While stakeholders raised a variety of concerns and solutions, there were a few key themes that spanned the regional meetings, survey responses, and ThoughtExchange responses. These include student mental health, instructional practices, and equitable access to learning opportunities.

Figure 3. Key Themes Shared by Stakeholders

Student Support and Mental Health

Resource Inequities

Instructional Practices

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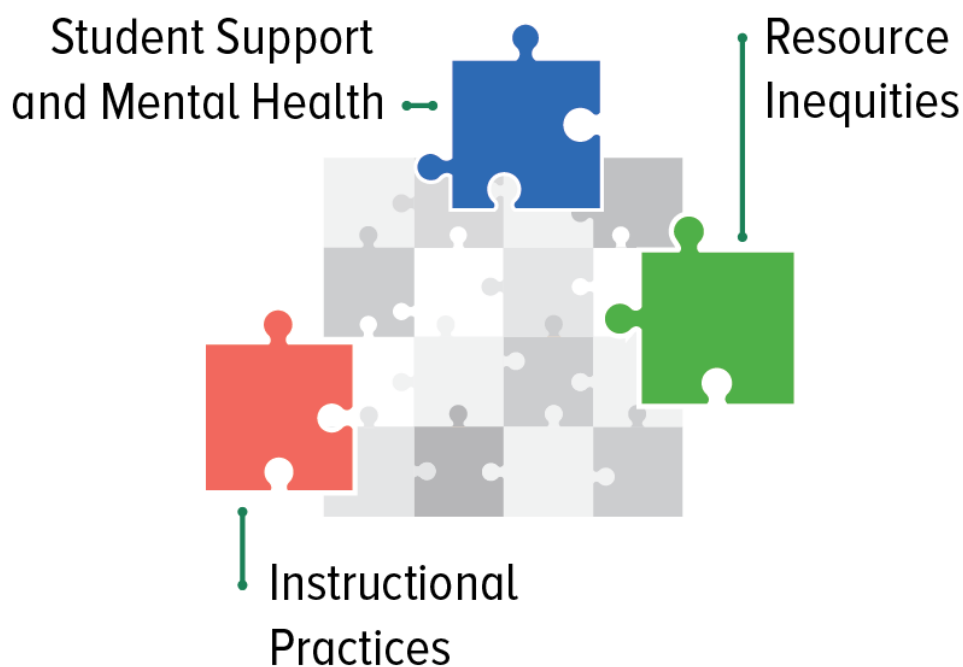
Student mental health was a recurring concern, especially among Student Forum participants. Many stakeholders mentioned the stress associated with taking high-stakes, timed assessments such as the Regents exams. Students, in particular, noted how anxiety affects testing performance and is not the most effective way to showcase their strengths. The theme of student mental health and support, though present in the feedback across methods, came up more frequently in the 2021/22 regional meetings and ThoughtExchange compared to the 2020 meetings and survey.

"I'm a good student and I'm valedictorian, but I dread every test. I know that grade will be put into the system. We should be graded on participation and involvement and how our work is, more than on testing. If I do my work on time and do it well, that should be weighed more heavily than exams." (Student Forum, 2022)

*

"There is an incredible deficit for social emotional health, behavioral health, and physical health. The alarming push for content is null if kids can't take care of themselves. We can't rely on parents, because too often there is not enough support at home. Please get more social workers, school psychologists, and support groups into schools. We need to think about the whole child not just content knowledge." (Survey Participant, 2020)

Stakeholders expressed concerns about resource inequities across the state, particularly with regard to course offerings that expand students' opportunities to explore career and college pathways. Stakeholders shared reflections from their own districts about lacking resources or varied experiential and career exploration opportunities for students. Some stakeholders mentioned lack of access to technology and reliable internet, and others from rural areas shared that their towns lacked opportunities for students to engage

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in internships. Some stakeholders also shared that budget cuts affected their district's ability to provide advanced placement coursework.

> *"It has been really difficult in the community to give students experiences outside of the normal classroom content. We can't find internships or experiences, or even field trips. The only way the students will get experiences outside of our small town is a big, expensive hurdle for us." (Regional Meeting, 2021/22)*

Stakeholders also acknowledged a need for shifts in instructional practices that align with revised graduation requirements or measures. Stakeholders in both the 2020 and 2021/22 regional meetings expressed a desire for instruction to align with shifts in graduation requirements. Many stakeholders acknowledged that a move toward assessments that are more personalized and student-driven required professional development and supports for educators. Additionally, several ThoughtExchange responses mentioned the need to provide training for teachers to assess their students in meaningful and authentic ways.

> *"Students should be evaluated by competent teachers who know the curriculum, abilities of the age group of students, and appropriate activities used. Teachers should be allowed to teach and evaluate their students themselves, not rely on standardized tests to determine if a student has understanding." (ThoughtExchange, 2021/22)*
>
> *
>
> *"Student passions should be fostered and should guide learning opportunities, and graduation measures should be linked to these passions. In doing so students will value what they are learning as opposed to just doing what is necessary to graduate and worrying about test scores." (Regional Meeting, 2021/22)*

Considerations

To help the Board, NYSED, and Blue Ribbon Commission review and discuss the feedback from stakeholders, the following section highlights five considerations based on the most frequently mentioned topics across the regional meetings, survey, and ThoughtExchanges. When asked what students should know and be able to do, stakeholders primarily discussed 21st century skills, civic readiness, and career, college, and life skills.

When asked how these skills should be measured, stakeholders suggested

performance-based measures that were more flexible and tailored to students' unique needs. The following considerations emphasize an increased focus on key skills to prepare students for post-graduation and on equitable assessment opportunities for all students—stated priorities of NYSED and of the many stakeholders who provided feedback during the Graduation Measures outreach process.

Based on stakeholder feedback, the Board, NYSED, and the Blue Ribbon Commission may consider further exploration of the following topics when discussing changes to existing **graduation requirements**:

- ***21st century skills.*** There was overwhelming agreement that students should be able to think critically, collaborate, communicate, and apply what they have learned in the classroom to real-world scenarios. Stakeholders also indicated that students should learn how to assess and use information they see in the media and engage in respectful discussions about opposing viewpoints. Often considered under the 21st century skills umbrella, social and emotional skills were also emphasized, with particular attention to self-advocacy, self-management, and empathy.

- ***Career, college, and life skills.*** Stakeholders acknowledged that there is not one "right" path for all students. Stakeholders stressed the importance of students having the opportunity to explore different pathways from an early age and to

develop an awareness of the knowledge and skills necessary to lead a productive adult life. Many stakeholders also emphasized the importance of developing financial literacy, digital literacy, and information processing to prepare students for adulthood.

- ***Civics education and readiness.*** Although stakeholders emphasized this theme more in 2020 than subsequently, they indicated that students should be prepared to be engaged in their communities; understand politics and systems across local, state, national, and global levels; engage in the political process; and have respect for other cultures and worldviews.

The Board, NYSED, and the Blue Ribbon Commission may also explore the following topics as they consider revising **assessments and measures** for graduation requirements:

- ***Performance-based measures.*** An overwhelming majority of stakeholders indicated that projects, portfolios, presentations, and other performance-based measures are more valuable and engaging ways to assess student learning compared to traditional written exams. However, stakeholders called for NYSED to consider how to make these opportunities equitable and rigorous for all students across the state. Growth-based and differentiated assessments were two of the most frequent

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suggestions for making assessments more accessible for English language learners and students with disabilities.

- **Assessment choice and flexibility.** Stakeholders indicated a desire to see a more flexible assessment

system that allows for student choice, measures learning in multiple ways, and leverages the assets of New York State's diverse student population. There was an emphasis on growth and personalization in both instruction and assessment.

> *"Students need to be college- and career-ready when they graduate from high school. This looks like a student that is able to think critically especially of media, scientific phenomena, and information provided by unfamiliar sources; this requires being able to read, annotate, and comprehend academic and nonacademic texts. A student must be able to think algebraically and utilize mathematics skills that apply to the real, postsecondary world. A successful graduate must be able to adapt and survive in changing environments. This requires that a student has had instruction and practice with social emotional skills. A college- and career-ready student has an unbiased knowledge of global and American history as well as a thorough understanding of our current political system and the importance of voting. A student graduating high school should have a strong knowledge base of how to be financially independent. In line with financial independence, graduating students should have been taught how to advocate for themselves and the things they believe in. A graduating student should have a full understanding of environmental issues, climate change, and the current state of our planet; in addition, they should be aware of the options for alleviating the challenges our planet is facing."*
>
> *(Survey Participant, 2020)*

[1] McConnell, A. E., Martin, J. E., Juan, C. Y., Hennessey, M. N., Terry, R, A., el-Kazimi, N. A., Pannells, T. C., & Willis, D. M. (2013). Identifying nonacademic behaviors associated with post-school employment and education. *Career Development for Exceptional Individuals*, *36*(3), 174–187; McConnell, A. E., Martin, J. E., & Hennessey, M. N. (2015). Indicators of postsecondary employment and education for youth with disabilities in relation to GPA and general education. *Remedial & Special Education*, *36*(6), 327–336; Mazzotti, V. L., Rowe, D. A., & Sinclair, J. (2016). Predictors of post-school success: A systematic review of NLTS2 secondary analyses. *Career Development and Transition for Exceptional Individuals*, *39*(4), 196–215.

[2] Edmunds, J. A., Bernstein, L., Unlu, F., Glennie, E., Willse, J., Smith, A., & Arshavsky, N. (2012). Expanding the start of the college pipeline: Ninth grade findings from an experimental study of the impact of the early college high school model. *Journal of Research on Educational Effectiveness*, *5*(2), 136–159.

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Appendix A. Graduation Measures Literature Review Methodology

The primary question addressed by the literature review was, *What graduation requirements promote educational excellence for all students, including members of special and vulnerable populations?*

To provide focus for the review, the research team worked with the New York State Education Department (NYSED) to break down the primary question into the following driving questions (with the fifth question added after the initial start of the review):

1. What is the evidence base on the relationship between college, career, and civic readiness (CCCR) indicators[i] and students' success in college, career, and civic life?

2. Which graduation requirements have an evidence base indicating they contribute to the CCCR of all students, including members of special and vulnerable populations?[ii]

3. Which additional high school experiences and opportunities (i.e., those not traditionally required for graduation), including assessments, have an evidence base indicating they contribute to the CCCR of all students, including members of special and vulnerable populations?

4. What is the evidence base that offering flexible pathways to a diploma contributes to the CCCR of all students, including members of special and vulnerable populations?

5. What is the evidence base on diversity, equity, and inclusion (DEI)–informed policies, actions, behaviors, and/or practices that result in or promote student success (i.e., academic, cognitive, civic, social–emotional, and economic success)?

For the purposes of the literature review, NYSED defined DEI as *providing a foundation of diversity, equity, and inclusion, as well as access, opportunity, innovation, confidence, trust,*

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[i] Indicators include benchmarks—such as standardized test scores, grade point averages, and course enrollments—that can be used to determine progress toward college and career success.

[ii] Special and vulnerable populations include students with disabilities with an individualized education program (IEP), English language learners, and students who are economically disadvantaged.

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respect, caring, and relationship-building wherein all students feel that they are welcome, they belong, and they are supported in every school.[iii] Diversity means *a wide range of human qualities and attributes*; equity means *fair treatment and opportunity for all*; inclusion means *recognizing, understanding, and accepting all.*[iv]

This literature review was intentionally designed to be exploratory in nature in keeping with NYSED's information needs. The review was not intended to provide definitive conclusions or recommendations nor to reflect Region 2 Comprehensive Center (R2CC) priorities or values. Instead, it was designed to synthesize the evidence base identified by the five driving questions in order to inform decision-making by NYSED, the New York Board of Regents, and the Blue Ribbon Commission regarding graduation requirements.

With this perspective in mind, the R2CC research team created inclusion criteria, based upon elements of sound, high-quality research, to ensure transparency with respect to the research that would or would not be selected for the literature review. These criteria feature elements including, but not limited to, sample size, research design, and statistical methodology, as described below:

- represent original research or literature reviews of original research

- be published in peer-reviewed journals[v] or meet What Works Clearinghouse standards

- be published within the last 10 years

- include sufficient detail about research design and methodology so that soundness and quality of the research could be assessed independently by an independent party

With the addition of driving question 5, the research team expanded the search for evidence regarding DEI-informed policies, actions, behaviors, and/or practices that result in or promote student success to include "gray literature," which comprises nonconventional research literature that is not published in journals, books, or other peer-reviewed sources. The team considered these sources for driving question 5 because of the relatively recent nature of DEI as a research topic, which would likely lead to finding limited relevant resources in more traditional sources of published research.

The decision-making process is displayed in the two decision trees on the following pages.

[iii] The New York State Board of Regents. (2021). *Policy on diversity, equity and inclusion*. New York State Education Department. https://www.regents.nysed.gov/common/regents/files/521bra7.pdf

[iv] The New York State Board of Regents. (2021). *Policy on diversity, equity and inclusion*. New York State Education Department. https://www.regents.nysed.gov/common/regents/files/521bra7.pdf

[v] The research team is aware of and communicated the potential bias introduced by limiting the review to published research. These parameters were included to ensure transparency, reasonableness, and feasibility, as well as in consideration of the exploratory nature of the review.

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New York Graduation Measures Literature Review Decision Tree (Driving Questions 1–4)

Is there sufficient information to assess the soundness of the research? *(i.e., research methods are included and clear)*

YES → Is it original research?

NO → Exclude

Is it original research?
- NO → Is it a summary, review, or synthesis of original research (including meta-analysis)?
- YES →
  - Is research published in *What Works Clearinghouse* (WWC)?
    - NO → Is research published in peer-reviewed journal?
    - YES → Include in Literature Review
  - Is research published in peer-reviewed journal?
    - NO → Compile for NYSED
    - YES → Include in Literature Review

Is it a summary, review, or synthesis of original research (including meta-analysis)?
- NO → Is it commentary, opinion, editorial, or news article?
- YES → Is research published in peer-reviewed journal?
  - YES → Include in Literature Review
  - NO → Is research published in something other than peer-reviewed journal?

Is it commentary, opinion, editorial, or news article?
- YES → Exclude
- NO → Consult second reviewer
  - NO → Is research published in something other than peer-reviewed journal?
    - YES → Compile for NYSED

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New York Graduation Measures Literature Review Decision Tree (Driving Question 5)

Is there sufficient information to assess the soundness of the research? *(i.e., research methods are included and clear)*

YES

NO

Compile for NYSED if product of identified author in Phase II

Is it original research?

NO

Is it a summary, review, or synthesis of original research (including meta-analysis)?

NO

Is it commentary, opinion, editorial, or news article?

YES

YES

NO

Compile for NYSED if product of identified author in Phase II

YES

Consult second reviewer

Is research published in *What Works Clearinghouse* (WWC)?

NO

Is research published in peer-reviewed journal?

NO

Include in Literature Review if product of identified author in Phase II

Is research published in peer-reviewed journal?

NO

Is research published in something other than peer-reviewed journal?

