USING ACCOUNTABILITY RESULTS TO GUIDE IMPROVEMENT

February 2018, Third Edition

This guide provides detailed information and resources related to every indicator in Connecticut's Next Generation accountability system. Each indicator includes the rationale for its inclusion and the methodology used. Additionally, to inform local improvement efforts, the guide offers links to resources, research, and evidence-based strategies.

Change Log

Section	Page Number	Change
Introduction	5	Updated text to reflect that the current accountability system has been in place since March 2016.
Indicator 1	6	Language in weights table updated
Indicator 1	7	Students who were formerly classified as English learners maintain their status as an English learner for four years beyond exiting for purposes of accountability calculations. Before passage of the Every Student Succeeds Act (ESSA), the look-back period for EL status was two years beyond exit. This same flexibility for students with disabilities was removed based on the requirements of ESSA.
Indicator 2	9	Removed year 1 information from weights table.
Indicators 1 and 2	10-16	Updated resources and contacts
Indicator 3	17-18	Updated resources
Indicator 4	19	Updated statistics in indicator rationale
Indicator 4	21-25	Updated resources
Indicator 5	27	In calculation steps, updated applicable data years and TCS links and resources.
Indicator 5	27	Added reference to new detailed calculation resource in Appendix.
Indicators 5 and 6	30-31	Updated resources and contacts
Indicator 7	32	Added reference to new detailed calculation resource in Appendix.
Indicator 7	33-36	Updated resources
Indicators 8 and 9	38	Table of 4-, 5-, and 6-year graduation rates updated to reflect 2013-14 data.
Indicators 8 and 9	39-42	Updated resources and contacts
Indicator 11	48	Updated contacts
Indicator 12	50	Added reference to new detailed calculation resource in Appendix.
Appendix: Performance Index Calculation Rules	52	Added an explanation that scores of “recently arrived” English learners are excluded from SPI and DPI calculations.

Change Log (continued)

Section	Page Number	Change
Appendix: File Preparation	52-53	As explained in the Indicator 1 section, students who were formerly classified as English learners maintain their status as an English learner for four years beyond exiting for purposes of accountability calculations. Before passage of ESSA, the look-back period for EL status was two years beyond exit. This same flexibility for students with disabilities was removed based on the requirements of ESSA.
Appendix: Indicator 5 Calculation Rules	62-66	New. Detailed calculation rules and data flow steps provided.
Appendix: Indicator 7 Calculation Rules	67-71	New. Detailed calculation rules and data flow steps provided.
Appendix: Indicator 12 Calculation Rules	72-76	New. Detailed calculation rules and data flow steps provided.
Appendix: Connecticut Assessment and Accountability Reporting of "Recently Arrived" English Learners	82	English Learner Flexibility explanation updated to reflect that students exiting EL status will continue to be reported as part of the EL subgroup for Indicator 1 for four years beyond exiting per ESSA.
Appendix: Assigning School Categories	83-84	Updated years, included the potential for Focus schools to exit, added Accountability Index Quartile Cutoffs for 2016-17, and included an explanation of how assignment of school categories will change during the 2018-19 school year.
Appendix: Identifying Schools of Distinction	85-87	Updated years, added a requirement that Schools of Distinction must have Indicator 1 data reported, and included a minimum value table by distinction status for 2016-17.

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INTRODUCTION

A student is more than a test score; in the same way a school or district is more than the aggregate of the results from state tests. Focusing on a broader set of indicators:

- Provides a more complete picture of a school or district;
- Guards against narrowing of the curriculum to the tested subjects;
- Expands ownership of accountability to more staff; and
- Allows schools to demonstrate progress on "outcome pre-cursors";

Here's a high level summary of the changes that were made to the accountability system and implemented for the first time in March 2016.

- A range of indicators were incorporated including some focused on college- and career-readiness and others on arts and physical fitness to draw attention to the delivery of a well-rounded education.

- The model gives greater emphasis to academic growth on state tests than academic achievement. The historical focus on 'achievement only' failed to acknowledge schools that may have low performing students but made significant strides last year to improve their performance and close the achievement gap.

- Some metrics were refined (e.g., the calculation of the performance index).

- Subgroup metrics are more impactful and actionable.

- The school classification methodology was adjusted to better represent overall school performance, target interventions and support, and refrain from "labels".

The CSDE has worked collaboratively with district/school leaders, consulted with state/national experts, and sought ongoing input from a variety of stakeholders to revamp its accountability system for schools and districts. The CSDE is most appreciative for their feedback and ideas. This model represents our best efforts at the present time to expand the model without adding new data collection/reporting burden to districts. As this model is implemented, the CSDE will continue to work collaboratively with stakeholders and analyze data to refine and improve this model.

Lastly, the CSDE encourages leaders to view accountability results not as a "gotcha" but as a tool to guide and track improvement efforts. This guide emanates from that sincere belief.

It provides detailed information and resources related to every indicator. It includes the rationale for its inclusion and the methodology used; also, to inform local improvement efforts, the guide offers links to resources, research, and evidence-based strategies.

INDICATOR 1: ACADEMIC ACHIEVEMENT (STATUS)

Indicator	Weight	
	Schools with academic growth data (Indicator 2)	Schools without academic growth data (e.g., 9-12 high schools)
Subject Performance Index (0-100) in ELA, Math, and Science • All Students • Students in *High Needs Subgroup*	 150 150	 300 300

Description (What): This indicator produces performance indices for English Language Arts/Literacy (ELA) and Mathematics based on results from the Smarter Balanced assessments for Grades 3-8, SAT for Grade 11, and the Connecticut Alternate Assessments (CTAA) in all available tested grades (i.e., 3 through 8 and 11) in the district/school. Science index scores are generated based on results from the Connecticut Mastery Test (CMT) assessments and the Connecticut Academic Performance Test (CAPT) assessments (both the standard form and Skills Checklist) in all available tested grades (i.e., 5, 8, and 10) in the district/school. This indicator weights tested subjects equally.

Rationale (Why): The academic achievement indicator provides the most current status of achievement of the students in a school or district.

Applicability (Who): The achievement status indicator is applicable to all schools and districts with at least one tested grade (i.e., grades 3 through 8, 10, or 11).

Input/Feedback: The overall notion of a Performance Index that recognizes student performance across the continuum (not just 'proficient' and 'not proficient') has been well received. However, in extensive conversations with local practitioners, three important issues emerged with Connecticut's approach to the index prior to the implementation of this model:

First, though the index was an enhancement to the AYP approach of looking solely at 'proficient' and 'not proficient', it still did not capture improvement *within* performance levels. Furthermore, with Smarter Balanced assessments offering four achievement levels as opposed to five in the CMT/CAPT assessments, practitioners were concerned that the index would fail to capture differences in performance within the wide achievement levels.

Second, the interpretable and actionable value of an overall index score that averages all the tested subjects was questioned. Practitioners generally prefer subject-specific indices.

Lastly, practitioners asked why advanced performance couldn't garner additional points in the index, especially if the State's expected level of achievement was below that level. For example, in the Smarter Balanced assessment, level 3 of 4 is considered on-track for college and career readiness while level 4 is an explicit standard that truly represents an "advanced" level of performance.

Methodology (How): The detailed performance index calculation rules and methodology for converting scale scores to index scores for each assessment are included in the appendix. Points are prorated based on the percentage of the ultimate target (75) achieved.

Subject-specific index scores are generated and reported for the following groups as long as the minimum subgroup N of at least 20 students is reached:

- All students
- All race/ethnicities
- Gender
- Eligibility for Free- or Reduced-Price Meals
- Students with Disabilities (SWD)
- English learners (EL)—For Indicator 1 of the accountability system, this group includes students currently identified as EL and all students who were formerly identified as an EL any time in the four previous school years.
- High Needs supergroup— (i.e., a student belongs to at least one of the following ESEA subgroups – Eligible for Free- or Reduced-Price Meals, English learners or Students with Disabilities).

Though index scores are reported for all student subgroups, the High Needs supergroup is the subgroup used in accountability calculations. This holds more schools accountable for the subgroup performance of many more students.

Lowering subgroup N size from 40 to 20 in the first iteration of ESEA Flexibility in 2012 made many subgroups visible across Connecticut; utilizing the High Needs group further increases the number of schools and the number of students in those individual subgroups that are held accountable for subgroup performance and achievement gap determinations.

Connecticut has been granted permission to exempt "recently arrived" ELs in grades 3 through 8 who have attended schools in the United States for less than two years from the academic achievement (status) measure in the State's accountability system for both ELA and mathematics. Instead, Connecticut includes student growth of "recently arrived" ELs from the first to the second year in both ELA and mathematics in school and district accountability calculations in the student's second year. This requires that all "recently arrived" ELs test in all content areas annually. Assessment scores for ELs who have attended U.S. schools for more

than two years are used in the achievement status and growth measures of the accountability system.

For more information about how data for "recently arrived" ELs are handled in assessment and accountability reporting, please see the Appendix.

Data Source: State assessment data files and Public School Information System (PSIS) for student demographic (e.g., race/ethnicity, gender) and program (EL, FRPL, disability) data.

Achievement Gap

A district/school is identified as having an achievement gap if the size of its index score gap between the *High Needs subgroup* and the *Non-High Needs group* (or the ultimate achievement target of 75 if that's lower) is a significant outlier i.e., at least one standard deviation greater than the statewide gap in any subject area.

INDICATOR 2: ACADEMIC GROWTH (LONGITUDINAL)

Indicator	Max Points
Average percentage of growth target achieved by students in grades 4 through 8 (½ SB-ELA; ½ SB Math)	
• All Students	200
• Students in *High Needs Subgroup*	200

Description (What): In Connecticut, the Smarter Balanced (SB) Assessment in English Language Arts/Literacy (ELA) and Mathematics are used for measuring student achievement growth. Since spring 2015, Connecticut students have taken the SB ELA and Mathematics in grades 3-8. In both subjects, the test scores are vertically scaled across grades and facilitate tracking student growth within the same subject across grades, despite differences in test content and difficulty.

Each vertical scale ranges from 2000-3000 score points. By subtracting a student's current score (e.g., a grade 5 score of 2400 in Mathematics) from the student's previous score in the same subject (e.g., a grade 4 score of 2300 in Mathematics), a teacher or administrator can assess the individual student's growth in Mathematics performance over a one year period (a growth of 100 points in this example). Teachers and administrators can use achievement growth information with other academic information about students to plan for student instruction.

The CSDE used the vertical scale to create a growth model based on the expectation that all students in grades 4 through 8 should demonstrate growth each year in ELA and Mathematics. Ambitious yet achievable growth targets were established in ELA and Mathematics for all students entering grades 4 through 8 to reach in that year. To learn more about Connecticut's growth model and how student growth targets were established, see *Developing Connecticut's Growth Model for the Smarter Balanced Summative Assessments in English Language Arts (ELA) and Mathematics*.

There are two metrics generated from the growth model. The percentage of students meeting or exceeding their growth targets is reported as the "Growth Rate." Growth rate is not part of the Next Generation accountability system. The measure used for accountability purposes is the "Average Percentage of Target Achieved" (APTA).

To calculate the APTA for a school or district, every student's growth in vertical scale score points is evaluated against the student's assigned growth target. Students can meet anywhere from 0% of the growth target to 110% of the growth target, yielding 0-110 points toward the school's Indicator 2 values in the accountability system. The school's APTA is an average of the percentage of growth target achieved across all students.

Rationale (Why?): The vertical scale enables the evaluation of growth achieved by the same kids over time. A district/school won't be deemed successful on this metric simply because it enrolls students who are historically high performing. Success on this metric is earned by helping all students, whether low or high performing, to achieve adequate growth from one year to the next.

Applicability (Who): The academic growth indicator is applicable to all districts and schools with at least one grade between 4 and 8, inclusive.

Input/Feedback: Practitioners have long awaited the inclusion of academic growth as an indicator in district/school accountability. They are generally more supportive of using academic growth than achievement status to evaluate the effectiveness of a district/school.

Methodology (How): Points are earned for the All Students group ***and*** the High Needs subgroup based on the average percentage of growth target achieved across all students in the group. While students may earn 0-110 points based on the percentage of target achieved, the maximum value for schools and districts is 100 points. Weighting the High Needs subgroup separately in addition to the All Students group rightly over-weights subgroup growth. The ultimate target for this indicator is 100%.

Similar to Indicator 1 (Academic Achievement—Status), a school or district must have at least 20 matched students in order to be eligible to earn any points for Indicator 2 (Academic Growth). If a school or district has at least 20 matched students for any of the four growth indicators (i.e., ELA-All Students, ELA-High Needs, Math-All Students, Math-High Needs), then the maximum possible points for all of the Academic Achievement indicators (indicator 1) for all subjects for that school or district will be 50 points (i.e. Math = 50; ELA = 50; Science = 50). If a school or district has no reportable growth data, the maximum possible points for all of the Academic Achievement indicators (indicator 1) for all subjects for that school or district will be 100 points (i.e. Math = 100; ELA = 100; Science = 100).

Data Source: State assessment data files and Public School Information System (PSIS) for student demographic (e.g., race/ethnicity, gender) and program (EL, FRPL, disability) data.