NO

YES

YES

YES

YES

Include in Literature Review

Include in Literature Review

Include in Literature Review

Include in Literature Review if product of identified author in Phase II

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Search Methods

The team included the following databases and sources: ERIC, EBSCO Host, SAGE, Google Scholar, Metropolitan Center at NYU, and the Research Alliance of NYC schools. In addition, the search for evidence regarding driving question 5 also included the Institute of Education Sciences, the What Works Clearinghouse, the Education Commission of the States, and Google Scholar searches on individuals identified by NYSED as possible contributors to the field of DEI research. These included the following persons:

- Dr. David Kirkland, NYU

- Dr. Pedro Noguera, USC Rossier School of Education

- Dr. Linda Wing, Director of Schools and Community Engagement, University of Chicago

- Dr. Janice Jackson, Former Chief Executive Officer of the Chicago Public Schools, Carnegie Corporation Senior Fellow

- Dr. Deborah Jewell-Sherman, Harvard University

The search was broad and exploratory and informed by key search terms (see Exhibit A1). In all instances, search terms included both acronyms/initialisms (e.g., CCR, CCCR) and full wording (e.g., college and career readiness, college readiness, career readiness, civic readiness) and included the terms individually and in combination.

Exhibit A1: Search Terms for Each Driving Question

Driving question	Search terms and combinations of terms
1. What is the evidence base on the relationship between CCCR indicators and students' success in college, career, and civic life?	postsecondary success, college success, college outcomes, career success, high school testing requirements, dual enrollment, civic life/engagement success, CCCR, CCCR indicators, CCCR success, special and vulnerable populations
2. Which graduation requirements have an evidence base indicating they contribute to the CCCR of all students, including members of special and vulnerable populations?	CCCR, CCCR indicators, CCCR success, special and vulnerable populations, high school graduation requirements, high school electives, high school service learning, internships, work-based learning, high school demonstration of learning, capstones, portfolios, performance assessments
3. Which additional high school experiences and opportunities (i.e., those not traditionally required for graduation), including assessments, have an evidence base indicating they contribute to the CCCR of all students, including members of special and vulnerable populations?	CCCR, CCCR indicators, CCCR success, special and vulnerable populations, high school graduation requirements, performance assessments, high school exit exams, advanced coursework, dual enrollment, dual credit
4) What is the evidence base that offering flexible pathways to a diploma contributes to the CCCR of all students,	CCCR, CCCR indicators, CCCR success, special and vulnerable populations, high school graduation requirements, graduation/diploma pathways, flexible graduation/diploma pathways

Driving question	Search terms and combinations of terms
including members of special and vulnerable populations?	
5) What is the evidence base on DEI-informed policies, actions, behaviors, and/or practices that result in or promote student success (i.e., academic, cognitive, civic, social–emotional, and economic success)?	DEI, DEI policies, diversity + equity + inclusion, student outcomes, academic achievement, high school graduation rate, high school practices, CCCR, CCCR indicators, CCCR success, special and vulnerable populations, high school graduation requirements, graduation/diploma pathways, flexible graduation/diploma pathways

Additional Parameters and Considerations

The team made its best effort to simply apply the inclusion criteria and synthesize the findings as relevant to indicators of college, career, and civic readiness and success in college, career, and civic life. In some cases, this synthesis was extensive because of the volume of research under a given topic. Larger volumes of research and comprehensive studies presented a challenge when attempting to reflect concise syntheses because, inevitably, all details of a study could not be reflected in the synthesis. Consequently, the driving question summaries of relevant findings do not include nuanced detail about sample, design, or procedures but instead include a summary of findings that are most germane to the specific driving question. The endnotes for the literature review section of this report provide a citation for each referenced study to allow for further review and consideration.

The exploratory nature of the process was most applicable to driving question 1 because this question was most open-ended in nature. In the absence of a fixed definition of college, career, and civic life success, the research team culled broad descriptions of success from the included research base. The team then identified the CCCR indicators and how those indicators were associated with students' success in college and career.

For driving questions 2 through 4, the crux of each question was contextualized by either graduation requirements, high school experiences that are not graduation requirements, or graduation pathways. Consequently, these syntheses were inherently a bit more constrained. The search for research related to these questions did not impose a fixed definition of college, career, and civic readiness and instead used outcomes and measures related to readiness (e.g., high school graduation, student achievement, grade point average, and persistence).

The team also considered the scope, generalizability, and limitations of included studies. Some included studies used longitudinal, national samples; others used multiple or individual state samples; still others used district samples. Other included studies were randomized control trials, and still others were case studies. Inclusion of all these details would result in a synthesis that may limit this review's usefulness as an exploratory synthesis.

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Driving Question 1: What is the evidence base on the relationship between college, career, and civic readiness (CCCR) indicators and students' success in college, career, and civic life?

During the review of the literature, 33 studies were identified that were aligned primarily with driving question 1. When summaries of those studies were examined more closely, 11 were removed from the analysis because they did not have outcomes related to postsecondary or career success, and 7 were removed from consideration because they aligned with a different driving question or were found to be not relevant. Of these 7, 1 study was removed because primary alignment was better suited under another driving question. Four studies were about unrelated topics: summer bridge, STEM degrees, distributed leadership, and high school reform. One study was removed because it addressed trends in intervention data only. One study was removed because it had a solely formative focus on teacher perceptions of a reform's effectiveness and changes in perception. In the end, 15 separate studies were included in the synthesis of driving question 1.

Given the nature of driving question 1—an exploratory review of the relationship between college, career, and civic life success and readiness—it was conceivable that any included study about graduation requirements could speak to this relationship. Consequently, some of the studies in the driving question 1 synthesis also appear in the syntheses of other driving questions.

Driving Question 2: Which graduation requirements have an evidence base indicating they contribute to the CCCR of all students, including members of special and vulnerable populations?

During the initial phase literature review, 22 studies were identified as being aligned with driving question 2. When summaries of those studies were examined more closely, 9 were removed from consideration under driving question 2. Of those 9, 4 studies were determined to be more closely aligned with other driving questions, and 5 studies were excluded after being determined to be unrelated to graduation measures.

Summaries of the remaining 13 studies were then analyzed for content and findings. Three primary topic areas emerged from the analysis under the umbrella of driving question 2: credit requirements for math and/or science, assessments required for graduation, and rigorous coursework. Deeper review and analysis led to the latter topic, rigorous coursework, being divided into two subcategories: rigorous coursework that is required of all students in each school or district or throughout the state (such as the Michigan Merit Curriculum) and rigorous coursework that is available or encouraged, but not required, for graduation (e.g., career–technical education (CTE), dual credit courses, advanced placement classes, etc.). The latter subcategory, nonrequired rigorous coursework, was determined to be more appropriately aligned with driving question 3, and the relevant 2 studies were moved to consideration under

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that driving question. As a result, the final number of studies included in the analysis of driving question 2 is 11.

Driving Question 3: Which additional high school experiences and opportunities (i.e., those not traditionally required for graduation), including assessments, have an evidence base indicating they contribute to the CCCR of all students, including members of special and vulnerable populations?

During the initial phase of the literature review, 26 studies were preliminarily identified as being aligned with driving question 3. When summaries of those studies were examined more closely, 8 studies were removed from consideration. Of these studies, 3 focused on post–high school interventions and outreach, 2 did not include academic-related factors or measures, 1 examined adult collaborative partnerships and not student activity or outcomes, 1 lacked sufficient information about the intervention, and 1 had been misclassified because it did not address pathways to graduation.

Summaries of the remaining 18 studies were analyzed for content and findings. At this point, an additional 3 studies were excluded because they did not provide sufficient information on the intervention and/or evidence of impact. As a result, the final number of studies included in the analysis of driving question 3 is 15.

Driving Question 4: What is the evidence base that offering flexible pathways to a diploma contributes to the CCCR of all students, including members of special and vulnerable populations?

During the initial phase of the literature review, few studies emerged that met the inclusion criteria for driving question 4. The majority of research on pathways to a diploma was not published in peer-reviewed journals or did not meet What Works Clearinghouse standards. Research on pathways that met the inclusion criteria examined other "pathway" topics, including career pathways, college pathways, or content/subject pathways.

Upon completion of the initial review, only 3 studies were identified with primary alignment with driving question 4. Five additional studies were identified with secondary alignment with driving question 4. Upon closer review of these 8 studies, however, it was determined that 1 had been misclassified, 1 was about accelerated pathways to college, 2 were about Early College High Schools (which in the early stages of the literature review was considered under the pathway literature), and 2 were about content/subject pathways. Ultimately, only 2 included studies were relevant to the topic of pathways to a diploma.

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Driving Question 5: What is the evidence base on diversity, equity, and inclusion (DEI)–informed policies, actions, behaviors, and/or practices that result in or promote student success (i.e., academic, cognitive, civic, social–emotional, and economic success)?

During the initial phase of the literature review, 20 studies emerged that met the inclusion criteria for driving question 5. Upon further review and analysis, 7 studies were excluded because they were determined to be unrelated to graduation, did not include sufficient information regarding the outcome measures, or had limited sample sizes. As a result, the final number of studies included in the analysis of driving question 5 is 13.

Appendix B. State Graduation Requirements and International Scans

The nomenclature for categories of state graduation requirements varies by state. For the purposes of this scan, categories are as parallel as possible. For example, three states have policies for students who are displaced by natural or human disaster; the remaining four states have no such policy. Rather than having N/A in such categories, the category is omitted for those states.

Additionally, it is important to note the distinction between "alternative graduation pathways" and "multiple pathways offered." The first references alternative methods for students with extenuating circumstances to meet requirements while the second references a set of options for all students. States offer a varied number of each of these pathways. As well, students from military families have alternative options to meet graduation requirements due to their mobility. Five states participate in the Interstate Compact on Educational Opportunity for Military Children, as does New York. Two states have their own policies for these children. Finally, states vary in their use of terms, such as credits/units/hours/years. For purposes of this scan, respective state terms have been maintained. Therefore, the reader is advised to keep this in mind while interpreting state graduation policy.

California

High school exit requirements

- The California Department of Education (CDE) requires courses[1] in English, math, social studies, science, physical education, foreign language, and visual and performing arts or career technical education (CTE).

- The California Education Code establishes a minimum set of requirements for graduation from California high schools. The requirements should be viewed as minimums and support regulations established by local governing boards.

Course(s) and credit(s)

- Most California public high schools require the equivalent of between 22 and 26 yearlong courses.[2]

- Local school districts establish the total number of units required to earn a California high school diploma.

State-mandated high school graduation requirements:[3]

- English (3 years)

- mathematics (2 years, including algebra), beginning 2003/04

- social studies (3 years of history and social studies, including 1 year of U.S. history and geography; 1 year of world history, culture, and geography; 1 semester of American government and civics; and 1 semester of economics)

- science (2 years, including Biological and Physical Sciences)

- foreign language, visual and performing arts (1 year of either visual and performing arts, foreign language, or career technical education)

- physical education (2 years)

Requirements for freshman admission to University of California (UC) and California State University (CSU):[4]

- English (4 years of approved courses)

- mathematics (3 years, including algebra, geometry, and intermediate algebra; 4 years recommended for UC admission)

- social studies (2 years, including one year of U.S. history or U.S. history and government and one year of other approved social science [CSU]; 2 years of history/social science, including 1 year of U.S. history or one-half year of civics or American government, and 1 year of world history, cultures, and geography [UC])

- science (2 years with lab required, chosen from biology, chemistry, and physics; 3 years recommended [UC]; 2 years, including 1 year of biological science and 1 year of physical science with lab [CSU])

- foreign language (2 years in same language required [UC and CSU]; 3 years recommended [UC])

- visual and performing arts (1 year of visual and performing arts chosen from the following: dance, drama/theater, music, or visual art [UC and CSU])

- electives (1 year [UC and CSU])

From the CDE website:

- The UC and CSU systems have established a uniform minimum set of courses required for admission as a freshman. The UC maintains public "a–g" course lists that provide complete information about the high school courses approved for admission to the university. In addition to the required courses, California public universities have other requirements for admission as a freshman.[5]

- Two semester courses equal one yearlong course. A yearlong course constitutes one Carnegie unit.[6]

- Semester courses constitute one half of a Carnegie unit, but most school districts award 10 local units for each Carnegie unit and 5 local units for a semester course.[7]

- These districts require between 220 and 260 local units for high school graduation. However, local school districts vary in how local credit units are awarded for 1 year of study.[8]

Alternative graduation pathways—certificate of attainment

The Education Code allows a district to award certificates or documents of achievement or completion to students with individualized education programs (IEPs) who are unable to meet all state and local graduation requirements.

From the California Legislative Education Code:[9]

A local educational agency may award an individual with exceptional needs a certificate or document of educational achievement or completion if the requirements of subdivision (a), (b), or (c) are met:

A. The individual has satisfactorily completed a prescribed alternative course of study approved by the governing board of the school district in which the individual attended school or the school district with jurisdiction over the individual and identified in their individualized education program.

B. The individual has satisfactorily met their IEP goals and objectives during high school as determined by the IEP team.

C. The individual has satisfactorily attended high school, participated in the instruction as prescribed in their IEP, and has met the objectives of the statement of transition services.

Alternative graduation pathways—students from active military families

From the California Education Code:[10]

A school district shall exempt a pupil who is a child of a military family who transfers between schools any time after the completion of the pupil's second year of high school from all coursework and other requirements adopted by the governing board of the school district that are in addition to the statewide coursework requirements. This exemption applies unless the school district makes a finding that the pupil is reasonably able to complete the school district's graduation requirements in time to graduate from high school by the end of the pupil's fourth year of high school.

From the California Assembly Bill 365: Pupil instruction: Coursework and graduation requirement: Children of military families:[11]

If the school district determines that the pupil who is a child of a military family is reasonably able to complete the school district's graduation requirements within the pupil's fifth year of high school, the school district shall do all of the following:

- Inform the pupil of their option to remain in school for a fifth year to complete the school district's graduation requirements.

- Inform the pupil, and the person holding the right to make educational decisions for the pupil, about how remaining in school for a fifth year to complete the school district's graduation requirements will affect the pupil's ability to gain admission to a postsecondary educational institution.

- Provide information to the pupil about transfer opportunities available through the California Community Colleges.

- Permit the pupil to stay in school for a fifth year to complete the school district's graduation requirements upon agreement with the pupil if the pupil is 18 years of age or older, or, if the pupil is under 18 years of age, upon agreement with the person holding the right to make educational decisions for the pupil.

Multiple pathways offered

There are no flexible or experiential pathway requirements for graduation in California.

Career Technical Education Frameworks:[12]

The CDE and State Board of Education presented the California Career Technical Education Frameworks for public schools (grades 7–12) in a guide to implement the California Career Technical Education Model Curriculum Standards (2006). The guide is a how-to manual for

teachers, school and district administrators, curriculum specialists, and school boards in developing standards-based CTE pathways, courses, curricula, and assessments, demonstrating how curricula can be integrated to provide students with rigor and relevance in both academic and CTE knowledge and skills.

Time in learning

Students in charter schools are required to complete 175 days in the school year, and all public school districts must complete 180 days in the school year.[13] The required minutes for all grades in the state (both charter and noncharter) are as follows: K: 36,000; grades 1–3: 50,400; grades 4–8: 54,000; grades 9–12: 64,800.

Career planning component

There are no career planning graduation requirements in California.

From the CDE website:[14]

The California Career Pathways Trust (CCPT) (2013) was a competitive state grant for school districts, superintendents, charter schools, and community colleges to establish or expand career pathway programs in grades 9–14 (community college). These career pathway programs were intended to prepare students for high-skill, high-wage jobs in emerging and growing industry sectors in the local or regional economy. In exchange for receiving a CCPT grant, recipients were required to identify and set aside funding within their own budgets and obtain funding commitments from education and business partners sufficient to support the ongoing costs of the program for at least 2 years beyond the receipt of the state funding.

Social–emotional learning component

There are no social–emotional learning (SEL) requirements for graduation in California.

From the CDE website:[15]

The CDE has joined the Collaborating States Initiative (CSI), a group of states that share information, best practices, and promising tools and ideas in the interest of building strong SEL in schools across their states. The CSI is hosted by the Collaborative for Academic Social and Emotional Learning.

The CDE has convened a group of experts from different sectors of the education system to advise on the best ways to support SEL implementation. The following are products this team has developed:

- Social and Emotional Learning Guiding Principles[16]
- Social and Emotional Learning Resource Guide[17]

The CDE also provides guidance on Transformative Social and Emotional Learning (T-SEL).[18]

T-SEL conditions for thriving include the following:[19]

- Value positive relationships and belonging as conditions for learning, and promote educational climates that are welcoming, inclusive, culturally responsive, identity affirming, and empowering for all students, staff, families, and community partners.

- Cultivate affirming, caring relationships with families that engage them as partners in their child's learning, and create a climate that affirms the strengths, values, cultures, and lived experiences of students and families of diverse racial–ethnic identities.

- Involve educators, students, family, and community members representative of varied gender, racial, ethnic, and socioeconomic backgrounds in decision-making processes. Articulate shared language for T-SEL and its direct connection to whole-child development and learning.

- Adopt culturally informed and affirming policies that reinforce equity, inclusion, and anti-racism. Use T-SEL to address bullying, racism, and disparities to cultivate advocacy and decrease adversity.

- Demonstrate social and self-awareness as it relates to the demographics of the student body and community. Notice whose perspectives and modes of communication are dominant in meetings, discussions, school processes, and events, and seek out or elevate the voices of individuals from marginalized groups.

- Model and practice T-SEL competencies with all people, in all settings, and in all aspects of work to foster engagement and belonging, and regularly engage in reflective practice regarding implementation and modeling of T-SEL competencies.

Civic readiness

State Seal of Civic Engagement Criteria:[20]

The following five criteria are meant to provide local education agencies (LEAs) with a framework for making determinations about a student's qualifications aligned to the requirements to earn the State Seal of Civic Engagement (SSCE), based on their own local contexts. The criteria are written to ensure that no student is excluded from an opportunity to earn the SSCE based on academic ability, alternative school settings, or unique or unconventional expressions of civic engagement.

The student must

- be engaged in academic work in a productive way;

- demonstrate a competent understanding of United States and California constitutions; functions and governance of local governments; tribal government structures and organizations; the role of the citizen in a constitutional democracy; and democratic principles, concepts, and processes;

- participate in one or more informed civic engagement project(s) that address real-world problems and require students to identify and inquire into civic needs or problems, consider varied responses, take action, and reflect on efforts;

- demonstrate civic knowledge, skills, and dispositions through self-reflection; and

- exhibit character traits that reflect civic-mindedness and a commitment to positively impact the classroom, school, community, and/or society.

[1] California Department of Education. (n.d.). *High school graduation requirements–CalEdFacts*. https://www.cde.ca.gov/ci/gs/hs/cefhsgradreq.asp

[2] California Department of Education. (n.d.). *High school graduation frequently asked questions*. https://www.cde.ca.gov/ci/gs/hs/hsgrfaq.asp

[3] California Department of Education. (n.d.). *State minimum course requirements*. https://www.cde.ca.gov/ci/gs/hs/hsgrmin.asp

[4] California Department of Education. (n.d.). *Graduation requirements*. https://www.cde.ca.gov/ci/gs/hs/hsgrtable.asp

[5] California Department of Education. (n.d.). *Graduation requirements*. https://www.cde.ca.gov/ci/gs/hs/hsgrtable.asp

[6] California Department of Education. (n.d.). *High school graduation frequently asked questions*. https://www.cde.ca.gov/ci/gs/hs/hsgrfaq.asp

[7] California Department of Education. (n.d.). *High school graduation frequently asked questions*. https://www.cde.ca.gov/ci/gs/hs/hsgrfaq.asp

[8] California Department of Education. (n.d.). *High school graduation frequently asked questions*. https://www.cde.ca.gov/ci/gs/hs/hsgrfaq.asp

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Florida

High school exit requirements

Students entering grade 9 may choose one of the following options to earn a standard diploma:[1]

- 24-credit program (see credit requirements below)

- 18-credit, Academically Challenging Curriculum to Enhance Learning (ACCEL) option (3 electives required instead of 8; physical education and online course not required)

- Career and Technical Education (CTE) Pathway (at least 18 credits from a traditional 24-credit program; see CTE pathway below)

The Florida Department of Education requires the following passing scores on the Florida Standards Assessment (FSA) to receive a diploma:[2]

- FSA Grade 10 ELA Assessment passing score of 350

- FSA Algebra end-of-course (EOC) assessment passing score of 497

- Students may also meet the assessment requirements by earning a comparable score on the ACT, PSAT, or SAT. Florida has established specific scores for each assessment (for specific scores, see Table 3 in *Graduation Requirements for Florida's Statewide Assessments*).

FSA Guidelines:[3]

- Students can retake the Grade 10 FSA ELA Assessment or the FSA Algebra I EOC Assessment up to five times until they receive a passing score, and students can continue their high school education beyond the grade 12 year if they need additional instruction.

- Students who do not pass the Grade 10 FSA ELA Assessment in the spring of grade 10 may retest in fall and spring of grades 11 and 12. The number of opportunities to retake the FSA Algebra I EOC Assessment will depend on the grade students are in when they first take the test since it is taken at the conclusion of the course.

Course(s) and credit(s)

The following courses/credits are required by the State of Florida for a standard diploma:[4]

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- four ELA courses (ELA 1, 2, 3, 4) or ELA honors, Advanced Placement (AP), Advanced International Certificate of Education (AICE), International Baccalaureate (IB), and dual enrollment courses may satisfy the requirement

- four math courses (including Algebra I and geometry; industry certifications that lead to college credit may substitute for 2 credits other than Algebra I and geometry; computer science credit may substitute for 1 math credit other than Algebra I and geometry)

- three science courses (including Biology I and two courses with a laboratory component; industry certifications that lead to college credit may substitute for 1 credit other than Biology I; computer science credit may substitute for 1 science credit other than Biology I)

- three social studies courses (including 1 credit in world history, 1 credit in U.S. history, 0.5 credit in U.S. government, and 0.5 credit in economics)

- one course in fine and performing arts, speech, debate, or practical arts

- one physical education course

- eight electives

- one online course (a course taken in grade 6, 7, or 8 offered by the FL Virtual School; a high school or online dual enrollment course fulfills the online course requirement)

Alternative graduation pathways—certificate of attainment

A student who earns the required 24 credits or the required 18 credits but fails to pass the assessments required or achieve a 2.0 grade point average shall be awarded a certificate of completion in a form prescribed by the State Board of Education.[5]

A student who is otherwise entitled to a certificate of completion may elect to remain in high school either as a full-time student or a part-time student for up to 1 additional year and receive special instruction designed to remedy their identified deficiencies.

Alternative graduation pathways—students from other states or territories

Students who enter a Florida public school at grade 11 or 12 from out of state or out of country are not required to spend additional time in a Florida public school to meet the high school course requirements if the students have met all requirements of the school district, state, or country from which they are transferring.[6]

To receive a standard high school diploma, a transfer student must meet the following requirements:

- earn a 2.0 grade point average and meet the standard 24-credit requirements.

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- students who earn the required 24 credits for the standard high school diploma except for passage of any must-pass assessments or an alternate assessment by the end of grade 12 must be provided the following learning opportunities:
    - participation in an accelerated high school equivalency diploma preparation program during the summer
    - upon receipt of a certificate of completion, permission to take the College Placement Test and be admitted to developmental education or credit courses at a Florida College System institution, as appropriate
    - participation in an adult general education program for such time as the student requires to master English, reading, mathematics, or any other subject required for high school graduation. A student attending an adult general education program shall have the opportunity to take any must-pass assessments an unlimited number of times to receive a standard high school diploma.

A student who has been enrolled in an ESOL program for less than 2 school years and has met all requirements for the standard high school diploma except for passage of any must-pass assessments or alternate assessment may receive immersion English language instruction during the summer following their senior year.

A student receiving such instruction is eligible to take the required assessment or alternate assessment and receive a standard high school diploma upon passage of the required assessment or alternate assessment.

Alternative graduation pathways- students from active military families

Florida follows The Interstate Compact on Educational Opportunity for Military Children (the Compact). The Compact addresses the challenges facing military children as a result of their frequent relocations. It establishes a framework for uniform treatment of military children as they transfer between school districts and states. The Compact outlines the requirements that school districts must adhere to when enrolling and educating children of active-duty military personnel.[7]

Multiple pathways offered

There are no flexible or experiential pathway graduation requirements in Florida.

Academically Challenging Curriculum to Enhance Learning (ACCEL)[8] are educational options providing academically challenging curricula or accelerated instruction to public school students K–12.

ACCEL options offered are whole-grade and midyear promotion, subject-matter acceleration, virtual instruction in higher grade–level subjects, and the Credit Acceleration Program (CAP).[9] Some additional options include enriched science, technology, engineering, and mathematics

Florida

coursework; flexible grouping; advanced academic courses; combined classes; self-paced instruction; rigorous industry certifications; and work-related internships/apprenticeships.

CTE pathway:[10]

To earn a standard high school diploma through this pathway option, a student must achieve the following:

- successfully complete a minimum of 18 credits

- have a minimum, cumulative GPA of at least a 2.0 on a 4.0 scale

- meet these requirements:

  - 4 English credits (including the statewide grade 10 Reading assessment or the grade 10 ELA assessment, or earn a concordant score)

  - 4 math credits (including the statewide Algebra I EOC assessment, or earn a comparative score)

  - 3 science credits

  - 3 social studies credits

- complete 2 credits in CTE. The courses must result in a program completion and an industry certification.

- complete 2 credits in work-based learning programs. A student may substitute up to 2 credits of electives, including 0.5 credit in financial literacy, for work-based learning program courses to fulfill this requirement.

Apprenticeship programs:[11]

From Florida Department of Education website:

"Registered apprenticeship programs enable employers to develop and apply industry standards to training programs for registered apprentices that can increase productivity and improve the quality of the workforce. Apprentices who complete registered apprenticeship programs are accepted by the industry as journey workers. By providing on-the-job training, related classroom instruction, and guaranteed wage structures, employers who sponsor apprentices provide incentives to attract and retain more highly qualified employees and improve productivity. Certifications earned through registered apprenticeship programs are recognized nationwide."

Time in learning

Hourly equivalent to 180-day school year[12]

Florida

Each school district shall

- operate all schools for a term of 180 actual teaching days or the hourly equivalent as below:

  - grades K–3 or in an authorized preK exceptional program—no fewer than 720 net instructional hours

  - grades 4–12—no fewer than 900 net instructional hours

Career planning component

There are no career planning graduation requirements in Florida.

The Florida Virtual Campus (FLVC) is funded by the Florida Legislature and administered by the University of West Florida.

- The FL Counseling for Future Education Handbook[13] is a comprehensive academic advising resource for school counselors and advisors to guide secondary student planning for postsecondary education in Florida.

- The handbook includes information about middle and high school progression and promotion requirements; career planning; Florida's college readiness initiatives; acceleration mechanisms; diploma designations; credit-by-examination; financial aid; and updated postsecondary programs, degrees, and requirements.

The FLVC is a statewide provider of innovative educational services for Florida's K–20 community. Working collaboratively with the state's 12 public universities, 28 public colleges, K–12 school districts, and other partners, FLVC provides services that help students succeed in school and in life after graduation. Those services include:

- an array of academic advising, career readiness, and distance learning resources for students and parents, available through the FloridaShines website;[14]

- support for the academic libraries at the state's public colleges and universities, including a discovery tool used by students and faculty to access library resources and an integrated library management system used by library staff; and

- tools and training materials used by academic advisors, distance learning staff, librarians, and other staff at Florida's public colleges and universities to provide services to their students and faculties.

Social–emotional learning component

There are no social–emotional learning (SEL) graduation requirements in Florida.

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The Florida Department of Education uses the CDC's Whole School, Whole Community, Whole Child Model.[15] This model[16] uses the following school components to keep youth safe, engaged, supported, and challenged:

- health education

- physical education and activity

- nutrition environment and services

- health services

- counseling, psychological, and social services

- social and emotional climate

- physical environment

- employee wellness

- family engagement

- community involvement

Civic readiness

In 2017, a state law went into effect for a college-level civic literacy requirement.[17]

Florida Civic Literacy Test:[18] High school students are encouraged to complete the civic literacy high school exam, which is also used at the college level. Starting in 2021/22, students must complete 1 credit in U.S. History and 0.5 credit in U.S. Government for a Standard Diploma. Students enrolled in U.S. Government are required to participate in the Florida Civics Literacy Exam, and those who earn a passing score on the assessment will be exempt from the postsecondary civic literacy assessment.[19] District results from the high school civic literacy test are provided to the Florida Department of Education.

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Indiana

High school exit requirements

Public Law 192-2018 amended the graduation requirements for students in the 2019 through 2022 cohorts, requiring them to pass the graduation qualifying exam (GQE) or successfully complete a graduation pathway. Beginning with the class of 2022, students must satisfy all three of the following Graduation Requirements (High School Diploma, Learn and Demonstrate Employability Skills, and Postsecondary-Ready Competencies) by completing one of the associated Graduation Pathway Options under each requirement:[1]

1. *High School Diploma*: Meet the statutorily defined diploma credit and curricular requirements (see the Course(s) and Credit(s) section below) in one of the following options:

   - General diploma

   - Core 40 diploma

   - Core 40 with Academic Honors

   - Core 40 with Technical Honors

2. Learn and Demonstrate Employability Skills: Learn and demonstrate employability skills standards through locally developed programs. Employability skills standards may include Indiana's Employability Skills Benchmarks or other comparable character development benchmarks, such as mindsets, social and emotional skills, and work ethic, and may be demonstrated through one of three pathways:

   - **Project-Based Learning Experience**—Students complete and publicly present a project that is based on the Gold Standard PBL Essential Design Elements.[2]

   - **Work-Based Learning Experience**—Students apply classroom theories to practical problems, explore career options, and pursue personal and professional goals. Qualifications for a work-based learning experience are based on the National Governors Association's State Strategies to Scale Work-Based Learning.[3]

   - **Service-Based Learning Experience**—Students complete a project that applies academic and real-world skills to create meaningful, youth-led experiences with community partnerships. Indiana's principles of service learning are based on the National Youth Leadership Council's K–12 Service-Learning Standards for Quality Practice.[4]

3. *Postsecondary-Ready Competencies*: Complete at least one of the following:

   - Honors Diploma

   - SAT

- ACT

- ASVAB

- Stats and Industry-Recognized Credential or Certification

- Federally recognized apprenticeship

- Career–Technical Education (CTE) Concentrator—Complete 6 credits in a sequence of courses that have been locally developed and then approved by the State Board of Education; CTE Concentrators must be aligned with careers that are high wage and/or high demand and must lead to an industry-recognized credential, technical certification, stackable credits for an associate or bachelor degree, or other meaningful postsecondary education/training and/or employment opportunities; and applications for CTE Concentrators must identify the course titles and codes titles that comprise the pathway and relate to the competency[5]

- AP/IB/Dual Credit/Cambridge International courses or CLEP exams

- Locally created pathway as approved by the State Board of Education[6]

Course(s) and credit(s)

The Core 40 diploma has been required for high school graduation in Indiana since 2007. There are 40 total state credits required; however, some schools may have additional local graduation requirements that apply to all students.