RESOURCES FOR IMPROVING STUDENT ACHIEVEMENT IN ELA, MATHEMATICS AND SCIENCE

CURRICULUM (content of learning by lesson, unit, course, or full year)

1. **Standards Alignment of the English Language Arts and Mathematics Curriculum and Instruction**

- CT Core Standards for English Language Arts and Mathematics http://ctcorestandards.org/?page_id=2
- CT English Language Proficiency (CELP) Standards www.ct.gov/sde/englishlearners
- The CT CORE Transition Skills Resource Chart addresses alignment of transition skills to the Connecticut Core Standards http://ctserc.org/component/k2/item/348-ct-core-transition-skills-resource-chart
- Lesson Planning: Plan with the Common Core in Mind http://achievethecore.org/lesson-planning-tool/
- Curriculum Designers Home Page on CTCoreStandards.org website http://ctcorestandards.org/?page_id=5181
- EQuIP (Educators Evaluating the Quality of Instructional Products) Rubric: a tool designed to identify high-quality materials aligned to the Common Core State Standards (CCSS). http://www.achieve.org/EQuIP
- Instructional Materials Evaluation Tool http://achievethecore.org/page/1946/instructional-materials-evaluation-tool
- Strengthening Lessons for the Common Core (video) https://www.teachingchannel.org/videos/better-common-core-lessons-equip
- District Common Core Implementation Self-Assessment http://www.achieve.org/publications/common-core-state-standards-implementation-rubric-and-self-assessment-tool
- Models, Samples, and Exemplars of Curriculum Units and Lessons *(rated by CSDE)* http://ctcorestandards.org/?page_id=475
- Basal Alignment Project (Achieve the Core). http://achievethecore.org/page/751/bap-project-page
- What I Use in my Classroom (Achieve the Core) http://achievethecore.org/page/2882/what-i-use-in-my-classroom?utm_source=Core%20Advocate%20Resource%20Doc_atc_email&utm_medium=email&utm_campaign=Schusterman%20List%20Email
- Grade by Grade Content Guides (UnboundEd) https://www.unbounded.org/enhance_instruction?subjects=math
- EdReports provides educator-led, evidence-based reviews of K-12 instructional materials: https://www.edreports.org/#!?f=&b=title&o=0

2. Next Generation Science Standards (NGSS) Resources

- **NGSS Content Crosswalk Report** shows content similarities and differences between NGSS and Connecticut's 2004 science standards.
- **STEM Practice Briefs** - Brief essays, each focused on a specific issue, authored and reviewed by teachers and researchers. Each Practice Brief leverages practitioners'

expertise and research findings to support the teaching and learning transformations called for in the NGSS.

- **Tools for Ambitious Science Teaching** - Strategies and tools for designing learning experiences that engage all students in meaningful forms of science learning.
- **Classroom Sample Tasks: (Introduction and Overview) (View and Download Tasks)** The Classroom Sample Tasks blend content, practices, and concepts from both the NGSS and the Common Core State Standards. Teachers across the disciplines have collaborated to write sample tasks, which are the result of a vision of integrating science, engineering, and mathematics for classroom use.
- **National Science Teachers Association NGSS Resources** - web seminars, articles from peer-reviewed journals, NSTA Press books, short courses and face-to-face conference lectures and workshops, all designed to build an understanding of the NRC Framework and NGSS.
- **NSTA Archived Webinars - NGSS Science and Engineering Practices**
- **EQuIP Rubric for Evaluation NGSS Quality of Science Lessons and Units -** The Educators Evaluating the Quality of Instructional Products (EQuIP) Rubric for science provides criteria by which to measure the alignment and overall quality of lessons and units with respect to the Next Generation Science Standards (NGSS).

3. CT Core Standards Professional Learning Resources for Educators

- Connecticut Professional Learning Online Modules for ELA and mathematics. There are resources for supporting all students as well as resources targeted toward students with disabilities and English learners (CSDE). http://surveys.pcgus.com/s3/CT-Links
- Self-paced online courses developed as part of Math and Science Partnership (MSP) grants. http://ctcorestandards.org/?page_id=13853
- Education and Teacher Training Courses (Edx). https://www.edx.org/course?search_query=education
- Specific Learning Disability/Dyslexia http://www.ctserc.org/index.php/dyslexia/dyslexia-professional-learning
- Library of Professional Learning Materials from past workshops and conferences http://ctcorestandards.org/?page_id=3794
- On-Demand Professional Learning: Recordings of Webinars http://ctcorestandards.org/?page_id=5537

4. CT Standards For All Subject Areas

- CSDE Website http://www.sde.ct.gov/
- CT Core Standards Website http://ctcorestandards.org/
- CT English Language Proficiency (CELP) Standards www.ct.gov/sde/englishlearners

5. **Parent and Community Resources for CT Core Standards** including translated materials in five languages http://ctcorestandards.org/?page_id=32

INSTRUCTION (how the curriculum will be taught)

1. Tier 1 – Core Instruction

- CSDE English Learner Resources www.ct.gov/sde/englishlearners
- CSDE Special Education Resources http://www.sde.ct.gov/sde/cwp/view.asp?a=2678&Q=320730
- Principal "Look Fors" Guide to Classroom CT Core Standards http://www.sde.ct.gov/sde/lib/sde/pdf/backtoschool/ccss_principal_look_fors_flipbook.pdf

2. Tier 1 Reading Instructional Resources

- CSDE Menu of Grade K-3 Reading Assessments http://www.sde.ct.gov/sde/cwp/view.asp?a=2618&q=320866
- International Literacy Association http://www.literacyworldwide.org/
- Research-Based Literacy Instruction and Assessment for Children in PK-12 (Florida Center for Reading Research). http://www.fcrr.org/for-educators/
- Selecting a Scientifically-Based Core Curriculum for Tier 1 http://www.rtinetwork.org/learn/research/selectingcorecurriculum-tier1
- LD Online http://www.ldonline.org/ A leading website on learning disabilities, learning disorders and differences. Parents and teachers of learning disabled children will find authoritative guidance on attention deficit disorder, ADD / ADHD, dyslexia, dysgraphia, dyscalculia, dysnomia, reading difficulties, speech, and related disorders.
- Foorman, B. R., & Siegel, A. (Eds.). (1986) Acquisition of reading skills: Cultural constraints and cognitive universals. Mahwah, NJ: Lawrence Erlbaum.
- Moats, L.C., & Foorman, B.R. (in press). Literacy achievement in the primary grades in high poverty schools: Lessons learned from a five-year research program. In S.B. Neuman (ed.), *Literacy achievement for young children from poverty.* Baltimore: Brookes Publishing Co.
- Dyslexia Research, Education & Advocacy http://eida.org/
- Spear-Swerling, L. (2014) The Power of RTI and Reading Profiles: A Blueprint for Solving Reading Problems. This text explains why RTI is today's best approach for preventing reading difficulties--and how research on reading profiles can enhance the power of RTI. For practitioners, the book provides a complete, evidence-based blueprint for using RTI and reading profiles in tandem to plan effective core literacy

instruction and help struggling readers in Grades K-6, whether they have disabilities or issues related to experience (e.g., ELLs, children from poverty backgrounds).

- The CSDE maintains a list of resources designed to address identification and assessment as well as instruction and intervention for students with specific learning disabilities and dyslexia. http://www.sde.ct.gov/sde/cwp/view.asp?a=2678&Q=335500

3. Reading Instructional Resources and Materials

- Leveled Articles, Differentiation Ideas, and Curriculum Ladders (For the Teachers). http://www.fortheteachers.org
- Leveled Text, Units, and Lessons (ReadWorks). http://www.readworks.org/
- Leveled Articles and Text Sets (NewsELA). www.newsela.com
- Fiction and Nonfiction Texts (Commonlit). http://www.commonlit.org/
- Primary Source Resources (Library of Congress). http://www.loc.gov/teachers/
- Primary Source Resources and Museum Collections (Smithsonian Education). http://www.smithsonianeducation.org/educators/
- Reading Rockets http://www.readingrockets.org/
- CSDE Family Literacy Resources http://www.sde.ct.gov/sde/cwp/view.asp?a=2678&q=320764

4. Tier 1 Writing Instructional Resources

- Graham, S. & Harris, K., A Path to Better Writing: Evidence-Based Practices in the Classroom, *The Reading Teacher*, January/February 2016 (Vol. 69, #4, p. 359-365), http://onlinelibrary.wiley.com/doi/10.1002/trtr.1432/abstract
- In Common: Effective Writing (Achieve the Core) http://achievethecore.org/page/507/in-common-effective-writing-for-all-students
- ODELL Literacy (ODELL) http://odelleducation.com/literacy-curriculum
- Writing for Understanding Common Core Resources for Teachers (The Vermont Writing Collaborative). http://vermontwritingcollaborative.org/Resources.html
- Pros and Cons of Controversial Issues (ProCon) http://www.procon.org/
- NY Times Debatable Topics (NY Times). http://www.nytimes.com/roomfordebate

5. Tier 1 Mathematics Instructional Resources

- Curriculum alignment: Interactive Coherence Map (Achieve the Core) http://achievethecore.org/page/1118/coherence-map
- Curriculum resources/rich tasks: Mathematics Assessment Project http://map.mathshell.org/ (Secondary)
- Illustrative Mathematics https://www.illustrativemathematics.org/,
- Illuminations (NCTM) https://illuminations.nctm.org/

- Achieve the Core Classroom Resources http://achievethecore.org/
- Student mathematics practice - Khan Academy https://www.khanacademy.org/
- IXL https://www.ixl.com/
- Bridging Practices among Connecticut Mathematics Educators http://bridges.education.uconn.edu/
- Connecticut Model Curriculum for High School http://ctcorestandards.org/?page_id=1025
- Youcubed https://www.youcubed.org/
- LearnZillion https://learnzillion.com/p/

6. Tier 1 Science Instructional Resources

- Tools for Ambitious Science Teaching (University of Washington) http://ambitiousscienceteaching.org/get-started/
- Tweed, A. (2009). *Designing Effective Science Instruction: What Works in Science Classrooms*. Arlington, VA: NSTA Press.
- Rothstein D. and Santana, L. (2011). *Make Just One Change: Teach Students to Ask Their Own Questions*. Cambridge, MA: Harvard Press.
- Zwiers, J. and Crawford, M. (2011). *Academic Conversations.* Portland, ME: Stenhouse Publications.
- Fathman, A. and Crowthers, D. (2009). *Science for English Language Learners.* Arlington, VA: NSTA Press.
- **NGSS Evidence Statements (Executive Summary) (Introduction and Overview) (Grades K-5) (Grades 6-8) (Grades 9-12)** NGSS Evidence Statements provide educators with additional detail on what students should know and be able to do. These Evidence Statements are statements of observable and measureable components that, if met, will satisfy NGSS performance expectations.
- **NGSS Appendices** - 13 essays detailing elements of the NGSS based upon the recommendations in the *Framework for K-12 Science Education* (National Research Council, 2012).

7. Tier 1 - Reaching ALL learners

- Culturally Responsive Teaching http://ceedar.education.ufl.edu/wp-content/uploads/2014/08/culturally-responsive.pdf
- CSDE English Learner Resources www.ct.gov/sde/englishlearners
- CSDE Special Education Resources http://www.sde.ct.gov/sde/cwp/view.asp?a=2678&Q=320730
- Universal Design for Learning http://ctcorestandards.org/?page_id=7773
- Differentiation, Protocols, and Other Resources (EL Education) http://commoncoresuccess.eleducation.org/resources

- Leveled Articles, Differentiation Ideas, and Curriculum Ladders (For the Teachers). http://www.fortheteachers.org
- Leveled Text, Units, and Lessons (ReadWorks). http://www.readworks.org/
- Leveled Articles and Text Sets (NewsELA). www.newsela.com
- Fiction and Nonfiction Texts (Commonlit). http://www.commonlit.org/
- Teacher practices: NCTM's *Principles to Actions: Ensuring Mathematical Success for All* *http://www.nctm.org/PtA/*

8. Tier 2 and 3 Intervention – Supplemental and Intensive Instruction and Supports

- CSDE Framework for RTI http://www.sde.ct.gov/sde/lib/sde/pdf/pressroom/SRBI_full.pdf
- RTI Action Network http://www.rtinetwork.org/
- Center on Response to Intervention http://www.rti4success.org/
- Scientific Research-Based Interventions for English Language Learners: A Handbook to Accompany Connecticut's Framework for RTI http://www.sde.ct.gov/sde/lib/sde/pdf/curriculum/bilingual/el_admin_resource_handbook.pdf
- National Center on Intensive Intervention https://intensiveintervention.org/
- What Works Clearinghouse https://ies.ed.gov/ncee/wwc/
- Evidence for ESSA https://www.evidenceforessa.org/

Where can I get more information?	
QUESTIONS	**CSDE CONTACTS**
Best Practices and Resources for Improving ELA Curriculum and Instruction	Melissa Hickey Phone: 860-713-6680 Email: Melissa.Hickey@ct.gov
Best Practices and Resources for Improving Mathematics Curriculum and Instruction	Jennifer Michalek Phone: 860-713-6557 Email: jennifer.michalek@ct.gov
Best Practices and Resources for Improving Science Curriculum and Instruction	Ronald Michaels Phone: 860-713-6851 Email: ronald.michaels@ct.gov
Best Practices and Resources for Supporting English Learners	Megan Alubicki Flick Phone: 860-713-6786 Email: megan.alubicki@ct.gov
Academic Growth Calculations	Renee Savoie Phone: 860-713-6858 Email: renee.savoie@ct.gov

INDICATOR 3: PARTICIPATION RATE

Description (What): This indicator will evaluate participation rates on all assessments for ELA, Mathematics, and Science for All Students group and the High Needs supergroup.

Rationale (Why): High participation rates for all students across subgroups is critical if accountability reports are to be representative of all students. The validity of conclusions one can derive from assessment results is partly dependent on the percentage of students who participated in the assessment. For example, one cannot make generalizations about a school's performance if a large number of eligible students did not participate in the test. Additionally, without high participation rates, fair comparisons across schools and years cannot be made.

Applicability (Who): This indicator is applicable to all schools and districts with at least one tested grade (i.e., grades 3 through 8, 10, or 11).

Methodology: Every school and district is expected to meet/exceed the 95% participation rate standard for the All Students group ***and*** the High Needs group in all the tested subjects. If a school that would otherwise have been classified in Category 1 or 2 has a participation rate that is less than 95% for either the All Students group or the High Needs group in any tested subject, it will be classified into the next lower category.

Data Source: State assessment data files and Public School Information System (PSIS) for student demographic (e.g., race/ethnicity, gender) and program (EL, FRPL, disability) data.

RESOURCES FOR ENSURING ASSESSMENT PARTICIPATION ACROSS THE SCHOOL COMMUNITY

The key to ensuring high participation rates lies in communication with teachers, students, and families. Everyone needs to know what to expect in terms of content, the delivery system, and time demands while also understanding how results will be used. Throughout communication it is essential to maintain perspective. School and district leaders must strike a balance between communicating the importance and value of assessment data while not creating undue anxiety about a single summative test score. In a 180-day school year, the state assessment is a very small component of the instructional program, lasting less than eight hours across all content areas for the average student taking mathematics, English language arts/literacy, and science assessments.

CSDE has provided Communication Tools for the Smarter Balanced assessments. http://www.sde.ct.gov/sde/cwp/view.asp?a=2748&q=336782

Connecticut SAT resources which include a template letter to parents as well as frequently asked questions is available at http://www.sde.ct.gov/sde/cwp/view.asp?a=2748&q=335780.