- English/Language Arts: 8 credits

  - Including a balance of literature, composition, and speech

- Mathematics: 6 credits (in grades 9–12)

  - 2 credits: Algebra I

  - 2 credits: geometry

  - 2 credits: Algebra II

  - Or complete Integrated Math I, II, and III for 6 credits

  - Students must take a math or quantitative reasoning course each year in high school

- Science: 6 credits

  - 2 credits: Biology I

  - 2 credits: Chemistry I or Physics I or integrated chemistry-physics

  - 2 credits: any Core 40 science course

- Social Studies: 6 credits

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- 2 credits: U.S. history

- 1 credit: U.S. government

- 1 credit: economics

- 2 credits: world history/civilization or geography/history of the world

- Flex credits: 5 credits must come from one of the following:

    - additional elective courses in a College and Career Pathway

    - courses involving workplace learning such as Cooperative Education or Internship courses

    - high school/college dual credit courses

    - additional courses in language arts, social studies, mathematics, science, world languages or fine arts

- Physical education: 2 credits

- Health and wellness: 1 credit

- Electives: 6 credits

Alternative graduation pathways—certificate of attainment

A student on an Individualized Education Program (IEP) can earn a Certificate of Completion through a course of study that aligns the curriculum with grade-level standards while meeting the individual goals and transition needs stated in the student's IEP.

Alternative graduation pathways—students from active military families

Indiana follows The Interstate Compact on Educational Opportunity for Military Children (the Compact). The Compact addresses the challenges facing military children as a result of their frequent relocations. It establishes a framework for uniform treatment of military children as they transfer between school districts and states. The Compact outlines the requirements that school districts must adhere to when enrolling and educating children of active-duty military personnel.[7]

Multiple pathways

See *High school exit requirements* above.

Time in learning

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Indiana's IC[i] 20-30-2-2 requires an hourly equivalent to 180 instructional days, as follows:[8]

- The instructional day for grades 1–6 consists of at least 5 hours of instructional time.
- The instructional day for grades 7–12 consists of at least 6 hours of instructional time.

Career planning component

Senate Enrolled Act 297 requires each school to include interdisciplinary employability skills standards in the school's curriculum. The standards are established by the Indiana Department of Education in conjunction with the Department of Workforce Development and approved by the State Board of Education.[9] The standards are based on the National Employability Skill Standards and are arranged within four key areas: Mindsets, Work Ethic, Learning Strategies, and Social and Emotional Skills.

Social–emotional learning component

The state has defined a set of PK–12 Social–Emotional Learning (SEL) competencies based on a neurodevelopmental and culturally responsive framework. Those competencies include mindset, collaboration, critical thinking, connection, insight, regulation, and sensory-motor integration.[10] R2CC's scan of Indiana's documents found no SEL component in the state's graduation requirements other than what is represented in the Postsecondary-Ready Competencies.

Civic readiness

Social studies standards and benchmarks include explaining the importance of being a responsible citizen of one's community, the state, and the nation; identifying people in one's community and the state who exhibit the characteristics of good citizenship; and examining how citizens can participate responsibly and effectively in the civic and political life of the United States (high school U.S. Government).[11]

Schools are required to offer a 1-year course in "the historical, political, civic, sociological, economic, and philosophical aspects of the constitutions of Indiana and of the United States."

Within the 2 weeks preceding a general election, for all students in grades 6–12, each public school and nonpublic school must provide five full recitation periods[ii] of class discussion concerning the system of government in Indiana and in the United States, methods of voting, party structures, election laws, and the responsibilities of citizen participation in government and in elections. A student may not receive a high school diploma unless the student has completed a two-semester course in American history.[12]

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[i] Indiana Code

[ii] Recitation classes allow students to review and learn the material in small groups.

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Indiana

Massachusetts

High school exit requirements[1]

The Massachusetts Department of Elementary and Secondary Education (DESE) requires that all students meet the Competency Determination (CD) Standard of earning a scaled score of at least 240 on the grade 10 English language arts and mathematics Massachusetts Comprehensive Assessment System (MCAS) and one of the science and technology/engineering tests or earn a scaled score of between 220 and 238 on these tests and fulfill the requirements of an Educational Proficiency Plan.[2] Additionally, students must meet all locally determined graduation requirements, which, by state legislation, must include American history, civics, and physical education courses.

Course(s) and credit(s)

Course requirements and credit requirements are established by local education agencies (LEAs), though instruction in American history, civics, and physical education is required by the state.[3] The state recommends MassCore as the course of study. MassCore includes the following:[4]

- English (4 years)
- math (4 years)
- lab-based science (3 years)
- history (3 years)
- foreign language (2 years)
- arts (1 year)
- five additional "core" courses (e.g., business education, health, technology, career and technical education)

Alternative graduation pathways—certificate of attainment

Students who have not met CD standards may be eligible to receive a Certificate of Attainment if they have completed local graduation requirements. The Certificate of Attainment is not equivalent to a high school diploma. Instead, it is intended to open up educational, job training, and employment options for students.[5] To receive a Certificate of Attainment, students must

- maintain at least 90 percent attendance during their senior year of high school,

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- take annual courses in the subject area in which the student did not achieve a passing score on MCAS (these courses should help students achieve the Curriculum Framework standards and CD), and

- participate annually in the MCAS Alternate Assessment in each subject area in which the student did not achieve a passing score (if applicable).

Alternative graduation pathways—students from active military families

Students who are from active military families may submit alternative evidence to demonstrate CD, such as the following:[6]

- a portfolio of student work samples demonstrating the level of performance required for graduation

- other evidence demonstrating student performance and other relevant information (e.g., course transcripts from current and previous schools, records of standardized test scores, academic awards, college acceptance letters)

Students are also required to submit a form called the *Request to Submit Alternative Evidence for a High School Student in a Military Family to Earn a Competency Determination*.

Multiple pathways offered

There are no flexible or experiential pathway requirements for graduation in Massachusetts. Student participation is locally governed and may be determined on a student-to-student basis.

Dual Enrollment

- As of 2018, dual enrollment participation had increased to 2,318 students.[7]

- The Massachusetts Commonwealth Dual Enrollment Partnership allows high school students to earn credit for college-level courses.[8]

Early College

- In 2017, the Boards of Elementary Education and Higher Education established an Early College Program Designation.[9]

- In 2021, 23 programs had received official designation status, with around 2,900 students enrolled in the 2020/21 school year and projections for 4,500 students in 2021/22.[10]

Career Vocational Technical Education

- Students in this program learn technical, academic, and employability skills within 44 frameworks in 11 career clusters, based on occupations that are in demand by the state.[11]

Work-Based Learning

- Connecting Activities is a DESE initiative that provides structured, work-based learning experiences for students.

- Partnerships are established through 16 local MassHire Workforce Boards to connect schools and businesses.[12]

Virtual Learning

- Commonwealth Virtual Schools are public schools in which instruction is delivered entirely online.

- Massachusetts has two K–12 virtual schools: Greater Commonwealth Virtual School, formally known as Greenfield Commonwealth Virtual School, and TEC Connections Academy Commonwealth Virtual School.[13]

Time in learning

The school year is scheduled for 185 days, with a requirement of at least 180 days.[14] The required hours of structured learning time for each division are as follows: 900 for elementary, 990 for secondary, and 425 for kindergarten.

Career planning component

There are no career planning requirements for graduation in Massachusetts.

My Career and Academic Plan (MyCAP)[15] is a Massachusetts career-planning tool that is provided by DESE and includes professional development for districts. MyCAP maps the academic plan, personal and social skill attainment, and workplace-readiness activities required for postsecondary success.

Social–emotional learning component

There are no social–emotional learning (SEL) requirements for graduation in Massachusetts.

DESE and many Massachusetts districts commonly use the Collaborative for Academic, Social, and Emotional Learning (CASEL) definition and the five competencies of SEL.[16] Massachusetts is also part of CASEL's Collaborating States Initiative.[17]

SEL is also a core component of one of DESE's five strategic priorities.[18]

Civic readiness

In 2018, the Board of Elementary and Secondary Education adopted Chapter 296 of the Acts of 2018, An Act to Promote and Enhance Civic Engagement, a revised History and Social Science

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Curriculum Framework for implementation in 2019/20 that was designed to prioritize civics education across all grades.[19]

From Chapter 296 of the Acts of 2018: An Act to promote and enhance civic engagement:[20]

- Each public school serving students in grade 8 and each public high school shall provide no less than one student-led nonpartisan civics project consistent with the History and Social Science Curriculum Framework for each student. This might include

    - commonwealth civics challenge—available to grade 8 students to showcase student-led civics projects

    - Civics Project Trust Fund—assists with implementing history and social science and civics education, particularly in underserved communities, subject to appropriation

    - youth membership on municipal boards, committees, and commissions by the Secretary of State

    - nonpartisan high school voter challenge—encouraging students to register or preregister to vote and participate in municipal and state elections

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New Jersey

High school exit requirements

The New Jersey State Administrative Code (N.J.A.C.)[1] requires a minimum of 120 credits (each course is five credits) by content area, as described below under *Course(s) and credit(s)*. (School districts may establish additional requirements.)

The high school assessment graduation requirements that are in place for the class of 2022 are as follows:[2]

In English Language Arts/literacy, students must demonstrate proficiency by

- achieving proficiency on New Jersey Student Learning Assessments (NJSLA)/Partnership of Assessment of Readiness for College and Careers (PARCC**)** ELA 10;

- meeting a designated cut score on an alternative assessment, such as other high school–level NJSLA/PARCC assessments, the SAT, the ACT, or ACCUPLACER; or

- submitting, through the district, a student portfolio appeal to the New Jersey Department of Education.

In mathematics, students must demonstrate proficiency by

- meeting a designated cut score on NJSLA/PARCC Algebra I;

- meeting a designated cut score on an alternative assessment, such as other high school–level NJSLA/PARCC assessments, the SAT, the ACT, or ACCUPLACER; or

- submitting, through the district, a student portfolio appeal to the New Jersey Department of Education.

For the class of 2023 and beyond, students will take the New Jersey Graduation Proficiency Assessment in grade 11.[3]

Course(s) and credit(s)

State-mandated high school graduation requirements:[4]

- English Language Arts (20 credits)

- mathematics (15 credits, including Algebra I or the content equivalent, geometry or the content equivalent, and a third year of math that builds on the concepts and skills of algebra and geometry that prepare students for college and 21st century careers)

- science (15 credits with at least 5 credits in each of the following:

  - laboratory biology/life science or the content equivalent

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- a laboratory/inquiry-based science course [i.e., chemistry, environmental science, or physics]
- a laboratory/inquiry-based science course
- social studies (15 credits, including 5 credits in world history; integration of civics, economics, geography, and global content in all course offerings, N.J.S.A. 18A:35-1, and 18A:35-2)[5]
- financial, economic business, and entrepreneurial business literacy (2.5 credits)
- health, safety, and physical education (15 credits over 4 years)
- visual and performing arts (5 credits)
- world languages (5 credits)
- technology (integrated throughout all courses)
- 21st Century Life and Careers (5 credits)

Alternative graduation pathways—certificate of attainment

Students in special education, whose Individualized Education Programs (IEPs) specify an alternative way to demonstrate proficiencies, follow the graduation assessment requirements set forth in their IEPs.[6]

Alternative graduation pathways—students from active military families

New Jersey follows the Interstate Compact on Educational Opportunity for Military Children[7] (the Compact). The Compact establishes a framework for uniform treatment of military children as they transfer between school districts and states. It further outlines the requirements that school districts must adhere to when enrolling and educating children of active-duty military personnel.

Multiple pathways offered

Dual enrollment – from *2017 New Jersey Revised Statutes TITLE 18A – EDUCATION Section 18A:61C-10 – Dual enrollment agreement:*[8] "A school district with a high school may enter into a dual enrollment agreement with one or more public institutions of higher education."

Early College – The New Jersey Department of Education offers The Early College Model Program,[9] which is a competitive, 14-month, state-funded initiative open to LEAs and is intended to support an existing partnership between the LEA and at least one accredited 4-year institution of higher education (IHE) that allows participants to simultaneously complete requirements toward earning a regular high school diploma and also earn credits that are transferable to the IHE. The partnership must have been in existence for at least 5 years.

Pathways in Technology – The Pathways in Technology Early College High School (P-TECH) model[10] integrates high school and college coursework into a 6-year educational experience. Participating students earn their high school diploma and their Associate degree, graduating with the skills and credentials required for ongoing education and future careers.

Career–technology pathway – New Jersey has adopted the National Career Clusters Framework,[11] which includes the 16 career clusters and over 79 Career Pathways. Students can be participants, concentrators, or completers in a Career Technical Education (CTE) program.

Work-based learning pathway – The Work Experience Career Exploration Program (WECEP)[12] is a school-supervised or school-administered work experience program designed to permit students between the ages of 14 and 16 to explore career possibilities while they earn credit for both in-school related instruction and on-the-job experience. These programs must follow Department guidelines as approved by the U.S. Department of Labor, Employment and Training Administration, Wage and Hour Division.

Time in learning

Under *New Jersey Statutes Annotated (N.J.S.A.) 18A:7F-9*, schools must be in session for 180 days to receive state aid.[13] School days must consist of a minimum of 2.5 hours instruction time for kindergarten and 4 hours for all other grades.[i]

Career planning component[14]

The Career Readiness, Life Literacies, and Key Skills (known as standard 9 of the New Jersey Student Learning Standards) establish clear guidelines for what students need to know and be able to do in order to be successful in their future careers and to achieve financial independence. These 12 Career Ready Practices are researched practices that are essential to career readiness and outline the skills that all individuals need to have to be adaptable, reflective, and proactive in life and careers. Examples include the following:

- 9.1 Personal Financial Literacy: This standard outlines the important fiscal knowledge, habits, and skills that must be mastered in order for students to make informed decisions about personal finance. Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially secure, and successful careers.

- 9.2 Career Awareness, Exploration, and Preparation: This standard outlines the importance of being knowledgeable about one's interests and talents and being well informed about postsecondary and career options, career planning, and career requirements.

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[i] New Jersey has no minimum annual requirement for a number of instructional hours.

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- 9.3 Career and Technical Education: This standard outlines what students should know and be able to do upon completion of a CTE Program of Study.