The National PTA has created a range of free online resources that can be customized for local use to help parents understand the purpose and stakes associated with state assessments including Smarter Balanced. The organization effectively describes the relationship between content standards for local curricula and the summative assessment through a variety of short videos and parent guides.

In an effort to encourage schools to sponsor informational events for families, the National PTA has created a *Parent Assessment Event Toolkit*. The toolkit includes a facilitator's guide, presentation templates, anticipated questions, suggested take-home tools for parents in Spanish and English, and sample announcements. To access the toolkit and other resources, visit: https://www.pta.org/home/family-resources/College-and-Career-Readiness/State-Assessments/Parent-Assessment-Event-Toolkit

Achieve the Core offers resources you can use to speak to parents and community members about the new standards. The site offers guides, documents, and parent videos. http://achievethecore.org/page/2736/talking-with-parents

Where can I get more information?	
QUESTIONS	**CSDE CONTACTS**
Strategies for Ensuring Assessment Participation	Abe Krisst Phone: 860-713-6894 Email: abe.krisst@ct.gov
Rate Calculations	Diane Murphy Phone: 860-713-6891 Email: diane.murphy@ct.gov

INDICATOR 4: CHRONIC ABSENTEEISM

Indicator	Max Points
Percentage of students chronically absent	
• All Students	50
• Students in *High Needs Subgroup*	50

Description (What): A district/school/subgroup chronic absenteeism rate is the percentage of students missing ten percent or greater of the total number of days enrolled in the school year for any reason. It includes both excused and unexcused absences. For example, children who are enrolled for the full school year (e.g., 180 days) become chronically absent if they miss at least 18 days of school for any reason. Because aggregate school/district-wide attendance rates can mask the extent of individual absenteeism, chronic absenteeism is a better indicator of student attendance.

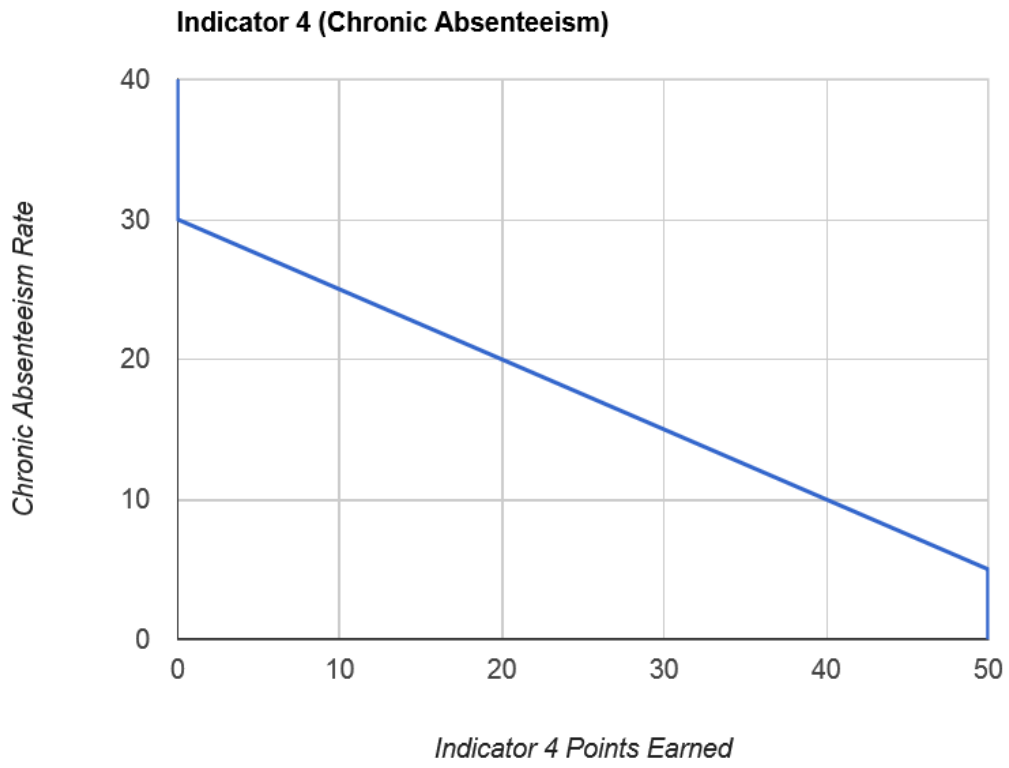
Rationale (Why?): Students need to attend school daily to succeed and data must guide local efforts to improve student attendance. In 2016-17, 9.9% of all students statewide were chronically absent. Great disparities exist in chronic absenteeism rates among student subgroups. For example, the 2016-17 chronic absenteeism rate for students eligible for free lunch (18.3%) was more than three times that of their peers who were not eligible for lunch subsidies (5.7%). In the same year, 18.6% of students with disabilities were chronically absent while 8.4% of their non-disabled peers were identified as chronically absent. Regardless of subgroup membership, national reports/research as well as state level data analyses highlight the association of chronic absenteeism to student academic achievement and high school graduation.

Applicability (Who): The chronic absenteeism indicator is applicable to all districts and schools with at least one grade between K and 12, inclusive.

Input/Feedback: This indicator has gained increasing acceptance statewide. Many districts and schools have begun to track and monitor chronic absenteeism voluntarily. The Connecticut legislature has established a Strategic Action Group around this issue that is serving as a centralizing force for disseminating promising new practices, promoting communication and collaboration among critical state agency and community-based partners, and reporting to the legislature on statewide progress. The CSDE's district/school turnaround initiatives (Alliance District program and Commissioner's Network) incorporate chronic absenteeism as an important indicator.

Methodology (How): Points will be earned for the All Students group ***and*** the High Needs subgroup based on the percentage of students who are chronically absent. It is important to weight subgroup absenteeism rates separately because disparities in chronic absenteeism rates

among student subgroups exist in a vast majority of districts/schools throughout the state. The CSDE's expectation is that no district/school will have a chronic absenteeism rate that is greater than 5%; therefore, full points will be awarded if the chronic absenteeism rate is 5% or lower. Conversely, no points will be awarded if the chronic absenteeism rate is 30% or greater. To recognize incremental improvement in the reduction of chronic absenteeism, rates between 30% and 5% will be awarded proportional points.



The following formula is used to convert the chronic absenteeism rate into points:

$$\frac{(30\% - Chronic\ Absenteeism\ Rate)}{25\%}\ x\ 50$$

For example, a school with an "all students" chronic absenteeism rate of 15% would earn 30 of the possible 50 points for the "all students" component of Indicator 4. The calculation is as follows:

$$\frac{(30\% - 15\%)}{25\%}\ x\ 50$$

$$= \frac{15\%}{25\%}\ x\ 50 = \frac{3}{5}\ x\ 50 = 30\ points$$

Data Source: June PSIS

RESOURCES FOR IMPROVING ATTENDANCE

- Connecticut State Department of Education staff have assembled a collection of timely and relevant resources focused on understanding potential causes of chronic absenteeism, the impact of loss instructional time, and practical approaches to ensuring that students are attending school ready to learn. The Reducing Chronic Absenteeism in Connecticut Schools webpage is updated regularly with new information and resources for schools and districts to use to reduce chronic absence. www.ct.gov/sde/chronicabsence.

New Connecticut resources include:

- Reducing Chronic Absence in Connecticut's Schools: A Prevention and Intervention Guide for Schools and Districts. The Prevention and Intervention Guide is designed to support the work in districts, schools, and communities to develop and implement effective strategies to reduce chronic absence. Organized in an easy-to-read manner, the guide is rich with links to research, resources, and toolkits. It also provides examples of local strategies, state, and national resources and a multi-tiered approach to addressing chronic absence. A recording of a webinar providing an overview of the guide is also available. http://www.sde.ct.gov/sde/cwp/view.asp?a=2663&q=336658

- Attend Today/Achieve Tomorrow Attendance Awareness Campaign. This statewide campaign is designed to provide districts, schools and community partners with resources and artwork with the Attend Today, Achieve Tomorrow slogan and design work. A webpage, www.attendtodayct.org, with printable and downloadable resources is now available, including social media graphics, banners, badges, and handouts for parents and others. Many of the materials are in English and Spanish. On this site, you will also find information on how mentoring can be used as an intervention strategy for chronic absenteeism in your schools. http://www.attendtodayct.org/

- PSIS Reference Guide for 2017-18. The PSIS Reference Guide for 2017-18 provides schools and districts with detailed guidance for reporting attendance data through PSIS. Unique scenarios including disciplinary absences, early dismissal days, and extended family vacations/travel are addressed in Appendix G on pages 49-52 of the PSIS Reference Guide for 2017-18. New guidance on how to address the registration of students who are disengaged from school can be found on pages 61 and 62 of Appendix N in the PSIS Reference Guide for 2017-18.

Important Note: Effective July 1, 2017, CSDE will no longer consider In-School Suspensions (ISS) lasting one-half day or more to be considered and reported as a full-day absence.
http://www.csde.state.ct.us/public/psis/downloads/2017-18_PSIS_Record_Layout.pdf

- Guidance Concerning Suspension and Expulsions for Students in Preschool and Grades Kindergarten to Two. This document provides guidance on statutory requirements related to the use of exclusionary discipline for young children.
http://www.sde.ct.gov/sde/lib/sde/pdf/deps/chronicabsenteeism/guidance_concerning_suspension_and_expulsions.pdf

Other resources include:

- The Governor's Prevention Partnership (GPP) supports schools and businesses as well as community and faith-based organizations in ensuring that children are in safe, quality mentoring relationships. Quality mentoring programs can be an effective intervention for reducing chronic absenteeism. The staff at GPP can provide technical assistance and support to districts and schools to establish quality mentoring programs.
http://www.preventionworksct.org/what/mentoring/

- Guidelines for Implementation of the Definitions of Excused and Unexcused Absences and Best Practices for Absence Prevention and Intervention. Connecticut State Department of Education.
http://www.sde.ct.gov/sde/lib/sde/pdf/publications/guidelines_excused_and_unexcused_absences.pdf.

- CSDE Family and Community Engagement Resources:
http://www.sde.ct.gov/sde/taxonomy/v4_taxonomy.asp?DLN=45424&sdeNav=|45424|&sdePNavCtr=|45493|#45493

- Connecticut's Medical Home Initiative for Children and Youth with Special Health Care Needs (CYSHCN): Students identified with special health care needs may have or are at increased risk for a chronic physical, developmental, behavioral or emotional condition and require health and related services beyond that required for children in general. Assistance for the family and the student is available by contacting CYSHCN.
http://www.ct.gov/dph/cwp/view.asp?a=3138&Q=387702&PM=1

- Get Schooled
http://jgc.stanford.edu/resources/policy_fact_sheets/Absence_Interventions_PFS.pdf. The organization uses a digital platform, gamification and a recipe it calls 'sizzle and substance' to inspire and engage students. Students set up personal accounts and have access to important information and motivation to attend school
https://getschooled.com/dashboard?q=attendance

- The National Mentoring Partnerships provides resources for implementing a mentor program and research-based evidence of the power of mentoring on improving absenteeism, improving attitudes toward school, and likelihood of enrolling in college. http://www.mentoring.org

- Attendance Works is a national and state initiative that promotes awareness of the important role that school attendance plays in achieving academic success. The Director of Attendance Works, Hedy Chang, and Johns Hopkins researcher Robert Balfanz are considered two of the nation's experts on absenteeism and strategies that work. In collaboration with partners, they have published many reports that include success stories from schools around the country. The five titles below are examples of materials available through www.attendanceworks.org.

    - Attendance Works and John Hopkins University, on behalf of Everyone Graduates Center (2017) *Portraits of Change, Aligning School and Community Resources to Reduce Chronic Absence*. This report provides a national and state analysis of how many schools face high levels of chronic absence and discusses the implications for state and local action. It relies on the most recent federal chronic absence data for the 2013-14 school year. It includes examples of attendance initiatives from communities across the U.S. that show how chronic absence can be turned around, even when it reaches high levels in a school or district or among a particular student population. It also shares how partners such as businesses, nonprofits, and local governments can team up with educators and add support and resources. http://www.attendanceworks.org/research/portraits-of-change/

    - Attendance Works and John Hopkins University, on behalf of Everyone Graduates Center (2016) *Preventing Missed Opportunity: Taking Collective Action to Confront Chronic Absence*. This brief builds on the first national chronic absence data set from the U.S. Department of Education's Civil Rights Data Collection (CRDC) from the 2013-14 school year. The analysis finds that half of the 6.8 million students who are chronically absent nationwide are concentrated in just 4 percent of school districts. The analysis also shows that chronic absenteeism follows poverty wherever it is found in significant concentrations. Given the scope of the problem, the brief lays out key steps school districts and states can take to turn around chronic absenteeism, by using real time data to trigger collective action to ensure every child has the opportunity to achieve in school. http://www.attendanceworks.org/research/preventing-missed-opportunity/

- Balfanz, Robert and Byrnes, Vaughan (2013), *Meeting the Challenge of Combating Chronic Absenteeism*, Everyone Graduates Center, Johns Hopkins University School of Education.
  This report examines the impact of New York City Mayor Michael Bloomberg's task force on truancy, chronic absenteeism, and school engagement, a program that spanned 2010 to 2013 and reached more than 60,000 students in NYC public schools. The study found that students who missed at least 20 days of school per year — the definition of chronic absenteeism — had lower grades and were more likely to drop out than students with better attendance. Yet, the researchers also found these effects of absenteeism are reversible with the help of mentors, incentive programs, and awareness campaigns.
  http://www.attendanceworks.org/wordpress/wp-content/uploads/2014/01/NYC-Chronic-Absenteeism-Impact-Report-Nov-2013.pdf

- Balfanz, Robert and Byrnes, Vaughan (2012), *The Importance of Being in School: A Report on Absenteeism in the Nation's Public Schools*, Johns Hopkins University Center for Social Organization of Schools.
  This report analyzes data on chronic absenteeism at the state level to begin the process of mapping its extent and characteristics. Although currently only a handful of states collect data on chronic absenteeism, results from a sample of states suggest that an estimated 10-15% of students in the U.S. are chronically absent each year. The report also highlights some promising practices among cities, school districts, and nonprofits to combat chronic absenteeism. The authors offer policy recommendations on tracking and reporting chronic absence data and evidence-based interventions.
  http://new.every1graduates.org/wp-content/uploads/2012/05/FINALChronicAbsenteeismReport_May16.pdf