Social–emotional learning component

There are no social–emotional learning (SEL) requirements for graduation in New Jersey.

New Jersey has an SEL framework based on the Collaborative for Academic, Social, and Emotional Learning (CASEL) five competencies.[15] The New Jersey Department of Education has a webpage dedicated to SEL[16] that includes SEL Professional Development Modules for Educators and resources for families as guidance.

Civic readiness[17]

Standard 9 (the focus of the information in the "Career planning component" section above) also includes life and career skills and is intended to foster a population that

- continually self-reflects and seeks to improve the essential life and career practices that lead to success;
- uses effective communication and collaboration skills and resources to interact with a global society;
- is financially literate and financially responsible at home and in the broader community;
- is knowledgeable about careers and can plan, execute, and alter career goals in response to changing societal and economic conditions; and
- seeks to attain skill and content mastery to achieve success in a chosen career path.

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Ohio

High school exit requirements

Class of 2022[1] students must pass the Ohio Graduation Test (OGT) in five subjects—math, reading, writing, science, and social studies—or complete one of the following three alternative pathways:[2]

- earn at least 18 graduation points on seven End-of-Course, Ohio State Tests (Algebra I or Integrated Math I, Geometry or Integrated Math II, American Government, American History, English I, English II, Biology)

- earn a remediation-free score on the ACT or SAT

- earn a "work-ready" score on the WorkKeys[3] assessment, which has three sections: applied math, graphic literacy, and workplace documents; students must earn a total of 14 points across the three WorkKeys sections[4]

In addition to meeting the curriculum and competency requirements listed above, students also must show they are prepared for college or careers. Ohio law created 12 seals for students to demonstrate academic, technical, and professional readiness for careers, college, the military, or self-sustaining professions. Each seal allows students to demonstrate knowledge and skills essential for future success. Students demonstrate readiness by earning at least two diploma seals, one of which must be state defined. Seals help students develop an array of critical skills that are valuable to them as they transition to the next steps after high school.

Course(s) and credit(s)

Students must complete the following courses to earn a diploma:

- 4 English courses

- 4 math courses (including Algebra II/Math III or the equivalent)*

- 3 science courses (including chemistry, physics, physical science, advanced biology, or other life science)*

- 3 social studies courses

- physical education

- health

- economics and financial literacy

- 2 semesters of fine arts (grades 7–12)

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- 5 elective courses (including world language, fine arts, business, career–technical education, family and consumer sciences, technology, agricultural education)

A student can choose to apply 1 credit in advanced computer science[5] to satisfy one unit of Algebra II/Math III or equivalent/advanced science (excluding Biology or Life Sciences).

Students must earn a state minimum of 20 credits consisting of the following:

- 4 English credits
- 4 math credits
- 3 science credits
- 3 social studies credits
- 0.5 physical education credit
- 0.5 health credit
- 5 electives (choice of language, fine arts, business, career–technical education, family and consumer science, technology, agricultural education)

Students in the class of 2023 and beyond[6] will be required to meet the following permanent requirements to graduate: (a) completing a minimum of 20 credits in core or elective courses; (b) demonstrated competency in math and English by passing the state's Algebra I and English II tests or through the College Credit Plus, career-focused activities, ACT or SAT scores, or military enlistment; (c) preparation for college or careers by earning two diploma seals.

Alternative graduation pathways—certificate of attainment

Criteria for Alternative Pathways to Graduation for students who have failed an OGT:[7]

- student obtains a score of 390 for the one OGT for which the student failed to reach the designated score (10 points less than the passing score)
- student has 97 percent school attendance rate in each of the last 4 years, excluding any excused absences
- student has not been expelled in the last 4 years
- student has a grade point average of at least 2.5 out of 4.0 or its equivalent as designated in rules adopted by the state board of education (in the subject area of the failed OGT)
- student completes state high school curriculum requirements (in the subject area of the failed OGT); student must also complete school district graduation requirements to obtain a diploma

Ohio

- student has taken advantage of any intervention programs provided by the school district or school (in the subject area of the failed OGT)
- student holds a letter recommending graduation from each of the student's high school teachers (in the subject area of the failed OGT) and from the student's high school principal

Alternative graduation pathways—students from active military families

Ohio follows the Interstate Compact on Educational Opportunity for Military Children (the Compact). The Compact addresses the challenges facing military children as a result of their frequent relocations. It establishes a framework for uniform treatment of military children as they transfer between school districts and states. The Compact outlines the requirements that school districts must adhere to when enrolling and educating children of active-duty military personnel.[8]

Alternative graduation pathways

Students in the classes of 2021 and 2022 can meet the graduation requirement through one of the three alternative pathways:[9]

- earn at least 18 graduation points on seven End-of-Course Ohio State Tests (Algebra I or Integrated Math I, Geometry or Integrated Math II, American Government, American History, English I, English II, Biology)
- earn a remediation-free score on the ACT or SAT
- earn a "work-ready" score on the WorkKeys assessment and earn a 12-point, approved industry-recognized credential

Testing accommodations are available in different languages for students who are English language learners.

Multiple pathways offered

Dual enrollment/Early college:

The College Credit Plus Program gives students the opportunity to earn college and high school credit from public community colleges or universities at no cost. There may be limited costs for those attending private college or who are homeschooled. Each college or university has its own process and procedures and its own requirements for students to enroll in College Credit Plus.

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Work-based learning:

Opportunities are provided at a work site during or after school; however, "work-based learning hours should not occur during instructional time and should otherwise not overlap or interfere with teacher-led activities."[10] These experiences link academic, technical, and professional skills and require documentation of training, learning plans, and evaluation. Starting in grade 9, students work toward accumulating 250 hours of work-based learning aligned with their programs of study, or their student success or graduation plans. Students may accumulate hours through six types of work-based learning experiences: job site placement and internship, apprenticeship and pre-apprenticeship, remote or virtual placement, entrepreneurship, school-based enterprise, and simulated work environment.[11]

Virtual learning:

Ohio e-schools[12] are online public schools with oversight from community school sponsors and compliance with online learning standards[13] by iNACOL, now the Aurora Institute.[14]

Time in learning

Ohio schools and districts function on hour-based schedules, not day-based schedules;[15] the schedules consist of 1,001 hours for pupils in grades 7–12.[16]

Career planning component

Local boards of education must adopt a career advising policy.[17] The Ohio Department of Education provides examples of model advising policies and student success plans for districts.[18]

Social–emotional learning component

Social–emotional learning (SEL) is one of the four equal learning domains supporting Ohio's goals of preparing students for postsecondary life in the state's strategic plan, called "Each Child, Our Future."[19]

Civic engagement

In order to achieve a Social Science and Civic Engagement Honors Diploma,[20] a student must complete high-level coursework, college and career readiness tests, and real-world experiences. The following requirements must be met to achieve this Honors Diploma:

- 4 units of math
- 3 units of science (including 1 unit of advanced science)
- 5 units of social studies

- 3 units of one world language or no fewer than 2 units of each of two world languages studied

- 1 unit of fine arts

- 3 elective units with social sciences or civics focus

- minimum 3.5 grade point average

- minimum ACT score (27) or SAT score (1280)

- field experience documented in a portfolio specific to the student's area of focus

- comprehensive portfolio of work based on the student's field experience or a topic that is related to the student's area of focus

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Pennsylvania

High school exit requirements

Senate Bill 1095 of 2018 expanded the options for students to demonstrate postsecondary readiness, allowing students to use additional pathways that more fully illustrate college, career, and community readiness. For students graduating in 2022 and beyond, the following options exist to meet the statewide graduation requirement:[1]

- **Keystone Proficiency Pathway**: scoring proficient or advanced on each of the three Keystone Exams (algebra, literacy, biology)

- **Keystone Composite Pathway**: earning a passing composite score on the Keystone Exams while achieving at least a proficient score on at least one of the three exams and no less than a basic score on the remaining two

- **Evidence-Based Pathway**: successfully completing locally established grade-based requirements for academic content areas associated with each Keystone Exam on which the student did not achieve proficiency and demonstration of three pieces of evidence consistent with the student's goals and career plans

- **Alternate Assessment Pathway**: satisfying grade-based requirements for academic content areas of Keystone Exams in which proficiency was not achieved and attaining an established score on one of the assessments (SAT, PSAT, ACT, ASVAB, AP, IB) or Gold level on ACT WorkKeys assessment, completion of concurrent enrollment course or pre-apprenticeship program, or acceptance in an accredited 4-year nonprofit institution of higher education

- **Career and Technical Education (CTE) Pathway**: successfully completing locally established grade-based requirements for academic content areas associated with each Keystone Exam on which the student did not achieve proficiency *and* attainment of an industry-based competency certification[2] related to the CTE Concentrator's program of study. Alternatively, students can demonstrate a high likelihood of success on an approved industry-based competency assessment or readiness for continued meaningful engagement in the CTE Concentrator's program of study.[3]

Course(s) and credit(s)

Course requirements are established by each local education agency (LEA). Students must demonstrate proficiency or above as determined by the LEA in each of the following state standards:[4]

- English language arts (composition)
- mathematics

- science and technology
- environment and ecology
- civics and government

Credit requirements are established by LEAs.[5]

Alternative graduation pathways—certificate of attainment

From the Pennsylvania Code: Title 22: Chapter 4: High school graduation requirements: "Children with disabilities who satisfactorily complete a special education program developed by an IEP team under the Individuals with Disabilities Education Act and this part shall be granted and issued a regular high school diploma by the school district of residence, charter school (including cyber charter school) or area vocational-technical school (AVTS), if applicable. This subsection applies if the special education program of a child with a disability does not otherwise meet the requirements of this chapter."[6]

The Pennsylvania Code allows a district to award a regular high school diploma to any student with an Individualized Education Program (IEP) who is unable to meet all state and local graduation requirements.

Alternative graduation pathways—students from active military families

Pennsylvania follows the Interstate Compact on Educational Opportunity for Military Children (the Compact). The Compact addresses the challenges facing military children as a result of their frequent relocations. It establishes a framework for uniform treatment of military children as they transfer between school districts and states. The Compact outlines the requirements that school districts must adhere to when enrolling and educating children of active-duty military personnel.[7]

Alternative graduation pathways—students with extenuating circumstances

The Pennsylvania Department of Education released *Statewide High School Graduation Requirement Guidance*[8] in 2019, which states: "A chief school administrator may grant a waiver of the requirements for demonstrations of proficiency on the Keystone Exams or alternative graduation requirements for a student in grade 12 or to accommodate a student who experiences extenuating circumstances (e.g., serious illness, death in the student's immediate family, family emergency, frequent school transfers, transfer from out-of-state in grade 12). Each student granted a waiver under this subsection shall complete locally established, grade-based requirements for academic content areas associated with each Keystone Exam."

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Multiple pathways offered

There are no experiential or flexible pathway requirements in Pennsylvania. See the "High school exit requirements" section above for the multiple pathways to graduation that are available to students (Keystone Proficiency, Keystone Composite, Evidence-Based, Alternate Assessment, CTE).

Time in learning

The *Instructional Time and Act 80 Exceptions*[9] mandates that the school year be scheduled for 185 days, with at least 180 days of instruction. The required hours are as follows: 450 (half-time preK and kindergarten), 900 (full-time preK and kindergarten), and 990 (secondary).

Career planning component

Pennsylvania regulation (Chapter 339)[10] established the development and implementation of a comprehensive program of K–12 guidance services aligned with the Career Education and Work (CEW) standards and requires all school entities to integrate the CEW standards into the curriculum.[11] Pennsylvania requires all school districts to have a K–12 School Counseling Plan as part of Chapter 339.

Career readiness indicators are tracked by LEAs and submitted to the Pennsylvania Department of Education.

Social–emotional learning component

There are no social–emotional learning (SEL) requirements for graduation in Pennsylvania.

The Pennsylvania Department of Education has a webpage dedicated to SEL[12] that references competencies developed by the Collaborative for Academic, Social, and Emotional Learning.[13] The website also links to wellness and mental health, student-centered discipline, and restorative practices.

Civic readiness

Effective beginning in the 2019/20 school year, civics and government is included as a subject in which students must demonstrate proficiency on an assessment, as defined by Act 35 of 2018.[14] The Act outlines the following three pillars for quality civic education programs:[15]

- knowledge (a fundamental understanding of the structure of government and the processes by which government passes laws and makes policy)
- skills (abilities necessary to participate as active and responsible citizens in a democracy)

- actions (activities of citizens that include voting, participating in community meetings, volunteering, communicating with elected and appointed officials, and signing petitions)

Schools must also develop an assessment that incorporates "United States history, government and civics that includes the nature, purpose, principles and structure of United States constitutional democracy, the principles, operations and documents of United States government and the rights and responsibilities of citizenship."

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Table B1. State Data

	California	Florida	Indiana	Massachusetts	New Jersey	New York	Ohio	Pennsylvania	National Averages
Population	39,538,223 (2021)[124]	21,781,128 (2021)[125]	6,785,528 (2021)[126]	7,029,917 (2021)[127]	9,288,994 (2021)[128]	20,201,249 (2021)[129]	11,799,448 (2021)[130]	13,002,700 (2021)[131]	332,403,650 (2022)[132]
Unemployment	3.9% (2021)[133]	2.7% (2021)[134]	2.6% (2021)[135]	3.5% (2021)[136]	3.7% (2021)[137]	4.4% (2021)[138]	3.9% (2021)[139]	4.3% (2021)[140]	3.5% (2022)[141]
Number of public schools	10, 558 (2022)[142]	4,269 (2013)[143]	1,913 (2022)[144]	1,840 (2022)145	2,493 (2021)[146]	4,413 (2021)[147]	3,648 (2022)[148]	2,941 (2022)[149]	98,469 (2020)[150]
Number of LEAs	1,021 (2022)[151]	74 (2022)152	403 (2020)[153]	400 (2022)[154]	686 (2021)[155]	731 (2021)[156]	610 (2021)[157]	500 (2022)[158]	13,452 (2019)[159]
Number of students	5,892,240 (2022)[160]	2,471,240 (2022)[161]	1,112,611 (2020)[162]	911,529 (2022)[163]	1,360,916 (2022)164	2,512,973 (2021)[165]	1,610,541 (2021)[166]	1,689,532 (2022)[167]	49.5 million (2021)[168]
Number of teachers	319,004 (2019)[169]	176,537 (2013)[170]	79,120 (2020)[171]	77,556 (2022)[172]	129,689 (2021)[173]	212,296 (2021)[174]	107,488 (2021)[175]	121,854 (2020)[176]	3.0 million (2021)[177]
% FRPL	59.4 (2020)[178]	53.9 (2020)[179]	48.4 (2020)[180]	32.8 (2020)[181]	38.2 (2020)[182]	56.1 (2020)[183]	45.5 (2020)[184]	50.7 (2020)[185]	52.1 (2020)186
% Students with disabilities	14.3 (2018)	14.0 (2019)[187]	15.5 (2020)[188]	18.9 (2022)[189]	11.8 (2016)[190]	19.2 (2020)[191]	15.7 (2021)[192]	18.1 (2021)[193]	15 (2021)[194]
% English learner students	18.6 (2022)[195]	10.0 (2022)[196]	6.6 (2022)[197]	10.6 (2022)[198]	7.3 (2022)[199]	8.9% (2022)[200]	3.6 (2022)[201]	4.2 (2022)[202]	10.4 (2019)[203]
Graduation rate	83.6% (2021)[204]	90.1% (2022)[205]	85.8% (2021)[206]	89.8% (2021)[207]	90.6% (2021)[208]	86% (2021)[209]	85.3% (2021)[210]	86.7% (2021)[211]	88.1 (2021)[212]
NAEP Grade 8 Math	276 (2019)[213]	279 (2019)[214]	286 (2019)[215]	294 (2019)[216]	292 (2019)[217]	280 (2019)[218]	286 (2019)[219]	285 (2019)[220]	281 (2019)[221]
NAEP Grade 8 Reading	259 (2019)[222]	263 (2019)[223]	266 (2019)[224]	273 (2019)[225]	270 (2019)[226]	262 (2019)[227]	267 (2019)[228]	264 (2019)[229]	262 (2019)[230]