- Ginsburg, Alan, Phyllis Jordan, and Hedy Chang (2014), Absences Add Up: How School Attendance Influences Student Success, Attendance Works, August 2014.
  This state-by-state analysis of national testing data demonstrates that students who miss more school than their peers consistently score lower on standardized tests, a result that holds true at every age, in every demographic group, and in every state and city tested. The analysis is based on the results of the 2013 National Assessment of Educational Progress (NAEP). It compares attendance rates and NAEP scores for every state and for 21 large urban areas.
  http://www.attendanceworks.org/wordpress/wp-content/uploads/2014/09/Absenses-Add-Up_September-3rd-2014.pdf

- Attendance Works has developed a range of resources specific to grades served (i.e., elementary, middle , secondary) and aligned to five important strategies designed to

improve attendance: recognizing good and improved attendance; engaging students and parents; monitoring attendance data and practice; providing personalized early outreach; and developing programmatic responses to barriers. A few examples include:

- Leading Attendance: A Toolkit for **Principals**
  http://www.attendanceworks.org/tools/schools/principals/
- Teaching Attendance 2.0: Everyday Strategies to Help **Teachers** Improve Attendance and Raise Achievement
  http://www.attendanceworks.org/tools/schools/teaching-attendance/
- Bringing Attendance Home: Engaging **Parents** in Preventing Chronic Absence
  http://www.attendanceworks.org/tools/for-parents/bringing-attendance-home-toolkit/
- Make Every Day Count: **Sending the Right Message** About Attendance to Parents and Students
  http://www.attendanceworks.org/tools/for-public-messaging/
- Relationships Matter: A Toolkit for An Elementary **Success Mentor** Attendance Initiative
  http://www.attendanceworks.org/tools/for-school-districts/elemsuccessmentortoolkit/

Where can I get more information?	
QUESTIONS	**CSDE CONTACTS**
Resources, Strategies, and Best Practices	Kari Sullivan Phone: 860-807-2041 Email: kari.sullivan@ct.gov
Data Collection and Reporting	Marquelle Middleton Phone: 860-713-6877 Email: marquelle.middleton@ct.gov

Indicator 5: Preparation for Postsecondary and Career Readiness – Coursework

Indicator	Max Points
Percentage of students in grades 11 & 12 participating in *at least one* of the following during high school: Two courses in AP/IB/dual enrollment; ***or*** Two courses in one of seventeen CTE categories; ***or*** Two workplace experience "courses" in any area.	50

Description (What): This is an access metric. It evaluates whether students in grades 11 and 12 have participated in coursework during high school that prepares them for success in college and/or careers. In recognition of the diverse pathways of our students, credit is awarded if students pursue traditional college-preparatory courses (e.g., Advanced Placement, International Baccalaureate), career-technical education courses, or workplace experience/internship opportunities. Students in Grade 12 include students with disabilities who are 18 to 21 years of age and are receiving transition only services. These students are engaged in workplace experience and will contribute positively to a school's Indicator 5 calculation.

Rationale (Why?): Students cannot be expected to demonstrate success in college and careers if they aren't receiving the requisite preparation.

Applicability (Who): This indicator is applicable to all districts and schools that offer grades 11 and/or 12.

Input/Feedback: The primary feedback to this indicator has been that the system should be inclusive to recognize opportunities beyond AP/IB that may be offered by districts. For example, many districts have partnerships with in-state colleges/universities (e.g., UCONN's Early College Experience program) that enable students to take college courses in high school and earn both high school and college credit. In response to this suggestion, the CSDE modified its data collection to collect information about dual enrollment courses.

Methodology (How): Points are awarded to the All Students group based on the percentage of 11th and 12th graders who meet the specified coursework participation thresholds. Points are prorated based on the percentage of the ultimate target (75%) achieved.

Calculation Steps

1. Start with June Collection to determine 11th and 12th graders and their facility1codes. Pull in certified TCS records from Fall of Years 2013, 2014, 2015, and 2016 for SASIDs with the same facility1code as in PSIS June Collection.

2. AP/IB courses are flagged by the NCES course name. Dual enrollment courses are flagged by having a dual enrollment code. The AP/IB/Dual Enrollment flags are all summed by SASID and facility1code. SASID and facility1code combinations whose flags sum to >=2 receive credit for Indicator 5.
    a. NCES Course Names and Codes can be viewed under the "Secondary School Course Classification System" Header on the TCS help site: http://www.csde.state.ct.us/public/tcs/docs.asp
    b. More information regarding Dual Enrollment Codes are available on page 17-18 of the TCS User Guide: http://www.csde.state.ct.us/public/tcs/docs.asp

3. Workplace Experience courses are flagged by the NCES course name. The Workplace Experience flags are summed by SASID and facility1code. SASID and facility1code combinations whose flags sum to >=2 receive credit for Indicator 5
    a. NCES Course Names and Codes can be viewed under the "Secondary School Course Classification System" Header on the TCS help site: http://www.csde.state.ct.us/public/tcs/docs.asp
    b. In addition, students with disabilities who are receiving transition services only (18-21 years of age) **and** engaged in Workplace Experience as indicated by exception code 02 will also be included as having met this indicator.

4. CTE courses are identified into 1 or more cluster by NCES. There are 17 clusters. Each cluster has a unique flag. Each unique CTE flag is summed by SASID and facility1code. If the sum of the unique CTE flag is >=2 in any cluster, then the student receives credit for Indicator 5.
    a. Career Technical Education Course Codes & Clusters can be viewed under the "Secondary School Course Classification System" Header on the TCS help site: http://www.csde.state.ct.us/public/tcs/docs.asp

5. The unique count of SASIDs and facility1codes receiving credit for Indicator 5 is summed by facility1code to determine the school-level numerator for indicator 5.

6. Students identified as meeting Indicator 5 in any of steps 2-4 are summed by their reporting district to determine the district-level numerator for indicator 5.

For further detailed calculation rules see the Appendix.

Data Source: June PSIS (to establish 11th and 12th graders) and Teacher Course Student (for course participation)

Indicator 6: Preparation for Postsecondary and Career Readiness - Exams

Indicator	Max Points
Percentage of students in grades 11 & 12 achieving CCR benchmark on *at least one* of the following: Smarter Balanced 11th ***or*** SAT ***or*** ACT ***or*** AP ***or*** IB	50

Description (What): This metric evaluates whether students in grades 11 and 12 have attained benchmark scores on at least one of the most prevalent college/career readiness exams.

Rationale (Why?): In addition to looking at "access" (i.e., indicator 5), it is also important to evaluate "performance". In recognition of the exam options available to students, this metric recognizes attainment of the benchmark score in any of those options.

Applicability (Who): This indicator is applicable to all districts and schools that offer grades 11 and/or 12.

Input/Feedback: As with coursework, the primary feedback to this indicator has been that the system should be inclusive and recognize that students may demonstrate college/career readiness through different exam options.

Methodology (How): Points will be awarded to the All Students group based on the percentage of 11th and 12th graders who meet the following benchmark scores on the respective exams:

- Grade 11 Smarter Balanced – Level 3 or higher on both ELA and Math; or
- SAT (until January 2016) – composite score of 1550 or higher on the old SAT; or
- SAT (effective March 2016) – Evidence-Based Reading and Writing score of at least 480 and a Math score of at least 530 on the Redesigned SAT; or
- ACT – meeting benchmark on 3 of 4 exams (benchmark varies based on subject); or
- AP – 3 or higher on an AP exam; or
- IB – 4 or higher on an IB exam.

Points are prorated based on the percentage of the ultimate target (75%) achieved.

Data Source: June PSIS (to establish 11th and 12th graders), SAT/AP from College Board, ACT from ACT, Inc., IB from International Baccalaureate Organization, and Smarter Balanced from state assessment data files.

RESOURCES TO PREPARE STUDENTS FOR POSTSECONDARY SUCCESS

This accountability system values increasing student access to rigorous coursework while striking a balance with outcomes based on a variety of nationally recognized assessments. Research shows that students who enroll in challenging coursework in high school are more likely to graduate and are better positioned for success in college (Achieve, 2015). It acknowledges that challenging coursework can take many forms including dual enrollment, CTE coursework, and workplace experience.

Teachers and school counselors play a critical role in helping students to select appropriate coursework to meet student needs and provide an appropriate level of challenge. Schools that administer the PSAT to all students also have access to the College Board's *AP Potential* tool. *AP Potential* is a free web-based tool that allows schools to identify all students with a high probability of success in an AP course based on PSAT performance. In 2013-14, the Connecticut State Department of Education began the practice of annually notifying students who demonstrate AP potential and encouraging them to consider enrolling in challenging courses such as AP, dual enrollment, or IB courses. The *AP Potential* tool provides school personnel with another resource that can be used to remove barriers and invite more students of all backgrounds to participate in college-aligned coursework. Additional information about the tool and guidelines for proper use are available here: https://appotential.collegeboard.org/app/welcome.do

Other College Board Resources:

> The information, resources, and tools on the College Board website can help educators prepare students to take the SAT, PSAT/NMSQT, PSAT 10, and PSAT 8/9. Educators can get information about student scores, classroom connections, test design, and sample questions. https://collegereadiness.collegeboard.org/educators/k-12
>
> Students can get information about AP courses and the benefits of AP such as college credit, skipping introductory courses and building college skills. https://apstudent.collegeboard.org/home?navId=aru-ap
>
> The College Board's Big Future provides resources for students to prepare for college. Additionally the site provides educators handouts and other college planning resources to share with students and families. There is a section for parents and families as well with information regarding financial aid and preparing for college. https://bigfuture.collegeboard.org/?navId=aps-cp

Increasingly districts are realizing the value of high-quality CTE programs of study. Research shows a strong positive relationship between participation in CTE and other measures of academic achievement. Additionally, the applied nature of CTE is appealing to students, keeping them motivated and engaged in their learning. The National Association of State Directors of Career Technical Education Consortium (NASDCTEc) has collected information about program designs that work in different community types throughout the country. To review "effective models," visit http://careertech.org/papers-effective-models.

- **Career Technical Education Programs** Engaging and rigorous career-technical education programs that focus on providing industry certifications and dual credit opportunities for CTE completers. For more information and resources for quality career-technical programs in high school, see:
    - CSDE CTE webpage: http://www.sde.ct.gov/sde/cwp/view.asp?a=2678&q=320802
    - CSDE CT Core Standards website, CTE page: http://ctcorestandards.org/?page_id=1336
    - Association for Career and Technical Education, The National Research Center for Career and Technical Education at SREB, http://www.nrccte.org/
    - Southern Regional Education Board's *High Schools that Work* and *Advanced Careers* *http://www.sreb.org/page/1608/Advanced_Career.html*

Where can I get more information?	
QUESTIONS	**CSDE CONTACTS**
Resources, Strategies, and Best Practices related to College Board products including PSAT, SAT, and AP	Michelle Rosado Phone: 860-713-6748 Email: michelle.rosado@ct.gov
Resources, Strategies, and Best Practices for CTE and Dual Enrollment	Suzanne Loud Phone: 860-713-6748 Email: suzanne.loud@ct.gov
Resources, Strategies, and Best Practices for Work-Based Learning	Harold Mackin Phone: 860-713-6779 Email: harold.mackin@ct.gov
Resources, Strategies, and Best Practices for Supporting Students with Disabilities Receiving Transition Only Services	Jay Brown Phone: 860-713-6918 Email: jay.brown@ct.gov
Data Collection and Reporting for Coursework (Indicator 5)	Keryn Felder Phone: 860-713-6833 Email: keryn.felder@ct.gov
Data Collection and Reporting for Exams (Indicator 6)	Charles Martie Phone: 860-713-6809 Email: charles.martie@ct.gov

INDICATOR 7: GRADUATION - ON-TRACK IN 9TH GRADE

Indicator	Max Points
Percentage of 9th graders earning at least five full-year credits in the year ***and*** no more than one failing grade in English, Mathematics, Science or Social Studies	50

Description (What): Since initial implementation in 2014-15, this indicator calculates the percentage of 9th graders earning at least five full-year credits in the year. In the future, CSDE will consider adding the criteria that there be no more than one failing grade in English, Mathematics, Science, or Social Studies in the school year.

Rationale (Why?): Ninth grade is a critical year. The University of Chicago's Consortium on Chicago School Research "identifies students as on-track if they earn at least five full-year course credits and no more than one semester F in a core course in their first year of high school. On-track students are more than three and one-half times more likely to graduate from high school in four years than off-track students. The indicator is a more accurate predictor of graduation than students' previous achievement test scores or their background characteristics."

Applicability (Who): This indicator is applicable to all districts and schools that offer grade 9. It is also applied to districts/schools where *the 9th graders had been enrolled in 8th* grade in order to serve as an indicator of how well the middle school is preparing students for success in the first year of high school.

Input/Feedback: Some questioned if the five credits in grade 9 represents being on-track since the total credits required to graduate in many high schools exceed the state minimum of 20. Others suggested course passage instead of credit accumulation. Some administrators of K-8 schools districts were also concerned that this metric was holding them accountable for student success in an educational system outside their own.

Methodology (How): The total number of students in 9th grade who earn at least five full year credits is expressed as a percentage of all 9th graders.

The ultimate target for this indicator is 94% (same as that for the four-year cohort graduation rate). Points are prorated based on the percentage of the ultimate target achieved.

For detailed calculation rules, see the Appendix.

Data Source: June PSIS (to establish current year 9th graders and prior year 8th graders) and Teacher Course Student (for credit data)

RESOURCES FOR KEEPING STUDENTS ON-TRACK TO GRADUATION

The on-track definition used by the University of Chicago's Consortium on Chicago School Research has been adopted and customized in districts across the nation. State accountability system indicators are always lagging indicators, but at the local level, districts and schools have the opportunity to track and respond to relevant data quickly before serious problems emerge and on-time graduation for a student is compromised.

The Consortium in partnership with the Network for College Success have conducted extensive research about the importance of Grade 9 and identified factors that predict the likelihood of graduation. The on-track rate in Chicago Public Schools has risen from 57 percent for the Class of 2008 to 84 percent for the Class of 2018. The *To & Through Project* website includes videos, recorded webinars, and targeted reports focused on helping first-generation college students and high needs stay on-track to graduation. All resources can be accessed here: https://toandthrough.uchicago.edu/.