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[217] National Assessment of Educational Progress. (n.d.). *NAEP state profiles*. Retrieved September 15, 2022, from https://www.nationsreportcard.gov/profiles/stateprofile

[218] National Assessment of Educational Progress. (n.d.). *NAEP state profiles*. Retrieved September 15, 2022, from https://www.nationsreportcard.gov/profiles/stateprofile

[219] National Assessment of Educational Progress. (n.d.). *NAEP state profiles*. Retrieved September 15, 2022, from https://www.nationsreportcard.gov/profiles/stateprofile

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[230] National Assessment of Educational Progress. (n.d.). *NAEP state profiles*. Retrieved September 15, 2022, from https://www.nationsreportcard.gov/profiles/stateprofile

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Table B2. International Data

	Canada – Alberta	Canada – British Columbia	Canada – Ontario	England	Germany	Switzerland	New York
Key demographics[iv]	Population: 4,480,486 (2022)[231] Unemployment rate: 6.8% (2022)[232]	Population: 5,264,485 (2022)[233] Unemployment rate: 4.9% (2022)[234]	Population: 14,915,270 (2022)[235] Unemployment rate: 5.5% (2022)[236]	Population: 55,944,000 (2021)[237] Unemployment rate: 3.8% (2021)[238]	Population: 84,672,659 (2022)[239] Unemployment rate: 4.5% (2021)[240]	Population: 8,640,000 (2020)[241] Unemployment rate: 2.27% (2022)[242]	Population: 14,951,825 (2022)[243] Unemployment rate: 4.8% (July 2022)[244]
Schools and LEAs	1,570 public schools (2021)[245] 42 public school authorities[v] (2021)[246]	1,571 public schools (2021)[247] 60 school districts (2021)[248]	4,833 public and Catholic schools (2020/21)[249] 35 public school authorities (2020/21)[250]	16,791 primary schools, 3,458 secondary schools (2021)[251] 153 local education authorities (2021)[252]	32,228 public general (nonvocational) schools (2020/21)[253]	11,293 public primary, lower secondary, and upper secondary schools (2017/18)[254] 26 cantoral public school authorities[255]	4,411 public schools, 359 charter schools (2022)[256] 731 districts (LEAs) (2022)[257]

[iv] In the key demographics row, all unemployment figures are from March 2020, prior to the effects of the COVID-19 pandemic on employment.

[v] The total number of school authorities includes 13 charter, 98 Early Childhood Services Private Operator, 1 Federal, 31 Federal—First Nations, 42 public, 17 separate, 19 provincial, 4 Francophone, and 151 private school; school authorities in Canada depend on the province and may include school boards, school districts, school divisions, or district education councils. Council of Ministers of Education, Canada. (n.d.). Some facts about Canada's population. https://www.cmec.ca/299/Education-in-Canada-An-Overview/index.html

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	Canada – Alberta	Canada – British Columbia	Canada – Ontario	England	Germany	Switzerland	New York
Student and teacher population	483,578 public school students (2020/21)[258] 35,178 full-time public school teachers (2019)[259]	560,645 public school students (2018/19)[260] 33,466 full-time public school teachers (2017/18)[261]	2,025,258 public school students[vi] (2020/21)[262] 130,923.28 full-time public school teachers (2020/21)[263]	8,723,137 students in state-funded primary, secondary, and independent schools (2021)[264] 461,000 total FTE teachers (2021)[265]	8,380,767 students[vii] (2020)[266] 418,905 full-time general education[viii] teachers[267]	928,268 compulsory education students, including private schools (2015/16)[268] 91,219 full-time compulsory education teachers (2015/16)[269]	2,512,973 K–12 public school students (2022)[270] 212,296 public school teachers (2022)[271]

[vi] The total count of students for Ontario includes students in Junior Kindergarten through grade 12.

[vii] Germany identifies students as "pupils."

[viii] In this context, "general education" refers to nonvocational schools.

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	Canada – Alberta	Canada – British Columbia	Canada – Ontario	England	Germany	Switzerland	New York
Students in poverty	164,150 (16.6%) children living in poverty[ix] (2020)[272]	156,560 (18%) children living in poverty[x] (2020)[273]	500,000 (17.6%) children living in poverty[xi] (2010)[274]	3.9 million (27%) children in the UK are in relative low income and 3.3 million (23%) in absolute low income after housing costs (2021)[275]	2.8 million (21.3%) children living in poverty[xii] (2021)[276]	8.5% national poverty rate (approx. 722,000 people) (2020) 26.8% risk of poverty for single parents with children < 18 years and 24.4.% risk of poverty for couples with three children or more (2020)[277]	1,443,603 (57%) economically disadvantaged students (2020/21)[278]

[ix] For Alberta, the poverty rate is determined by the After-Tax Census Family Low Income Measure (CFLIM-AT).

[x] For British Columbia, the poverty rate is determined by the CFLIM-AT.

[xi] For Ontario, the poverty rate is determined by the CFLIM-AT.

[xii] In Germany, the at-risk-of-poverty rate reflects children up to 17 years old in households with a net equivalent income of less than 60 percent of the national median income.

	Canada – Alberta	Canada – British Columbia	Canada – Ontario	England	Germany	Switzerland	New York
Students with disabilities	105,085 (21%) school students with special education needs[xiii] (2020/21)[279]	180,423 (32%) public school students with special education needs[xiv] (2020/21)[280]	172,240 (8.4%) exceptional students[xv] (2019/20)[281]	325,618 (3.7%) of students in England with Education, Health, and Care (EHC) plan and 1,083,083 (12.2%) have special education needs (SEN) support (2021)[282]	653,321 (7.7%) students with special education needs, both in special needs schools and in general education[xvi] schools (2020)[283]	42,000 (4.8%) schoolchildren in Switzerland receive special education services (2018/19)[284]	459,039 (18%) students with disabilities (2020/21)[285]

[xiii] For Alberta, the total includes public school grades 1–12 students in the following categories: "Mild/Moderate/Gifted," "Severe," and "Multiple Sp Ed Code."

[xiv] For British Columbia, the total consists of public school students in the following categories: "Physically Dependent," "Deafblind," "Mod To Profound Intellectual Disability," "Phys Disability Or Chronic Health Impair," "Visual Impairment," "Deaf Or Hard Of Hearing," "Autism Spectrum Disorder," "Inten Behav Inter/Serious Mental Illness," "Mild Intellectual Disability," "Gifted," "Learning Disability," and "Moderate Behavior Support/Mental Illness."

[xv] In Ontario, an "exceptional" student is defined as "a pupil whose behavioural, communicational, intellectual, physical or multiple exceptionalities are such that he or she is considered to need placement in a special education program." Ontario Ministry of Education. (n.d.). *Highlights of regulation 181/98*. http://www.edu.gov.on.ca/eng/general/elemsec/speced/hilites.html. The total number refers to the combined number of students identified by the Identification, Placement, and Review Committee (IPRC) as exceptional pupils and the number of students not formally identified but receiving services.

[xvi] In Germany, general education schools are referred to as "ordinary" schools.

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	Canada – Alberta	Canada – British Columbia	Canada – Ontario	England	Germany	Switzerland	New York
Second language learners	Not available	68,982(12.3%) English Language Learner Students[xvii] (2018/19)[286]	Not available	1.6M[xviii] pupils (18%) who use English as an Additional Language (EAL) (2022)[287]	Programs for German as a second language were implemented after the 2001 PISA results were published. The number of students in these programs was not available.	Not available Switzerland is a multilingual nation; German, French, Italian, and Romansh are the official national languages. The main language of instruction depends on the canton, most of which offer second language instruction in one of the remaining national languages or English by a student's 5th year.[288]	240,035 (10%) English Language Learner Students (2020/21)[289]

[xvii] For British Columbia, this total is the number of students enrolled in English Language Learning (ELL) programs that received funding.

[xviii] Due to COVID-19, the percentage of English Language Teaching (ELT) students decreased by 93 percent in England/UK from 2019.

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	Canada – Alberta	Canada – British Columbia	Canada – Ontario	England	Germany	Switzerland	New York
PISA (mean scores, 2018)[xix]	**511 in Mathematics**[290] (84% of students achieved at least Level 2; 15% achieved Level 5 or 6)[291] **532 in Reading**[292] (88% of students achieved at least Level 2; 18% achieved Level 5 or 6)[293]	**504 in Mathematics**[294] (81% of students achieved at least Level 2; 14% achieved Level 5 or 6)[295] **519 in Reading**[296] (85% of students achieved at least Level 2; 16% achieved Level 5 or 6)[297]	**513 in Mathematics**[298] (84% of students achieved at least Level 2; 15% achieved Level 5 or 6)[299] **524 in Reading**[300] (87% of students achieved at least Level 2; 16% achieved Level 5 or 6)[301]	**502 in Mathematics**[302] (81% of students achieved at least Level 2; 13% achieved Level 5 or 6)[303] **504 in Reading**[304] (83% of students achieved at least Level 2; 11% achieved Level 5 or 6)[305]	**503 in Mathematics**[306] (79% of students achieved at least Level 2; 13% achieved Level 5 or 6)[307] **486 in Reading**[308] (79% of students achieved at least Level 2; 11% achieved Level 5 or 6)[309]	**519 in Mathematics** (83% of students achieved at least Level 2; 17% achieved Level 5 or 6)[310] **469 in Reading** (76% of students achieved at least Level 2; 8% achieved Level 5 or 6)[311]	**478 in Mathematics**[312] (73% of students achieved at least Level 2; 8% achieved Level 5 or 6)[313] **505 in Reading**[314] (81% of students achieved at least Level 2; 14% achieved Level 5 or 6)[315]

	Canada – Alberta	Canada – British Columbia	Canada – Ontario	England	Germany	Switzerland	New York
Course requirements	100 credits to obtain the Alberta High School Diploma 100 credits and study in French to receive the Alberta High School Diploma (Francophone)[316]	80 credits to obtain the British Columbia Certificate of Graduation (Dogwood Diploma) There are additional language requirements for French Immersion students.[317]	18 compulsory credits, including 1 from three different groups, and 12 optional credits to obtain the Ontario Secondary School Diploma[318]	N/A	N/A	11 years of compulsory education. Course requirements within those 11 years depend on the administering canton.[xx]	22 units of credits to obtain a New York State high school diploma
Graduation rate	85.8%[xxi] (2021)[319]	86%[xxii] (2021)[320]	89%[xxiii] (2021)[321]	N/A	86% (2021)[322]	89% (2021)[323]	86% (2021)

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[xxi] For Alberta, the graduation rate is for graduating within 5 years of entering grade 10.

[xxii] For British Columbia, the graduation rate is for graduating within 6 years of entering grade 8.

[xxiii] For Ontario, the graduation rate is for graduating within 5 years of entering grade 9.

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Appendix C. Five Guiding Questions

Original Five Guiding Questions (2019/20)

1. What do we want students to know and to be able to do before they graduate?

2. How do we want students to demonstrate such knowledge and skills?

3. How do you measure learning and achievement (as it pertains to the answers to #2 above) to ensure they are indicators of high school completion?

4. How can measures of achievement accurately reflect the skills and knowledge of our special populations, such as students with disabilities and English language learners?

5. What course requirements or examinations will ensure that students are prepared for college and careers or civic engagement?

Revised Five Guiding Questions (2021/22)

1. What do you want all students to know and be able to do before they graduate?

2. How do you want all students to demonstrate such knowledge and skills while capitalizing on their cultures, languages, and experiences?

3. How do you measure learning and achievement (as it pertains to the answers to #2 above) to ensure they are indicators of high school completion while enabling opportunities for ALL students to succeed?

4. How can measures of achievement accurately reflect the skills and knowledge of our special populations, such as students with disabilities and English language learners?

5. What course requirements or examinations will ensure that all students are prepared for college, careers, and civic engagement?

Student Forum

1. What skills and knowledge should all students have before graduating high school so they are prepared for college, career, and civic life?

2. What courses or assessments should all students have to successfully complete in order to graduate?

3. What are some ways students should be able to show that they have gained these skills and knowledge?

   - We know we all learn in different ways; how might students show what they've learned?

   - How can we ensure the ways in which we ask students to demonstrate their knowledge are equitable/fair for all students?

Higher Education and Business Communities Forum

1. What skills and knowledge should all students have before graduating high school so they are prepared for college, career, and civic life?

2. What courses or assessments should all students have to successfully complete in order to graduate?

3. What are some ways students should be able to show that they have gained these skills and knowledge?

   - We know we all learn in different ways; how might students show what they've learned?

4. How can measures of achievement accurately reflect the skills and knowledge of our special populations, such as students with disabilities and English language learners?