The early warning indicator research identifies as many as 110 distinct indicators that have been used to predict which students are at risk of failing to complete high school (Bowers, Sprott, & Taff, 2013). The majority of these indicators have been constructed based on readily available data on "the ABC's" of student attendance, behavior, and course performance (Allensworth & Easton, 2007; Balfanz, Herzog, & Mac Iver, 2007; Frazelle, Negel, & Northwest, 2015; Roderick, 1993). http://www.earlywarningsystems.org/wp-content/uploads/2017/02/REL_DistrictGuide_GraduationOutcomes-Interactive.pdf

The increased focus on student success in Grade 9, has driven many high schools to implement early warning systems (EWS) to identify at-risk students. The National High School Center, funded through a grant from the U.S. Department of Education, developed a free online EWS tool using Excel that can be downloaded and customized to meet a school's needs. Using timely and accurate local data, school personnel can identify patterns and address potential problems proactively. In addition to the EWS designed for high schools, there is a middle school tool available. Both resources and supporting documentation are available through the College and Career Readiness Center at American Institutes for Research here:

http://www.earlywarningsystems.org/wp-content/uploads/2017/05/Boston-CCR-AIR-Lit-Rev-FINAL-2017APRIL.pdf

http://www.earlywarningsystems.org/

http://www.earlywarningsystems.org/wp-content/uploads/2017/01/Early-Warning-Systems-to-Improve-Student-Outcomes.pdf

The Educator's Practice Guide for Dropout Prevention provides recommendations that focus on reducing high school dropout rates. Strategies presented include identifying and advocating for

at-risk students, implementing programs to improve behavior and social skills, and keeping students engaged in the school environment. https://ies.ed.gov/ncee/wwc/PracticeGuide/9

While Indicator 7 focuses on credits and grades earned by a student, the on-track indicator is closely linked to Indicator 4: Chronic Absenteeism. The Chicago research and the EWS tools acknowledge the importance of attendance in Grade 8 *and* Grade 9 as predictors of success in high school and recommend monitoring attendance and other "warning signals" students provide to us as part of a comprehensive approach to keeping students on-track.

- The Everyone Graduates Center, a research program of Johns Hopkins University, is committed to studying the dropout problem by identifying barriers and developing tools and models that states, communities, districts, and schools can use to support all students through high school graduation. Visit the *Analytics* section of their website to learn more about identifying students who are sending "warning signals" and improving data-based decision making and actions. http://new.every1graduates.org/analytics/on-and-off-track-indicators/

- **Evidence Based Resources for Keeping Students on Track to Graduation**, George Washington University Center for Equity and Excellence in Education (January 2012) Provides resources for school wide, targeted, and intensive interventions designed to address attendance, behavior, and course failure. http://www.doe.virginia.gov/support/school_improvement/title1/1003_g/resources/evidence_based_resources.pdf.

- Educators recognize the important role social-emotional learning (SEL) plays for student success in school, work, and life. In a recent national study, the majority of educators stated that giving SEL a greater emphasis in schools will help improve academic achievement, student interest in schools, and student behavior (Bridgeland, Bruce, & Hariharan, 2013). To promote a greater emphasis on SEL, authors of a recent brief published by the Center on Great Teachers and Leaders (GTL Center) recommended integrating SEL with other state and district initiatives, including the Common Core State Standards and teacher evaluation systems. https://gtlcenter.org/products-resources/integrating-social-emotional-learning-state-and-district-policies

- MTSS is an evidence-based framework that uses data-based problem-solving to integrate academic and behavioral instruction and intervention. The integrated instruction and intervention is delivered to students in varying intensities (multiple tiers) based on student need. MTSS addresses the needs of the **whole child** to remove non-academic barriers to academic achievement and ensure that students achieve their full potential. To learn more about MTSS, visit http://www.rtinetwork.org/essential/tieredinstruction/tier1/accurate-decision-making-within-a-multi-tier-system-of-supports-critical-areas-in-tier-1

- **National Mentoring Partnerships** provides resources for implementing a mentor program and research-based evidence of the power of mentoring on reducing absenteeism, improving attitudes toward school, preventing the start of risk-taking behavior, and increasing the likelihood of enrolling in college. http://www.mentoring.org/

    - **The Governor's Prevention Partnership Youth Mentoring Program.** Through a partnership with MENTOR/National Mentoring Partnership, this Connecticut program partners with schools, businesses, community and faith-based organizations to ensure that children are involved in safe, quality mentoring relationships: http://www.preventionworksct.org/what/mentoring/introduction.html

- Poliner, Rachel A. and Lieber, Carol Miller (2004), ***The Advisory Guide: Designing and Implementing Effective Advisory Programs in Secondary Schools***, Educators for Social Responsibility. ISBN-10: 0942349016. How to design and implement an advisory program focused on building community and promoting academic success, social-emotional learning, and postsecondary planning.

- **Career-Themed Smaller Learning Communities**. Nonprofit organizations can assist schools by providing research-based best practices, including but not limited to:
    - Southern Regional Education Board's *High Schools That Work, Making Middle Grades Work* and *Technology Centers that Work.*
    - Regional Educational Laboratory Program https://ies.ed.gov/ncee/edlabs/
    - Northeast College and Career Readiness Research Alliance https://ies.ed.gov/ncee/edlabs/regions/northeast/NECCRalliance.asp
    - Talent Development Secondary- Early Warning System http://www.tdschools.org/about/early-warning-indicator-systems/

- **Buck Institute for Education** Engaging students in authentic project-based learning. Assists teachers in developing engaging project-based learning and assisting schools in creating a project-based learning school-wide effort. http://bie.org/

- **Connecticut's Guidelines for Mastery-Based Learning** http://www.sde.ct.gov/sde/lib/sde/pdf/mbl/mastery_based_learning_guidelines.pdf

- **The Collaborative for Academic, Social, and Emotional Learning (CASEL)** advances the practice of promoting integrated academic, social, and emotional learning for all children in preschool through high school. http://www.casel.org/

- **Career Technical Education Programs** Engaging and rigorous career-technical education programs that focus on providing industry certifications and dual credit opportunities

for CTE completers. For more information and resources for quality career-technical programs in high school, see:

- CSDE CTE webpage: http://www.sde.ct.gov/sde/cwp/view.asp?a=2678&q=320802
- CSDE CT Core Standards website, CTE page: http://ctcorestandards.org/?page_id=1336
- Association for Career and Technical Education, The National Research Center for Career and Technical Education at SREB, http://www.nrccte.org/
- Southern Regional Education Board's *High Schools that Work* and *Advanced Careers.* *http://www.sreb.org/page/1608/Advanced_Career.html*

- **Practice Guide: Dropout Prevention.** Institute of Education Sciences (IES) (September 2008). This guide provides recommendations that focus on reducing high school dropout rates. http://www.ies.ed.gov/ncee/wwc/pdf/practice_guides/dp_pg_090308.pdf

Where can I get more information?	
QUESTIONS	**CSDE CONTACTS**
Resources, Strategies, and Best Practices	Kimberly Traverso Phone: 860-807-2057 Email: kimberly.traverso@ct.gov
Data Collection and Reporting	Keryn Felder Phone: 860-713-6833 Email: keryn.felder@ct.gov

Indicator 8: Graduation – Four Year Adjusted Cohort Graduation Rate – All Students

Indicator	Max Points
Percentage of first time 9th graders who graduate with a regular high school diploma in four years or less – All Students	100

Description (What): The four year adjusted cohort graduation rate represents the percentage of first time 9th graders who graduate with a regular high school diploma in four years or less. It is based on the nationally consistent method defined in 34 C.F.R. § 200.19 (73 FR 64508 (Oct. 29, 2008)).

Rationale (Why?): Graduating from high school is an important milestone in a student's education. The inclusion of the specific four-year adjusted cohort graduation rate is a requirement of the Every Students Succeeds Act (ESSA).

Applicability (Who): This indicator is applicable to all districts and schools that offer at least one grade between 9 and 12, inclusive.

Input/Feedback: Among all the indicators in the accountability model, this is one that continues to irk many district/school leaders. While a vast majority of students do graduate in four years, practitioners adamantly (and one might say rightly) contend that some students (e.g., English learners who newly arrive in the country in middle/high school, low income students who may need to work part-time to support their family, some students with disabilities) benefit from having an extra year or two to complete high school; consequently, they claim it is unfair that these non-graduates are counted as a "failure" in the four-year rate which has become the "de-facto graduation rate."

Methodology (How): The four-year adjusted cohort graduation rate is based on the nationally consistent method as defined in 34 C.F.R. § 200.19 (73 FR 64508 (Oct. 29, 2008)). The ultimate target for all students remains at 94%. Districts/schools can earn up to 100 points based on the pro-rated percentage of the ultimate target (94%) achieved by All Students. For example, a school with a graduation rate of 84.6 (i.e., 90% of the ultimate target of 94%) will earn 90 out of 100 points.

Data Source: PSIS Registration and Collection

Indicator 9: Graduation – Six Year Adjusted Cohort Graduation Rate – High Needs

Indicator	Max Points
Percentage of first time 9th graders who graduate with a regular high school diploma in six years or less – *High Needs Subgroup*	100

Description (What): The six-year adjusted cohort graduation rate represents the percentage of first time 9th graders who graduate with a regular high school diploma in six years or less. It is based on the nationally consistent method defined in 34 C.F.R. § 200.19 (73 FR 64508 (Oct. 29, 2008)).

Rationale (Why?): For a variety of reasons, some students (e.g., English learners who newly arrive in the country in middle/high school, low income students who may need to work part-time to support their family, student with disabilities who need additional "transition only services" to facilitate the transition from school to adult life) benefit from having an extra year or two to complete high school. Unlike in the four-year rate, the graduation accomplishment of these students can be counted as a success in the six year rate. The results below for the 2014 cohort illustrate why the six-year is a more fair and complete reflection of the successes of all students and subgroups.

Four-, Five-, and Six-year Graduation Rates for the 2014 Graduation Cohort

Category	4-Year Rate	5-Year Rate	6-year Rate
All Students	87.0	89.3	90.5
English Learner	63.0	69.0	70.8
Special Education	65.2	72.4	78.0
Eligible for Free Meals	73.1	77.3	79.1
High Needs	75.5	79.8	82.0
Male	84.1	87.0	88.4
Female	90.1	91.8	92.7
Hispanic	74.0	77.7	79.3
Indian or Alaska Native	84.7	87.0	87.7
Asian	93.5	95.1	95.9
Black	78.6	82.7	84.5
Hawaiian or Pacific Islander	75.0	75.0	75.0
White	92.2	93.8	94.7
Two or More Races	83.5	87.4	88.2

Applicability (Who): This indicator is applicable to all districts and schools that offer grade 12.

Input/Feedback: The six-year rate elicits a very different reaction from that of the four-year rate. This extended graduation rate is viewed very favorably by all constituents and stakeholders.

Methodology (How): The six-year adjusted cohort graduation rate is based on the nationally consistent method as defined in 34 C.F.R. § 200.19 (73 FR 64508 (Oct. 29, 2008)). The ultimate target for all students and subgroups remains at 94%. Districts/schools can earn up to 100 points based on the pro-rated percentage of the ultimate target (94%) achieved by High Needs students. For example, a school with a six-year graduation rate of 84.6 (i.e., 90% of the ultimate target of 94%) will earn 90 out of 100 points.

Data Source: PSIS Registration and Collection

Graduation Rate Gap: A district/school is identified as having a graduation rate gap if the size of its six-year graduation rate gap between the *High Needs subgroup* and the *Non-High Needs group* (or 94% if that's lower) is at least one standard deviation greater than the statewide gap.

RESOURCES FOR REDUCING DROPOUT AND INCREASING GRADUATION

- **The Governor's Prevention Partnership Youth Mentoring Program.** Through a partnership with MENTOR/National Mentoring Partnership, this programs partners with schools, businesses, community and faith-based organizations to ensure that children are involved in safe, quality mentoring relationships: http://www.preventionworksct.org/what/mentoring/introduction.html

- **Project GRAD** partners with communities interested in creating a rigorous college-bound culture for their students. It targets schools serving economically disadvantaged students with the aim of increasing high school graduation and college entrance rates. http://www.projectgrad.org/

- **GradNation.** For those working to increase high school graduation rates, GradNation provides data, insight and analysis; information about effective and promising practices; plus opportunities to connect and learn from one another. http://gradnation.americaspromise.org/reports-resources

- **The National Dropout Prevention Center/Network (NDPC/N).** Since 1986, the NDPC/N has served as a clearinghouse on issues related to dropout prevention and offered strategies designed to increase the graduation rate in America's schools. The

organization is a well-established national resource for sharing solutions for student success.
http://dropoutprevention.org/effective-strategies/
http://dropoutprevention.org/resources/

- **The National Mentoring Partnerships** provides resources or implementing a mentor program and research-based evidence of the power of mentoring on improving absenteeism, improving attitudes toward school, and likelihood of enrolling in college. Resources include tips for starting and mentoring program and elements of effective practices for mentoring. http://www.mentoring.org/

- Poliner, Rachel A. and Lieber, Carol Miller (2004), ***The Advisory Guide: Designing and Implementing Effective Advisory Programs in Secondary Schools***, Educators for Social Responsibility. ISBN-10: 0942349016. How to design and implement an advisory program focused on building community and promoting academic success, social-emotional learning, and postsecondary planning.

- **Career-Themed Smaller Learning Communities**. Nonprofit organizations can assist schools by providing research-based best practices, including but not limited to:
    - Southern Regional Education Board's *High Schools That Work, Making Middle Grades Work* and *Technology Centers that Work.*
    - Regional Educational Laboratory Program https://ies.ed.gov/ncee/edlabs/
    - Northeast College and Career Readiness Research Alliance http://www.relnei.org/research-alliances/college-and-career-readiness.html
    - National Career Academies Network
    - Talent Development Secondary http://www.tdschools.org/

- **The Buck Institute for Education** Engaging students in authentic project-based learning is the leading expert in assisting teachers in developing engaging project-based learning and assisting schools in creating a project-based learning school-wide effort. http://bie.org/

- The Everyone Graduates Center, a research program of Johns Hopkins University, is committed to studying the dropout problem by identifying barriers and developing tools and models that states, communities, districts, and schools can use to support all students through high school graduation. The organization's website, http://www.every1graduates.org/, has a section devoted to sharing what is working across the country. This *Tools and Models* section has information organized in six sections: Early Warning and Response Systems; Comprehensive Whole-School Reform Models; New School Designs; Innovations in Curriculum and Instruction; School, Family, and Community Partnerships; and Pathways to College and Career. The Everyone

Graduates Center recognizes that students are on a path to graduation well before high school so there are resources designed for use in the middle grades as well.

- Pathways to Education (https://www.pathwaystoeducation.ca/) is a community-based program with a variety of locations throughout Canada. The Pathways model is a coordinated partnership that includes schools, government, community partners, volunteers, and the commitment of students and their families. Pathways was founded in 2001 and since that time has demonstrated impressive results in reducing dropouts among economically-disadvantaged students and providing support to ensure successful post-secondary transitions.

- The National Dropout Prevention Center for Students with Disabilities (NDPC-SD) at Clemson University was established in 2004 by the Office of Special Education Programs (OSEP). The Center's website (http://www.ndpc-sd.org/) includes links to content selected for specific audiences including districts, parents, and students. The resources include strategies for carefully tracking key factors that serve as early warning signs of a problem as well as evidence-based dropout prevention measures.

- The California Dropout Research Project (CDRP) has been conducting research designed to inform policymakers, educators, and the general public about the dropout issue for nearly a decade (http://www.cdrp.ucsb.edu/). Given the percentage of California students who are English learners, the CDRP delves deeper into the risks for this group of students and suggests reforms that show promise in this report: http://www.cdrp.ucsb.edu/researchreport19.pdfc

- The *Transition Bill of Rights for Parents of Students Receiving Special Education Services* describes the criteria necessary for students with disabilities to access "transition only" services upon completion of academic requirements for graduation.

Where can I get more information?	
QUESTIONS	**CSDE CONTACTS**
Resources, Strategies, and Best Practices for School Counselors to use in supporting all students	Kimberly Traverso Phone: 860-807-2057 Email: kimberly.traverso@ct.gov
Resources, Strategies, and Best Practices for Supporting Students with Disabilities	Jay Brown Phone: 860-713-6918 Email: jay.brown@ct.gov
Resources, Strategies, and Best Practices for Supporting English Learners	Megan Alubicki Flick Phone: 860-713-6786 Email: megan.alubicki@ct.gov
Data Collection, Rate Calculations, and Reporting	Francis Apaloo Phone: 860-713-6832 Email: francis.apaloo@ct.gov

Indicator 10: Postsecondary Entrance Rate – All Students

Indicator	Max Points
Percentage of graduating class who enrolled in a 2- or 4-year postsecondary institution any time during the first year after high school graduation	100

Description (What): This rate is the percentage of all students in a graduating class who enrolled in a 2 or 4-year postsecondary institution any time during the first year after high school graduation.

Rationale (Why?): In addition to evaluating the extent of preparation for college/career, it is important to also evaluate attainment of that outcome.

Applicability (Who): This indicator is applicable to all districts and schools that offer grade 12.

Input/Feedback: Some practitioners are supportive of this indicator because it encourages school staff to extend their efforts beyond the school building to support student success. Others are less supportive because they consider this indicator as being shaped more by factors beyond the influence of school staff (e.g., personal choice, family economics); some of these objectors are amenable to its inclusion so long as it is not weighted too heavily and the ultimate target is reasonable.

The CSDE has heard from the field and acknowledges data limitations associated with this indicator. Currently, the Department does not have access to information about important post-secondary outcomes for students including but not limited to evidence of full-time employment immediately following graduation, entry into the military, enrollment in private occupational schools, and transition to apprenticeships.

Methodology (How): Points are awarded based on the percentage of All Students from the graduating class who enter a 2 or 4-year postsecondary institution any time during the first year after high school graduation. Points are prorated based on the percentage of the ultimate target (75%) achieved.

Data Source: PSIS and National Student Clearinghouse

RESOURCES FOR IMPROVING POSTSECONDARY ENTRANCE

In September 2015, the White House released an annual report referencing "summer melt." This phrase is used to describe what happens to students who are accepted to college but during the months between high school graduation and the first day of college classes, the student does not complete tasks necessary to begin school (e.g. course enrollment forms). According to the report, 20 to 30 percent of high school graduates in urban communities who intend to attend college following graduation do not enroll.

Major cities across the country have been exploring different ways of supporting their students from graduation to college entrance for many years. The uAspire organization focuses on college affordability and assisting students with developing a plan to pay for college, one of the most formidable barriers to college enrollment. uAspire has served Boston-area students for three decades and expanded nationally ten years ago. Information about services provided to students, families, and practitioners can be found on their website: https://www.uaspire.org/

The College Access Program (DC-CAP), a non-profit organization in Washington, D.C. partners with all schools in the District and is available to all students. DC-CAP reports that the percentage of students enrolling in college was 30 percent in 1999 and increased dramatically to 62 percent in 2014. DC-CAP attributes this improvement to comprehensive supports for students and their families leading up to and beyond graduation. To find out more about DC-CAP and strategies used with students and families, visit http://www.dccap.org/

The Strategic Data Project's *Summer Melt Handbook* provides users with a range of different approaches to effectively measure and develop systems to combat summer melt and improve college enrollment. The handbook acknowledges that school districts have different resources available, so the suggested interventions range from well-developed partnerships with community organizations to simple digital outreach customized and targeted to students and their families. The handbook includes a variety of case studies to showcase the impact of different strategies and provides practical resources including sample templates used for tracking and outreach. The handbook and related research are available here: http://sdp.cepr.harvard.edu/summer-melt-handbook

Achieve is an independent, nonpartisan, nonprofit education reform organization strongly committed to ensuring all students graduate from high school "college and career ready" or, in other words, fully prepared academically for any and all opportunities they choose to pursue. To achieve this goal, states need a coherent and aligned policy framework anchored in the goal of graduating all students ready for credit-bearing, college-level coursework and the 21st-century workplace. The policy framework must, at a minimum, include college- and career-ready standards, graduation requirements, assessments, and data and accountability systems and have strong alignment with policies set in the postsecondary and economic development sectors.

Where can I get more information?	
QUESTIONS	**CSDE CONTACTS**
Resources, Strategies, and Best Practices	Kimberly Traverso Phone: 860-807-2057 Email: kimberly.traverso@ct.gov
Data Collection and Reporting	Charles Martie Phone: 860-713-6809 Email: charles.martie@ct.gov

Indicator 11: Physical Fitness

Indicator	Max Points
Percentage of students meeting/exceeding the "Health Fitness Zone Standard" in all four areas of the CT Physical Fitness Assessment	50

Description (What): The Third Generation CT Physical Fitness Assessment (CTPFA) is focused on health-related fitness. The program mirrors options in the President's Challenge Physical Fitness Program and FitnessGram/ActivityGram. The assessment includes four health-related physical fitness tests designed to assess muscular strength and endurance, flexibility, and cardiovascular fitness. Criterion-referenced standards associated with good health are used rather than normative standards. Since the early 1990's, the assessment has been administered to all students in grades 4, 6, 8, and 10. Effective 2016-17, high schools were granted flexibility (explained below) allowing the assessment to be administered in other grades.

Rationale (Why?): The Connecticut State Board of Education is committed to the physical development of Connecticut's students and focused on outcomes and specific performance objectives that evidence attainment of that goal.

Applicability (Who): This indicator is applicable to all districts and schools that offer grades 4, 6, 8, or 10.

Input/Feedback: Though cardiovascular fitness has been shown to correlate with improved academic performance, stakeholders accept a metric that looks at standard-attainment in all four assessment areas because the focus is health/fitness. Some stakeholders wondered if this area was weighted too heavily.

High schools requested flexibility from the requirement to test Grade 10 students. In April 2016, CSDE announced the following increased flexibility to high schools regarding the administration and reporting of the Connecticut Physical Fitness Assessment results:

- Effective 2016-17, the expectation is that high school(s) must administer the physical fitness assessment at least once to every student *anytime* during Grades 9 through 12.
- The administration of the assessment does not necessarily need to be tied to student participation in a physical fitness class.
- High schools may also use summer school physical fitness courses as an opportunity to administer the assessment.
- For accountability purposes, the CSDE will continue to use the Grade 10 enrollment numbers to calculate the estimated participation rate.

Methodology (How): To account for variation in estimated participation rates, the following participation rate multipliers are established.

- If the estimated participation rate is at least 90%, the multiplier is 1. This standard was achieved by approximately 82% of all schools in 2014-15.
- If the estimated participation rate is at least 70% but less than 90%, the multiplier is 0.5 (approximately 11% of schools).
- If the estimated participation rate is at least 50% but less than 70%, the multiplier is 0.25 (approximately 3% of schools).
- If the estimated participation rate is less than 50%, no points will be awarded for this indicator.

The ultimate target for the percentage of All Students meeting/exceeding the "Health Fitness Zone Standard" in all four areas of the CT Physical Fitness Assessment for a school or district is set at 75%.

Points are prorated based on the percentage of the ultimate target achieved as adjusted by the participation rate multiplier. Two examples are included below.

- Example 1: An elementary school has a 92% estimated participation rate, and the percentage of those tested meeting the "Health Fitness Zone Standard" in all four areas is 76%. This school earns all 50 eligible points.
- Example 2: An elementary school has a 55% estimated participation rate, and the percentage of those tested meeting the "Health Fitness Zone Standard" in all four areas is 80%. This school earns 12.5 of 50 eligible points.

Data Source: ED165 (fitness data) and June PSIS (enrollment)

RESOURCES FOR IMPROVING PHYSICAL FITNESS

- Instructional Framework for fitness education in physical education (SHAPE America) http://www.shapeamerica.org/publications/resources/teachingtools/fitness_ed_resources.cfm

- Healthy and Balanced Living Curriculum Framework for Physical Education (CSDE) http://www.sde.ct.gov/sde/LIB/sde/PDF/deps/student/Healthy&BalancedLiving.pdf

- Guidelines for a Coordinated Approach to School Health (Section 3: Physical Education) http://www.sde.ct.gov/sde/LIB/sde/PDF/deps/student/Guidelines_CSH.pdf

- Monitoring Student Fitness Levels (Centers for Disease Control and Prevention) http://www.cdc.gov/healthyschools/physicalactivity/pdf/2014_09_12_14-249482-nihiser-collectingfitnessdata-final-508web_tag508_2.pdf

- Linking Health to Achievement (Centers for Disease Control and Prevention)
    - https://www.cdc.gov/HealthyYouth/health_and_academics/
    - https://www.cdc.gov/healthyyouth/health_and_academics/pdf/health-academic-achievement.pdf

- Teacher's Toolbox Home (SHAPE America) http://www.shapeamerica.org/publications/resources/teachingtools/teachertoolbox/

- Let's Move! Active Schools www.letsmoveschools.org/

Where can I get more information?	
QUESTIONS	**CSDE CONTACTS**
Resources, Strategies, and Best Practices	Melissa Hickey Phone: 860-713-6680 Email: melissa.hickey@ct.gov
Data Collection and Reporting	Raymond Martin Phone: 860-713-6876 Email: raymond.martin@ct.gov

Indicator 12: Arts Access

Indicator	Max Points
Percentage of students in grade 9 through 12 participating in at least one dance, theater, music, or visual arts course in the school year	50

Description (What): This is an "access" metric that evaluates the extent to which students in high school participate in at least one arts course in the school year in dance, theatre, music, or the visual arts.

Rationale (Why?): The Connecticut State Board of Education believes every student needs and deserves a high-quality education in the arts, including dance, music, theater and the visual arts. The arts are an integral component of the comprehensive curriculum provided to all Connecticut students at every grade.

Applicability (Who): This indicator is applicable to all districts and schools that offer any grade between 9 and 12, inclusive.

Input/Feedback: Traditionally, access to the arts has been measured through instructional hours offered. District/school administrators indicate that self-reported arts instructional hours are not comparable across schools. With the availability now of course-level data, the extent to which students avail of arts opportunities can be empirically known and compared across districts/schools.

The CSDE has heard from the field that students are engaged in important arts-related activities that are not captured through this indicator. The Department acknowledges that many students participate in school- or community-based art programs and activities outside of the school day. At this time, there is not a way to capture that information in this system.

Additionally, stakeholders have requested that the definition of arts coursework be expanded to courses that incorporate the use of technology including computer-aided design. For now, this system will remain focused on dance, theater, music and the visual arts, but consideration will be given to expanding how this indicator is defined in future years.

Methodology (How): Points can be earned for the percentage of All Students in grades 9 through 12 who enroll in at least one "Fine and Performing Arts" course during the school year. A complete list of NCES Course Names and Codes along with a corresponding subject (e.g. "Fine and Performing Arts") can be viewed under the "Secondary School Course Classification System" header on the TCS help site: http://www.csde.state.ct.us/public/tcs/docs.asp. Points are prorated based on the percentage of the ultimate target achieved.

For detailed calculation rules, see the Appendix.

Data Source: June PSIS (to establish current year 9th through 12th graders) and Teacher Course Student (for course participation data)

RESOURCES FOR IMPROVING ACCESS TO THE ARTS

Why is arts access important?
A project of the Arts Education Partnership, *ArtsEdSearch* compiles and summarizes high quality research studies and explores implications for educational policy and practice. *ArtsEdSearch* is a rich resource for districts seeking to bolster their arts programming. Below is the organization's summary for arts access research:

> Research suggests that access to arts education provides an academic advantage to students. Students in schools with extensive and broad offerings in the arts not only are able to learn the arts—a core academic subject—but also do better on state and district standardized tests and are provided with more opportunities to achieve and succeed than students in schools lacking robust arts programs. Arts-rich schools graduate higher percentages of students, who in turn are more likely to complete college and to be socially active in their communities in adulthood. Studies also find that, in arts-rich schools—particularly schools that offer both discipline-based arts classes and integrated arts instruction—students are more engaged and teachers are more effective. Policymakers concerned with educational equity should consider access to rich arts education programming a significant factor in a high-quality education for all students. See more at:
> http://www.artsedsearch.org/students/policy-implications

What can districts do to improve arts access?
From Snapshot Arts Access in U.S. Schools and the Arts Education Partnership:
- Provide a wider variety of arts courses at all levels, particularly high school (including theatre, dance, and/or media arts);
- Provide a higher level frequency of instruction at all levels;
- Provide comprehensive, standards-based instruction aligned vertically throughout the district, with classes taught by certified teachers;
- Engage the arts as a part of high quality support and professional learning programs for the entire educator workforce; and
- Increase opportunities to engage the community in student art performances or projects.