ThoughtExchange #1

What knowledge, skills, and/or experiences do you think are important for ALL students to have by the end of high school?
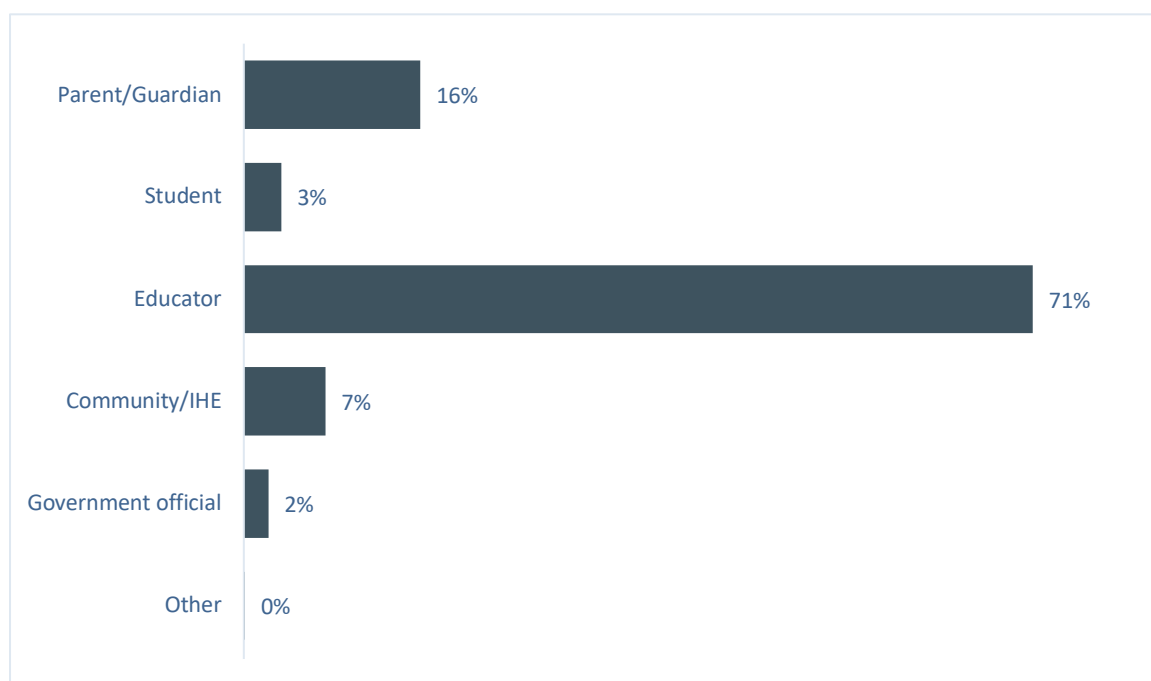
ThoughtExchange #2

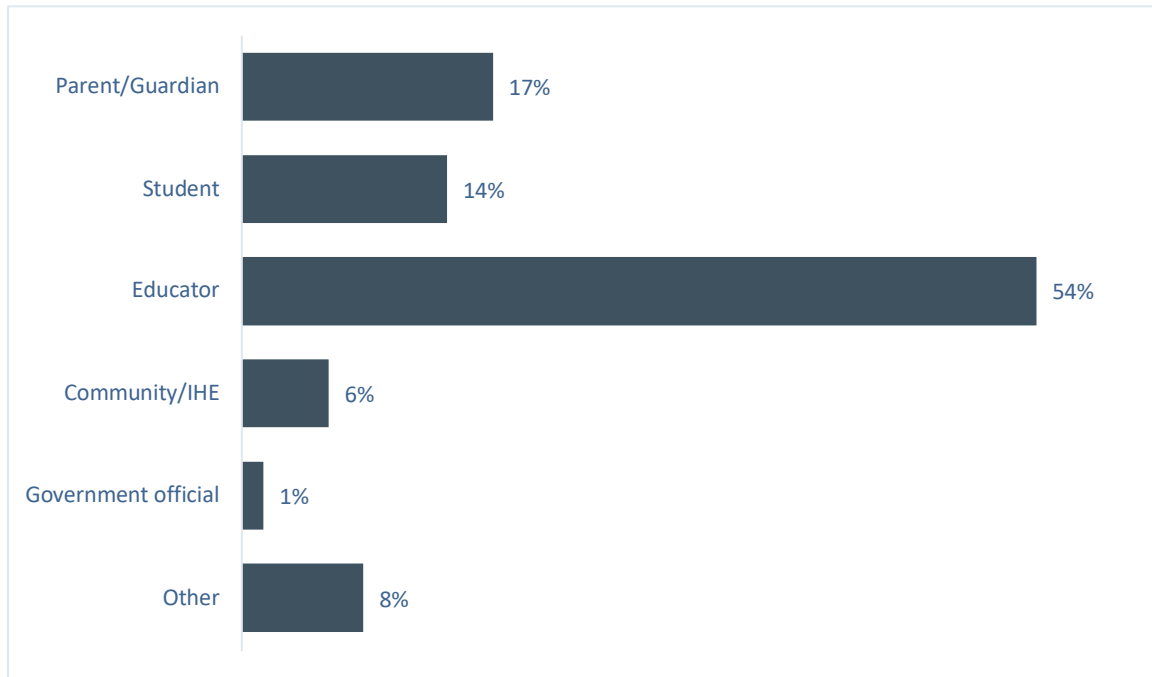How would you like students to show that they have the knowledge, skills, and/or experiences necessary for graduation?

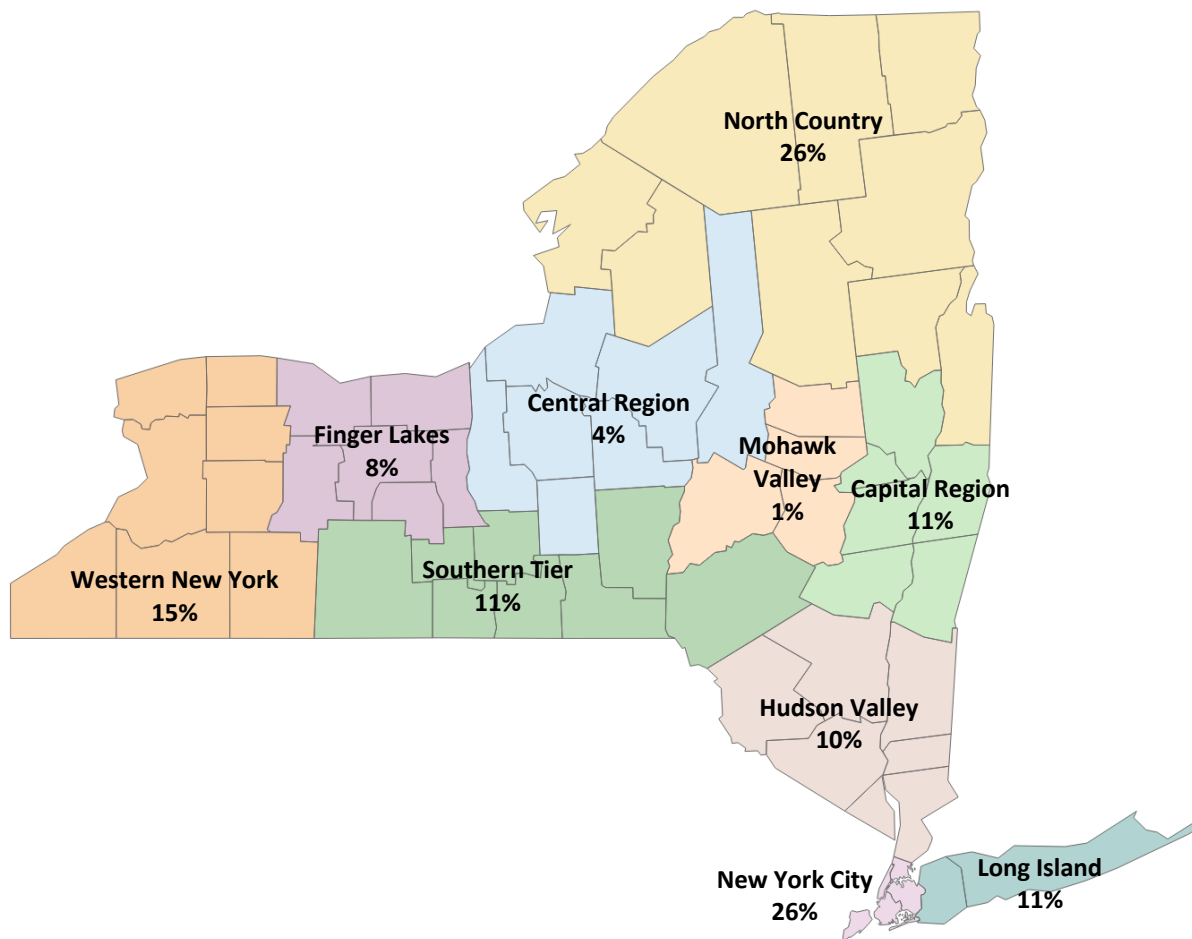# Appendix D. Stakeholder Participation by Type and Region

Figure D1. 2020 Survey Participants by Stakeholder Type (n = 856)

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Figure D2. 2021/22 ThoughtExchange #1 Participants by Stakeholder Type (n = 1,292)

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Figure D3. 2021/22 ThoughtExchange #1 Participants by Region (n = 1,285)

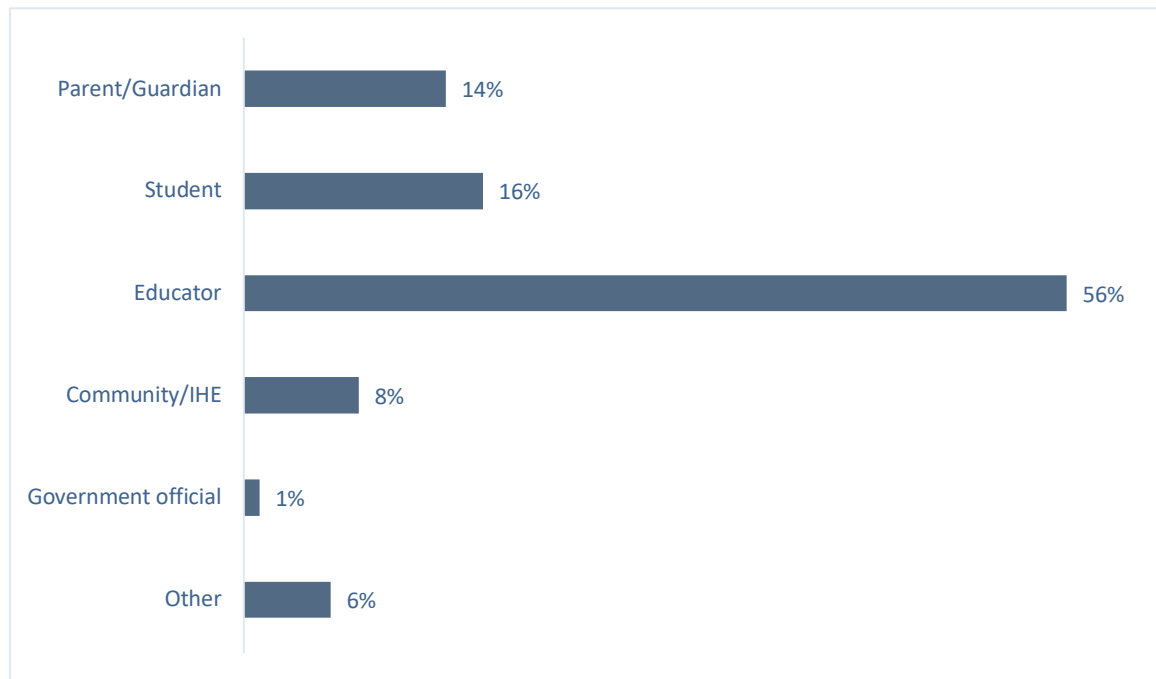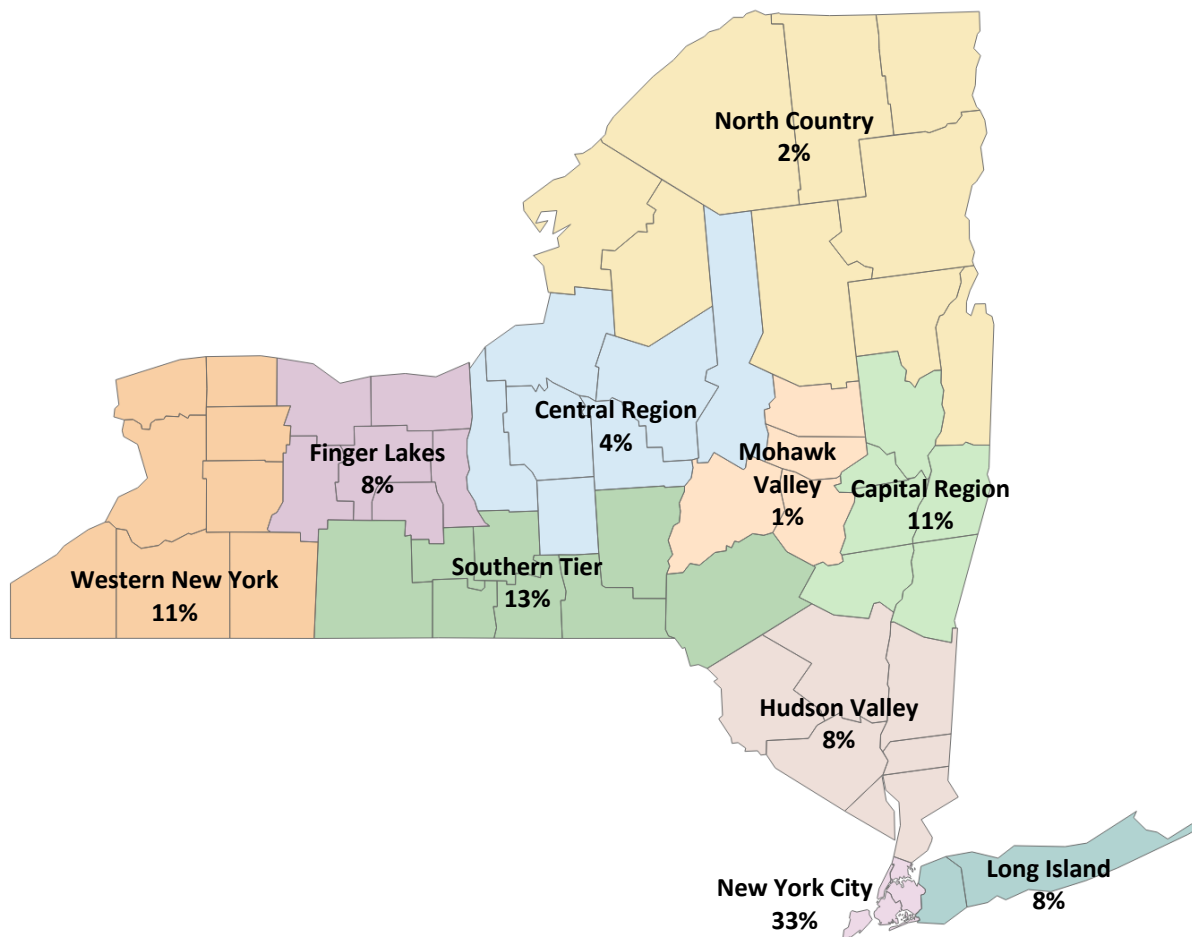**Figure D4. 2021/22 ThoughtExchange #2 Participants by Stakeholder Type (n = 477)**

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Figure D5. 2021/22 ThoughtExchange #2 Participants by Region (n = 477)

North Country
2%

Central Region
4%

Mohawk Valley
1%

Capital Region
11%

Finger Lakes
8%

Western New York
11%

Southern Tier
13%

Hudson Valley
8%

New York City
33%

Long Island
8%

Appendix E. Glossary of Key Terms

The purpose of this glossary is to define key terms to ensure consistency across the Region 2 Comprehensive Center (R2CC) Graduation Measures research team. Where possible, the glossary uses definitions established by the New York State Education Department (NYSED).

- **21st century[1] skills:[2]** includes universal foundation skills, as defined by New York State, as well as creativity and innovation, critical thinking and problem-solving, communication, and collaboration (drawn from the Learning and Innovation Skills domain of the P21 Framework for 21st Century Learning)

- **Alternative pathways:[3]** refers to diploma pathways for students for whom a traditional pathway is not feasible (such as students from military families, students with disabilities, or students whose education is interrupted by illness or family circumstances)

- **Assessment choice:** the opportunity *for students* to choose how they demonstrate knowledge and skills from a variety of assessments (oral presentations, projects, closed-ended exams, etc.)

- **Basic academic skills:** basic literacy and mathematics skills

- **Civic engagement:[4]** working to make a difference in the civic life of their communities and developing the combination of knowledge, skills and actions, mindsets, and experiences necessary to make that difference. It means promoting the quality of life in community, through political and nonpolitical processes.