1. **Standards**
    - CT Arts Standards http://www.sde.ct.gov/sde/cwp/view.asp?a=2618&q=320834
    - National Core Arts Standards http://nationalartsstandards.org/

- Position Statement on the Implementation of the Connecticut Arts Standards http://www.sde.ct.gov/sde/lib/sde/pdf/board/ArtsStandards.pdf

2. Arts Integration

- CT HOT Schools http://www.ct.gov/cct/cwp/view.asp?a=2212&q=293712;
- Project Zero at Harvard http://www.pz.harvard.edu/
- Dance and Science integrated plan http://www.edutopia.org/pdfs/stw/edutopia-stw-bates-artsintegration-lessonplanvelocityaccel-presenta.pdf
- Mathematics and Art http://mason.gmu.edu/~jsuh4/math%20masterpiece.pdf
- Kennedy Center resources for teaching in, through and about the arts - http://artsedge.kennedy-center.org/educators.aspx
- Arts and Social studies connections - http://www.ctsocialstudies.org/

Other resources of note:

- KCAEEN Arts Education Advocacy Toolkit: http://www.kennedy-center.org/education/kcaaen/resources/ArtsEducationAdvocacyToolkit.pdf
- Music Education: http://www.nammfoundation.org/support-music
- Visual Arts Education: http://www.arteducators.org/advocacy
- Theatre Education: http://schooltheatre.org/advocacy
- Dance Education: http://ndeo.org/content.aspx?page_id=22&club_id=893257&module_id=55775

Where can I get more information?	
QUESTIONS	**CSDE CONTACTS**
Resources, Strategies, and Best Practices	Melissa Hickey Phone: 860-713-6680 Email: melissa.hickey@ct.gov
Data Collection and Reporting	Keryn Felder Phone: 860-713-6833 Email: keryn.felder@ct.gov

APPENDICES

PERFORMANCE INDEX CALCULATION RULES

Overview

Subject-level indices are calculated at the student-, subgroup-, school- and district-levels. To calculate an index, a student's score in each subject on the Smarter Balanced Assessment (SB), SAT, CT Alternate Assessment (CTAA), Connecticut Mastery Test (CMT), Connecticut Academic Performance Test (CAPT), or the CMT/CAPT Skills Checklist must first be transformed into an index score. Detailed information regarding the calculation of each test specific score can be found in the section titled "Calculating the Performance Index".

Student Individual Performance Indices (IPIs) are derived for each subject: Math, English Language Arts (ELA), and Science.

School Performance Indices (SPIs) are calculated by averaging all of a given school's valid and non-excluded Student IPIs for the applicable subject. Only students enrolled in the school on October 1st of the testing year are included in SPI calculations.

District Performance Indices (DPIs) are calculated by averaging all of a given district's valid and non-excluded Student IPIs for the applicable subject. Note that students who are enrolled in 'Programs' or are outplaced are included in a given Public School Information System (PSIS) "Reporting District's" DPI. Only students enrolled in the district on October 1st of the testing year are included in DPI calculations.

- Connecticut excludes scores of "recently arrived" ELs from SPI and DPI calculations. "Recently arrived" ELs are defined as any EL enrolled for the first time in a U.S. school for fewer than 24 calendar months at the time of testing. Assessment scores for ELs who have attended U.S. schools for more than two years are included in the SPI and DPI calculations. For additional information, please see the section titled "Connecticut Assessment and Accountability Reporting of "Recently Arrived" English Learners".

Participation Rates are calculated by dividing the number of students who attempted and/or completed the assessment by the total number of students who should have been administered the subject-level assessment. Details regarding whether students were participants or non-participants is contained in the section titled "Participation and Achievement Inclusion Rules."

File Preparation

All demographic data included in the assessment files were extracted from the CSDE frozen PSIS Registration File on the last day of the testing window. Only students in grades 3 through 8, and

grade 11 are included in calculations for the standard and alternate ELA and mathematics assessments. Only students in grades 5, 8, and 10 are included in calculations for the standard and alternate science assessments.

- English Learner (EL) "Flex" Group:
  As part of the Every Student Succeeds Act (ESSA), students who do not belong to the EL subgroup at the time of testing but who have been members of the EL subgroup any time up to four years prior are included in the EL flexibility subgroup used for Indicator 1 calculations. The previous subgroup status is determined using the EL PSIS Collection variable from the October, January and June collections of the current and four prior school years.

The completion of a Learner Characteristics Inventory (LCI) is required for participation in any alternate assessment. Any CTAA student record or CMT/CAPT Skills Checklist Science record without a completed LCI was invalidated. These students were included as non-participants on the standard assessment. In cases where a standard assessment record existed for a student with a completed LCI, the standard assessment record was invalidated and the student was included as a non-participant on the alternate assessment(s).

Participation and Achievement Inclusion Rules

Accountability reporting requires a series of decision rules that specify whether a student is included in performance index and participation rate calculations. The tables on the following pages provide a comprehensive list of the assessment status rules used for accountability calculations for all summative assessments.

Smarter Balanced Assessment Data File Rules

Assessment	Test Status	Attempted Flag	Participation Numerator (Total Tested)	Participation Denominator (Total Students)	Accountability Achievement
Smarter Balanced ELA	Completed	Y	Yes: P	Yes	Yes: SS
	Expired		Yes: P	Yes	Yes: SS
	Invalidated		Yes: P	Yes	exclude
	Completed	P	No: NP	Yes	exclude
	Expired		Yes: P	Yes	Yes: LOSS
	Invalidated		Yes: P	Yes	exclude
	Invalidated	< >	Yes: P	Yes	exclude
	< >		No: NP	Yes	exclude
Smarter Balanced MATH	Completed (c/s, s/s)	Y	Yes: P	Yes	Yes: SS
	Expired (e/c, e/e)		Yes: P	Yes	Yes: SS
	Expired (e/i)		Yes: P	Yes	exclude
	Invalidated (i/i)		Yes: P	Yes	exclude
	Completed (c/i)	P	Yes: P	Yes	exclude
	Expired (e/c, e/e, e/r, e/i)		Yes: P	Yes	Yes: LOSS
	Invalidated (i/i)		Yes: P	Yes	exclude
	Completed (c,s/i)	N	Yes: P	Yes	exclude
	Expired (e/n)		No: NP	Yes	exclude
	Invalidated (i/i)		Not Applicable		
	Pending (c/n)		No: NP	Yes	exclude
	Pending (c/r)		Yes: P	Yes	exclude
	Invalidated (i/i)	< >	Yes: P	Yes	exclude
	< >		No: NP	Yes	exclude

Legend:
c = Completed; test submitted to be scored
e = Expired; test not submitted
i = Invalidated
Pending = Does not occur in test engine. One part of test was never started OR was reset (Math & CAPT Science only 2016)
r = Reset; reset after started. Temporary test segment status only (typically due to lack of appropriate accommodations being set in TIDE)
n = No Activity; Test segment status only. Never started/logged into; displays as blank.
s = Scored; Completed test

Connecticut Mastery Test (CMT) Science and
Connecticut Academic Performance Test (CAPT) Science Data File Rules

Assessment	Test Status	Attempted Flag	Participation Numerator (Total Tested)	Participation Denominator (Total Students)	Accountability Achievement
CMT Science	Completed	Y	Yes: P	Yes	Yes: SS
	Expired		Yes: P	Yes	Yes: SS
	Invalidated		Yes: P	Yes	exclude
	Expired	P	Yes: P	Yes	Yes: LOSS
	Invalidated		Yes: P	Yes	exclude
	Completed	X	Yes: P	Yes	Yes: LOSS
	Completed		No: NP	Yes	exclude
	Invalidated		Yes: P	Yes	exclude
	Invalidated	< >	Yes: P	Yes	exclude
	< >		No: NP	Yes	exclude
CAPT Science	Completed	Y	Yes: P	Yes	Yes: SS
	***Expired		Yes: P	Yes	Yes: SS
	***Expired (e/i)		Yes: P	Yes	exclude
	Invalidated (i/i)		Yes: P	Yes	exclude
	Pending (c/r)		Not Applicable		
	Completed	P	Yes: P	Yes	exclude
	Expired (e/c, e/e, e/r, e/i)		Yes: P	Yes	Yes: LOSS
	Invalidated (i/i)		Yes: P	Yes	exclude
	Pending (c/r)		Not Applicable		
	Completed	X	Yes: P	Yes	Yes: LOSS
	Completed		No: NP	Yes	exclude
	Invalidated		Yes: P	Yes	exclude
	Invalidated	< >	Yes: P	Yes	exclude
	< >		No: NP	Yes	exclude

Legend:
c = Completed; test submitted to be scored
e = Expired; test not submitted
i = Invalidated
Pending = Does not occur in test engine. One part of test was never started OR was reset (Math & CAPT Science only 2016)
r = Reset; reset after started. Temporary test segment status only (typically due to lack of appropriate accommodations being set in TIDE)

Connecticut Alternate Assessment (CTAA) Data File Rules

Test Status	Attempted Flag	Participation Numerator (Total Tested)	Participation Denominator (Total Students)	Accountability Achievement
Completed	Y	Yes: P	Yes	Yes: SS
Expired		Yes: P	Yes	Yes: SS
Invalidated		Yes: P	Yes	exclude
Completed	P	Not Applicable		
Expired		Yes: P	Yes	Yes: LOSS
Invalidated		Yes: P	Yes	exclude
< >	< >	No: NP	Yes	exclude

CMT/CAPT Skills Checklist Science Data File Rules

Test Status	Attempted Flag	Participation Numerator (Total Tested)	Participation Denominator (Total Students)	Accountability Achievement
Completed	Y	Yes: P	Yes	Yes: SS
Expired		Yes: P	Yes	Yes: SS
Invalidated		Yes: P	Yes	exclude
Completed	N	Not Applicable		
Expired		No: NP	Yes	exclude
Invalidated		No: NP	Yes	exclude
Invalidated	< >	Yes: P	Yes	exclude
< >		No: NP	Yes	exclude

SAT Data File Rules

Number of Subject-Level Test Items Answered	Attempted-ness	SAT Student Participated Indicator = Y	Participation Numerator (Total Tested)	Participation Denominator (Total Students)	Accountability Achievement
>=1	Y	Y	Yes: P	Yes	Yes: SS
0	P		Yes: P	Yes	LOSS
< >	< >	N	No: NP	Yes	exclude
< >	< >	< >	No: NP	Yes	exclude

PERFORMANCE INDEX METHODOLOGY

Background

Connecticut first implemented a performance index for school and district accountability purposes in 2012. The performance index was calculated by converting Connecticut Mastery Test (CMT) and Connecticut Academic Performance Test (CAPT) achievement levels to a scale of 0 to 100. This approach recognized and valued improvement in student achievement at all performance levels, not just from 'not proficient' to 'proficient'. It raised expectations by setting the target that all students perform at the higher 'goal' level versus the 'proficient' level.

While practitioners were generally pleased with this index, they wondered if using scale scores to calculate the index instead of achievement levels would yield an even more precise measure of student achievement. Consequently, Connecticut State Department of Education (CSDE) staff consulted with faculty from the University of Connecticut to explore this possibility. The explanation that follows outlines the specific methodology for converting scale scores for the various state assessments into Connecticut's performance index.

Scale Scores Improve Index Calculations

Individual student results from the English language arts (ELA), Mathematics, and Science assessments are reported in terms of scale scores and achievement levels. Achievement levels are used as a way of categorizing student performance in a content area. The levels represent broad groupings of performance that are developed based on the judgment of content experts. Operationally, the levels are used as a starting point in discussing a student's test scores.

Achievement levels are derived from underlying scale scores. The underlying scale or ruler provides a more continuous measure of student performance such that one student with a significantly greater scale score than another student in the same achievement level can be said to be performing higher.

For district- and school-level accountability, Connecticut uses student scale scores, not achievement levels, to calculate performance index scores in ELA, Mathematics, and Science. This approach to performance index calculation acknowledges that the assessments were not developed to solely classify students into broad achievement levels. On the contrary, they were developed to provide a more precise measure of student performance.

This approach of mapping scale scores instead of achievement levels to index values is consistent with the position paper released by the Smarter Balanced Assessment Consortium wherein they assert that

> *"…they [achievement levels] will be less precise than scale scores for describing student gains over time or changes in achievement gaps among groups, since they do not reveal changes of student scores within the bands defined by the achievement levels. Furthermore, there is not a critical shift in student knowledge or understanding that*

occurs at a single cut score point. Thus, the achievement levels should be understood as representing approximations of levels at which students demonstrate mastery of a set of concepts and skills, and the scale scores just above and below an achievement level as within a general band of performance."

The index calculation is more sensitive to changes in student performance over time and provides an improved assessment of aggregate growth of students at the subgroup, school, and district levels.

The new calculation moves the performance index to a 0-110 scale. Important considerations in defining the index are that it allows for: (a) a comparison of schools and districts not only within a year, but also across years, and (b) bonus points to be assigned for the highest performing students (100-110). To meet these requirements, the individual student index will be set to zero if a student obtains the lowest obtainable scale score (LOSS) for the student's grade, and 110 if the student obtains the highest obtainable scale score (HOSS). Although the highest index value at the school, district, and subgroup level is 100, giving scores ranging from 100 to 110 to students who are the highest performing will have the effect of rewarding these schools and districts by weighting these scores additionally in the computation of the new performance index. Further information is provided in Tables 1-5, including the lowest and highest obtainable scores for all state assessments (Smarter Balanced ELA and Mathematics, CMT and CAPT Science, CMT and CAPT Science Skills Checklists, Connecticut Alternate Assessments (CTAA) ELA and Mathematics, and SAT Evidence-based Reading and Writing and Mathematics).

Calculating the Performance Index

The formula used to convert student scale scores (Smarter Balanced, CTAA, CMT/CAPT Science, CMT/CAPT Science Skills Checklists, and SAT) to an index value is presented below. The approach for converting CMT/CAPT Skills Checklist Science scores is the same; however, highest and lowest obtainable raw scores (HORS and LORS) are used in place of scale scores.

$$\textbf{Index} = \frac{\boldsymbol{Scale\ Score - LOSS}}{\boldsymbol{Range}} * \mathbf{110}$$

The following examples use information from Tables 1-5 to convert student scores to index values.