- **Civic learning:[5]** Students acquire fundamental knowledge of social studies, engage in relevant experiences that include students as active participants, and develop an understanding of self as part of and responsible to larger social groups.

- **Civic readiness:[6]** the ability to make a positive difference in communities through the combination of civic knowledge, skills and actions, mindsets, and experiences

- **Community service:** student experiences that involve volunteering or providing aid in ways that improve quality of life in the community

- **Competency-based learning:[7]** flexible learning that allows students to demonstrate mastery of content or "competencies" at their own pace; examples include online and blended learning, dual enrollment, project-based learning, and credit recovery; frequently juxtaposed to "seat time" or Carnegie Units

- **Core academic courses:** English language arts, social studies, mathematics, science, and world languages courses

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- **Differentiated assessment:** an assessment that is *modified by teachers* or educators to meet diverse student needs
- **Diploma types:**[8] the types of diplomas approved by NYSED, including local, Regents, and Regents with advanced designation
- **Dual enrollment/concurrent enrollment** refers to a student's simultaneous enrollment at two educational institutions
- **Exiting credential:**[9] This credential, either a Career Development and Occupational Studies (CDOS) Commencement Credential (Standalone) or Skills & Achievement Commencement Credential, can be used to exit high school but is not a NYS high school diploma.
- **Experiential learning:** hands-on learning opportunities; examples include immersion trips, project-based learning, interdisciplinary experiences, and virtual learning (do, reflect, apply)
- **Flexible pathways:**[10] a personalized pathway to graduation, distinct from NYSED-approved Multiple Pathways; a student-designed learning experience or academic program. Flexible pathways are developed through a district-approved process that includes criteria to ensure foundational skills and knowledge required for a diploma are met.
- **Graduation/diploma requirements:** course, credit, and examination requirements for a diploma
- **Growth-based assessment:** an assessment that measures growth in student learning from one point in time to another as well as proficiency or attainment of standards
- **Industry-recognized credential:**[11] a verification of a student's qualification or competence issued by a third party with the relevant authority to issue such credentials; examples include trade industry certifications or government licenses
- **Information, media, and technology skills:** include accessing, evaluating, using, and managing information; analyzing media and creating media products; and applying technology effectively (drawn from the 21st Century Learning Framework)
- **Life and career skills:** practical life skills, including financial literacy, parenting, home economics, etc. Courses or activities pertaining to these courses would be available to all students. These courses are not to be confused with special education "Life Skills" programs.
- **Micro-credential:**[12] a certification or "mini-degree" in a specific topic area; also referred to as a digital badge; micro-credentials are typically used in higher education. Some states, such as NJ, offer micro-credentialing for HS students.
- **Multiple measures:** the use of multiple indicators and sources of evidence of student learning, of varying kinds, gathered at multiple points in time, within and across subject areas[13]
- **Multiple pathways:**[14] Established and approved by NYSED, these are course and assessment pathway options a student may choose to fulfill the "+1" requirement of the 4+1 system that yields a local or Regents diploma. These pathways provide rigorous and relevant learning experiences or academic programs aligned with

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students' needs, interests, or aspirations. Students must pass four Regents exams (or equivalents) in addition to the +1 pathway.[i]

1) Arts
2) Career and Technical Education (CTE)
3) Career Development and Occupational Studies (CDOS)
4) Civics
5) Humanities
6) Science, Technology, Engineering, and Math (STEM)
7) World Languages

- **Pathways to a diploma (general):** learning experience or academic program that results in a diploma; recipient is considered a high school graduate

- **Performance-based assessment:**[15] a point-in-time assessment for which the student demonstrates the skills the assessment is intended to measure by doing tasks that require those skills.

  1) **Project-based assessment:** an assessment consisting of a set of activities over time that a student completes to demonstrate proficiency of knowledge or skills in a specific content area[16]

  2) **Portfolio-based assessment:**[17] a systematic collection of educational or work products that have been compiled or accumulated over time according to a specific set of principles or rules

  3) **Presentation:** an assessment of learning in which a student demonstrates their knowledge or skills orally

- **Real-world application:** opportunities for students to apply concepts learned in the classroom to challenges in their communities or real-world scenarios

- **Rubrics:**[18] established criteria, including rules, principles, and illustrations, used in scoring constructed responses to individual tasks and clusters of tasks

- **Seals and endorsements:** recognition of achievement in a particular area (e.g., Seal of Biliteracy)

- **Social and emotional skills:**[19] includes self-awareness, self-management, social awareness, relationship skills, responsible decision-making, and teamwork considered an overlapping element of 21st century skills (drawn from the CASEL framework)

- **Stackable credentials:** small industry-type certificates that secondary students can earn in a short period of time, (e.g., CPR, Serve safe)

- **Standardized assessment:** an assessment that is administered and scored in an established and consistent manner. A standardized assessment is one in which a student's performance is measured in comparison to everyone else who took the test.

- **Standards-based assessment:**[20] assessment of an individual's acquisition of systematically described content and performance standards. Individual student performance is measured against the prescribed standards.

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[i] The Civics +1 Pathway option was added for pilot schools during the 2021/22 school year and will be available for all schools during the 2022/23 school year.

- **Work-based learning:** structured learning opportunities involving placement in industry; examples include internships and apprenticeships, job shadowing, etc.

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Appendix F. Glossary of Acronyms

The purpose of this document is to define acronyms used in the report to ensure consistency across the Region 2 Comprehensive Center Graduation Measures research team.

- **A Level**: Advanced Level qualifications: offered by schools and colleges in England

- **Abi**: The Abitur (Abi) is the culminating exam that students typically take at the end of 2 years of exam preparation at an academic "Gymnasium" school: The Abi is used to assess qualifications to enter higher education (university), so it is taken at the end of secondary schooling, typically at age 18. (Germany)

- **ACCEL**: Academically Challenging Curriculum to Enhance Learning (ACCEL) pathway (Florida)

- **ACT**: Originally an abbreviation of American College Testing, ACT is a standardized test used for college admissions in the United States. It is currently administered by ACT, a nonprofit organization of the same name. The ACT test covers four academic skill areas: English, mathematics, reading, and scientific reasoning. It also offers an optional direct writing test. It is accepted by all four-year colleges and universities in the United States as well as more than 225 universities outside of the U.S.

- **AICE**: Advanced International Certificate of Education curriculum (Florida)

- **AP**: Advanced Placement (classes, coursework, and assessments)

- **ASVAB**: Armed Services Vocational Aptitude Battery: a multiple-aptitude battery that measures developed abilities and helps predict future academic and occupational success in the military.

- **AVTS**: Area Vocational-Technical School

- **CASEL**: Collaborative for Academic, Social, and Emotional Learning

- **CCCR**: College, Career, and Civic Readiness

- **CCDA**: Canadian Council of Directors of Apprenticeships: serves as an interprovincial body to promote collaboration and alignment on apprenticeship training and trade certification.

- **CCPT**: California Career Pathways Trust: Was (2013) as a competitive state grant for school districts, superintendents, charter schools, and community colleges to establish or expand career pathway programs in grades 9–14.

- **CD**: Competency Determination: Students meet the state's competency determination (CD) by earning a passing score on the MCAS grade 10 assessment in English Language Arts and Mathematics as well as on one of the high school Science, Technology/Engineering tests. (Massachusetts)

- **CDC**: Centers for Disease Control and Prevention

- **CDE**: California Department of Education

- **CDOS**: Career Development and Occupational Studies

- **CEW**: Career Education and Work standards

- **CLEP**: College Level Examination Program

- **CMEC**: Council of Ministers of Education (Canada)

- **CPR**: Cardiopulmonary Resuscitation

- **CRSL**: Culturally Responsive School Leadership

- **CSI**: Collaborating States Initiative: a group of states that share information, best practices, and promising tools and ideas in the interest of building strong SEL in schools across their states. The CSI is hosted by the CASEL.

- **CSU**: California State University

- **CTE**: Career and Technical Education

- **DEI**: Diversity, Equity, and Inclusion: Diversity means a wide range of human qualities and attributes; equity means fair treatment and opportunity for all; inclusion means recognizing, understanding, and accepting all.[21]

- **DESE**: [Massachusetts] Department of Elementary and Secondary Education

- **EAL**: English as an Additional Language (England)

- **ECS**: Education Commission of the States

- **EHC**: Education Health and Care plan (England)

- **ELA**: English Language Arts

- **EOC**: End Of Course

- **ERIC**: Education Resources Information Center: an online library of education research and information, sponsored by the Institute of Education Sciences of the U.S. Department of Education.

- **ESSA**: Every Student Succeeds Act

- **FAFSA**®: Free Application for Federal Student Aid: form to apply for financial aid for college or graduate school.

- **FLVC**: Florida Virtual Campus

- **FSA**: Florida Standards Assessment

- **GCR**: Graduation Course Requirement

- **GCSE**: General Certificate of Secondary Education (England)

- **GPA**: Grade Point Average

- **GQE**: Graduation Qualifying Examination: Indiana waiver procedure

- **HSEE**: High School Exit Exam

- **IB**: International Baccalaureate®: offers four high-quality international education programs to more than one million students.

- **ICP**: Individual Career Plan

- **IEP**: Individualized Education Program

- **IGP**: Individual Graduation Plan

- **IHE**: Institute of Higher Education

- **ILP**: Individual Learning Plan

- **iNACOL** [now the Aurora Institute]: International Association for K–12 Online Learning: Their mission is to ensure all students have access to a world-class education and quality online learning opportunities that prepare them for a lifetime of success.

- **LEA**: Local Education Agency

- **MCAS**: Massachusetts Comprehensive Assessment System

- **MMC**: Michigan Merit Curriculum: a college preparatory curriculum that requires all students in the state to pass a set of 18 rigorous academic courses, including four credits each of mathematics and English language arts and three credits each of science and social studies.

- **MyCAP**: My Academic Career and Academic Planning (MyCAP)[22] is a student-centered, holistic, multi-year planning tool designed to provide students with ongoing opportunities to plan for their academic, personal/social, and career success in high school and beyond. (Massachusetts).

- **N.J.A.C.**: New Jersey State Administrative Code[23]

- **NJGPA**: New Jersey Graduation Proficiency Assessment

- **NJSLA aka NJSLA/PARCC 10**: New Jersey Student Learning Assessments

- **NYSED**: New York State Education Department

- **OESE**: [U.S. Department of Education] Office of Elementary and Secondary Education

- **OGT**: Ohio Graduation Test: in five subjects—math, reading, writing, science, and social studies

- **PARCC**: Partnership of Assessment of Readiness for College and Careers

- **PBIS**: Positive Behavioral Interventions and Supports: an evidence-based three-tiered framework to improve and integrate all of the data, systems, and practices affecting student outcomes every day.

- **PBL**: Project-Based Learning

- **PCAP**: Pan-Canadian Assessment Program (PCAP)[24]: a national-level assessment that a random sample of Canadian students take in reading, mathematics, and science at ages 13 and 16.

- **PDE**: Pennsylvania Department of Education

- **PGC**: Peer Group Connection: a peer-led high school transition program.

- **PISA**: Programme for International Student Assessment. Student performance is rated on a six-point scale. Level 1 and Level 2 are deemed low performing, and Level 5 and Level 6 are high performing.

- **PSAT aka PSAT/NMSQT**: Preliminary SAT/National Merit Scholarship Qualifying Test is a standardized test administered by the College Board and cosponsored by the National Merit Scholarship Corporation in the United States.

- **PTECH**: Pathways in Technology Early College High School model: integrates high school and college coursework into a 6-year educational experience. Participating students earn their high school diploma and their Associate degree, graduating with the skills and credentials required for ongoing education and future careers. (New Jersey)

- **R2CC**: Region 2 Comprehensive Center: Through a cooperative agreement with the U.S. Department of Education extending from October 1, 2019, through September 30, 2024, the R2CC serves the state education agencies—and their regional and local constituents—in Connecticut, New York, and Rhode Island. WestEd leads the R2CC in collaboration with the Education Development Center (EDC) and Mathematica.

- **SAT**: originally called the Scholastic Aptitude Test, it was later called the Scholastic Assessment Test, then the SAT I: Reasoning Test, then the SAT Reasoning Test, then simply the SAT.

- **SEL**: Social and Emotional Learning

- **SEN**: Special Education Needs (England)

- **SSCE**: State Seal of Civic Engagement: California State Board of Education

- **STEAM**: Science, Technology, Engineering, Arts, and Mathematics

- **STEM**: Science, Technology, Engineering, and Mathematics

- **T Level**: 2-year courses following the completion of GCSEs and are the equivalent of three A Levels: The courses are intended to cover content that meets industry needs and to prepare students for work. These courses combine classroom learning and 45 days of on-the-job experience, leading to skilled employment, further study, or apprenticeship. The T Levels are one of the choices for students after completing the GCSEs in addition to apprenticeships for those seeking training in a specific occupation or A Levels for students choosing to continue their academic education. T Levels have the same standards as apprenticeships (1,800 hours over 2 years). (England)

- **T-SEL**: Transformative Social and Emotional Learning

- **The Compact**: The Interstate Compact on Educational Opportunity for Military Children: the Compact addresses the challenges facing military children as a result of their frequent relocations. It establishes a framework for uniform treatment of military children as they transfer between school districts and states. The Compact outlines the requirements that school districts must adhere to when enrolling and educating children of active-duty military personnel.

- **UC**: University of California

- **UK**: United Kingdom of Great Britain (England, Scotland, and Wales) and Northern Ireland

- **VET**: Vocational Education and Training System: also known as the dual training system. The main characteristic of the system is cooperation between companies (mostly small- and medium-sized companies) and publicly funded vocational schools. (Germany)

- **WECEP**: Work Experience and Career Exploration Program: a school-supervised or school-administered work experience program designed to permit students between the ages of 14 and 16 to explore career possibilities while they earn credit for both in-school related instruction and on-the-job experience. These programs must follow Department guidelines as approved by the U.S. Department of Labor, Employment, and Training Administration, Wage and Hour Division.

- **WEE:** Work Experience Education program:[25] combines internships and on-the-job training with the work-based academic curriculum and the school-to-career transition. In the area of civic readiness. [California]

- **WWC**: What Works Clearinghouse

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[21] The New York State Board of Regents. (2021). *Policy on diversity, equity and inclusion*. New York State Education Department. https://www.regents.nysed.gov/common/regents/files/521bra7.pdf

[22] Massachusetts Department of Elementary and Secondary Education. (2022). *My Career and Academic Plan (MyCAP)*. https://www.doe.mass.edu/ccte/ccr/mycap/

[23] New Jersey Department of Education. (n.d.). *New Jersey state minimum graduation requirements by content area 120 credits*. https://www.nj.gov/education/cccs/grad.pdf

[24] Council of Ministers of Education, Canada. (n.d.). *Council of Ministers of Education, Canada: Over 50 years of pan-Canadian leadership in education*. https://www.cmec.ca/131/Learning_Assessment_Programs.html

[25] California Department of Education. (n.d.). *Work Experience Education (WEE) program*. https://www.cde.ca.gov/ci/ct/we/