If a Grade 3 student earns a vertical scale score of 2400 on the ELA portion of the Smarter Balanced assessment, the index value for this score is 61.8. The calculation is performed as follows:

$$\textbf{Index} = \frac{\mathbf{2400 - 2114}}{\mathbf{509}} * \mathbf{110 = 61.8}$$

If a Grade 8 student earns a scale score of 1276 on the Math portion of the CTAA assessment, the index value for this score is 92.9. The calculation is performed as follows:

$$\textbf{Index} = \frac{\mathbf{1276 - 1200}}{\mathbf{90}} * \mathbf{110} = \mathbf{92.9}$$

If a Grade 5 student earns a scale score of 200 on the CMT Science assessment, the index value for this score is 36.7. The calculation is performed as follows:

$$\textbf{Index} = \frac{\mathbf{200 - 100}}{\mathbf{300}} * \mathbf{110} = \mathbf{36.7}$$

If a Grade 10 student earns a raw score of 40 on the CAPT Skills Checklist Science, the index value for this score is 73.3. The calculation is performed as follows:

$$\textbf{Index} = \frac{\mathbf{40 - 0}}{\mathbf{60}} * \mathbf{110} = \mathbf{73.3}$$

Finally, when a Grade 11 student earns a Mathematics scale score of 590 on the SAT, the index value for the score is 71.5. The calculation is performed as follows:

$$\textbf{Index} = \frac{\mathbf{590 - 200}}{\mathbf{600}} * \mathbf{110} = \mathbf{71.5}$$

Highest and Lowest Obtainable Scores and Range Tables

Table 1.
Smarter Balanced ELA and Mathematics
Highest (HOSS) and Lowest (LOSS) Obtainable Scale Scores and Range

Subject	Grade	LOSS	HOSS	RANGE	Subject	Grade	LOSS	HOSS	RANGE
ELA	3	2114	2623	509	MATH	3	2189	2621	432
	4	2131	2663	532		4	2204	2659	455
	5	2201	2701	500		5	2219	2700	481
	6	2210	2724	514		6	2235	2748	513
	7	2258	2745	487		7	2250	2778	528
	8	2288	2769	481		8	2265	2802	537

Table 2.
Connecticut Alternate Assessment (CTAA) ELA and Mathematics
Highest (HOSS) and Lowest (LOSS) Obtainable Scale Scores and Range

Subject	Grade	LOSS	HOSS	RANGE
ELA & MATH	3	1200	1290	90
	4	1200	1290	90
	5	1200	1290	90
	6	1200	1290	90
	7	1200	1290	90
	8	1200	1290	90
	HS	1200	1290	90

Table 3.

Connecticut Mastery Test (CMT) and Connecticut Academic Performance Test (CAPT) Science
Highest (HOSS) and Lowest (LOSS) Obtainable Scale Scores and Range

Grade	LOSS	HOSS	RANGE
5	100	400	300
8	100	400	300
HS	100	400	300

Table 4.
Connecticut Mastery Test (CMT) and Connecticut Academic Performance Test (CAPT) Science
Skills Checklist Highest (HORS) and Lowest (LORS) Obtainable Raw Scores and Range

Grade	LORS	HORS	RANGE
5	0	60	60
8	0	48	48
HS	0	60	60

Table 5.
SAT Evidence-based Reading and Writing and Mathematics Highest (HOSS) and Lowest (LOSS) Obtainable Scale Scores and Range

	LOSS	**HOSS**	**RANGE**
Evidence-Based Reading and Writing	200	800	600
Mathematics	200	800	600

CALCULATION RULES FOR INDICATOR 5: PREPARATION FOR POSTSECONDARY AND CAREER READINESS - COURSEWORK

Description:

Pro-rated percentage of students in grades 11 and 12 participating in *at least one* of the following: (a) Two courses in Advanced Placement (AP), International Baccalaureate (IB) and/or dual enrollment; (b) two courses in one of seventeen Career and Technical Education (CTE) categories; **or** (c) two workplace experience courses in any area. This indicator has a maximum of 50 points, and will be assessed in schools that teach eleventh and twelfth grade students. The target percentage for this indicator is 75%.

Formula for Calculation:

Each student, i, will receive an individual score as follows:

$$IS5_i = \begin{cases} 0 & \text{has not completed at least one of the requirements} \\ 1 & \text{completed at least one of the requirements} \end{cases}.$$

It is important to note when evaluating whether or not a student has met the requirements for indicator 5 that the three options are mutually exclusive, in other words, they cannot be mixed and matched. A student who has taken one AP course and one CTE class has **not** met the requirements for indicator 5.

These individual scores will then be attributed to the schools attended by each student. School scores will then be calculated by taking the sum of the student scores, dividing by the total number, N, of eleventh and twelfth grade students. Points will be assigned as a prorated percentage of the target, out of a maximum of 50, as indicated in the formula below:

$$\text{School Score} = Min\left(\frac{\sum IS5_i}{N} \cdot \frac{50}{0.75}, 50\right).$$

Data Flow Steps: Overview

Indicator 5 is calculated using the following data steps:

1. Course completion data is collected from the districts, then cleaned and validated.
2. The data is further sorted to check for any potential duplicates by Student ID, School ID, Course Description, or School Year. Resolved duplicates are combined with unique outcomes as well as validated data from previous school years.
3. All students meeting at least one of the requirements listed above are flagged in the data. The number of students flagged is counted for each school and district.
4. The total number of eleventh and twelfth graders on which each school and district is being evaluated is determined using the June PSIS collection from that year.
5. The number of students meeting the requirements for indicator 5 is divided by the total number of eleventh and twelfth grade students. If the ratio is 75% or greater, the school

receives the maximum score of 50 points. If the score is less than 75%, the score is then divided by 0.75 and multiplied by 50 to get their prorated score.

Data Flow Steps in Detail:

Step 1: Course completion data is collected from the districts, then cleaned and validated.

- *School districts submit course completion data.*

School districts use National Center for Education Statistics (NCES) course classification codes[1] to submit their course completion data using the Teacher-Course-Student (TCS) Data Collection Site[2]. Collection takes place between March and July at the end of each school year, however updates and corrections can be made up to the freeze date of September 30 to include summer school grades in the indicator calculations.

- *CSDE extracts data from TCS Data Collection Site.*

Before extracting data from TCS, the following data tables are loaded for reference[3]:

1. *Dual Enrollment Codes*: Each observation represents one university offering dual enrollment.
    - **Variables**: TCS Dual Enrollment Code (Primary Key), Dual Enrollment Codes, University Name, University Description
2. *NCES Course Codes:* Each observation represents one potential course that could be offered.
    - **Variables:** TCS Course ID (Primary Key), NCES Course Description Code (five digits), Subject Area Code (two digits), Course ID Code (three digits), Subject Area Name, Course Name, Course Description, Elementary Flag (0 or 1), Secondary Flag (0 or 1), CSDE Created Course Flag (0 or 1)
3. *NCES Course Levels:* Each observation represents a level of courses that could be offered.
    - **Variables:** TCS Course Level (Primary Key), NCES Course Level Code (one character), Level Name, Level Description, Elementary Flag (0 or 1), Secondary Flag (0 or 1)
4. *Course Outcomes*: Each observation represents a potential course outcome, such as pass or fail.
    - **Variables**: TCS Grade Status (Primary Key), Grade Status Codes (one or two characters), Grade Status Name, Grade Description

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[1] For more information on NCES Course Classification Codes, see (secondary and non-secondary respectively): files.eric.ed.gov/fulltext/ED515113.pdf and nces.ed.gov/pubs2011/2011801.pdf.

[2] For more information about TCS Data Collection, see www.csde.state.ct.us/public/tcs/.

[3] Throughout this document, variables and tables used exclusively for the purpose of managing updates are not included, such as district certification and last modification date/by whom. Also, variable and table names were modified to provide a descriptive understanding of the tables described, and may not necessarily represent the order in which the variables appeared in the table.

5. *Teacher Type:* Each observation represents a type of teacher that could be teaching a course.
    - **Variables:** TCS Teacher Type (Primary Key), Teacher Type Code (three digits), Teacher Type Description, Teacher Type Category, Teacher Type SubClass, Educator Identification Number Requirement Flag (0 or 1)

The following data tables can then be extracted from the TCS Data Collection Site:

6. *Course Offerings:* Each observation represents one course section in one school in one district.
    - **Variables:** TCS Course Offering ID (Primary Key), District ID, School/Facility ID, TCS Course ID (PK from Table #2), NCES Course Level (PK from Table #3), NCES Course Code, Available Credit, Grade Span (Low and High), Sequence (Location and Limit), and Section Code.
7. *Course Enrollment:* Each observation represents one student enrolled in one section of a course at one school in one district. Many students, especially in secondary, will have multiple observations.
    - **Variables:** Record ID (Primary Key), TCS Student ID (PK from Table #8), Course Offering ID (PK from Table #6), TCS Grade Status (PK from Table #4), TCS Dual Enrollment Code (PK from Table #1), Letter Grade, Credits Earned, and Course Sessions (Attended and Total)
8. *Student Matching:* Each observation represents one matching of a CT State Student ID (SASID), a District Student ID, and/or a Registration ID.
    - **Variables**: TCS Student ID (Primary Key), SASID, District ID, School ID, Registration ID, District Student ID
9. *Teacher Matching:* Each observation represents one matching of an Educator Identification Number (EIN) to a District Teacher ID.
    - **Variables:** TCS Teacher ID (Primary Key), EIN, District ID, District Teacher ID
10. *Course Teaching:* Each observation represents one teacher teaching in a section in a school in a district. As some sections may be co-taught, some sections may have multiple observations.
    - **Variables:** Record ID (Primary Key), TCS Teacher Type (PK from Table #5), TCS Course ID (PK from Table #2), and TCS Teacher ID (PK from Table #9)

- *Data is cleaned, filtered, and prepared for use.*

1. Data tables are filtered to remove non-public schools, universities, etc.
2. Data tables are joined with existing CSDE data to validate
    a. School and district identification numbers, either missing, incorrect, or invalid
    b. SASIDs, either non-uniquely assigned, incorrect, missing, or invalid
    c. EINs, either incorrect, missing, or invalid
    d. Matching of SASIDs and EINs with most recent school and district IDs
3. Course offering data is joined with course enrollment data and student data. In cases where the available credit is missing or less than 1.0, error checking is completed to determine

whether it is a partial year course, a middle or elementary school course (which would not assign credit), or a potential error.

4. At each stage, questionable observations are filtered into a separate data table for error checking.

Resulting table from Step 1: Each observation contains one course outcome for one student.

- **Variables:** TCS Student ID (PK from Table #8), District ID, School ID, TCS Course ID (PK from Table #7), Grade, Grade Status Code, Credits Earned, Dual Enrollment Flag (0 or 1), Dual Enrollment Code

Step 2. The data is further sorted to check for any potential duplicates by Student ID, School ID, Course Description, or School Year. Resolved duplicates are combined with unique outcomes as well as validated data from previous school years.

Duplicate entries in the course offerings are resolved, either by aggregating marking periods into a full-year course or taking a single entry of several, depending on whether or not the start dates are the same. Once resolved to single course observations, these entries can be re-joined to the non-duplicated courses to create a data table with all courses. Students are then attributed to their current school using the June Public School Information System (PSIS) collection[4]. This data is then joined with similar data tables containing course completion information from the previous four school years so that four years of a twelfth grade student's career can be taken into account, so long as the previous years of data belong to the same school as their current school.

Step 3. All students meeting at least one of the requirements listed above are flagged in the data. The number of students flagged is counted for each school and district.

In this step, the program will calculate the first part of formula for the school and district scores, $\Sigma IS5_i$. To do this, it must first find the student scores, $IS5_i$. The three distinct ways in which a student can meet the requirements of indicator five necessitates three sets of criteria to evaluate within the data.

- *AP, IB, and/or Dual Enrollment Courses:*

As AP and IB courses do not have a unique code, they are flagged using the NCES course name. Dual enrollment courses already have a flag in the enrollment table. The number of AP/IB/dual enrollment flags for each student-school combination is counted. When the count is two or greater, that student is considered to have met the requirement for that school on indicator five.

- *Workplace Experience Courses:*

Similar to AP and IB courses, Workplace Experience Courses do not have a unique code, so they are flagged using the NCES course name. The number of workplace experience flags for each

[4] For more information about PSIS, see the help site at http://www.csde.state.ct.us/public/psis/.

student-school combination is counted. When the count is two or greater, that student is considered to have met the requirement for that school on indicator five.

- *CTE courses:*

CTE Courses fall into one of seventeen clusters in NCES codes, each of which has a unique flag. The number of CTE flags in each cluster, for each student-school combination, is counted. When any count is two or greater, that student is considered to have met the requirement for that school on indicator five. For a list of CTE courses and their corresponding clusters, see http://www.csde.state.ct.us/public/tcs/documentation/CTECoursesandClusters..pdf.

- *Merge data to find final counts*

The three lists of students meeting a single requirement for indicator 5 are combined and duplicate entries (in the case of students who met more than one requirement) are removed, leaving only unique student entries. This data is aggregated to find the number of students in each school and district who met at least one requirement for indicator five, which is $\Sigma IS5_i$.

Step 4. The total number of eleventh and twelfth graders on which each school is evaluated is determined using the June PSIS collection from that year.

In this step, the program calculates N, the total number of students on which the school or district will be evaluated. To do this, it counts all eleventh and twelfth grade students, whether or not they met the requirements for indicator five, in the June PSIS collection of that school year.

Step 5. The number of students meeting the requirements for indicator 5 is divided by the total number of eleventh and twelfth grade students. If the ratio is 75% or greater, the school receives the maximum score of 50 points. If the score is less than 75%, the score is then divided by 0.75 and multiplied by 50 to get their prorated score.

In this step, the program creates the final scores. For each school or district, the number of students who met the requirements for indicator five is divided by the total number of students ($\Sigma IS5_i/N$), which is the ratio of these values. This ratio will necessarily be less than or equal to 1. If it is greater than or equal to 0.75, meaning that the school has met or exceeded the target score of 75%, the school or district score will be the maximum 50 points. If the ratio is less than 0.75, meaning that the school has not met the target score of 75%, the points awarded will be a prorated percentage of the target. This can be found by multiplying the ratio by 50 and dividing by 0.75.

CALCULATION RULES FOR INDICATOR 7: ON-TRACK IN 9TH GRADE

Description:

Pro-rated percentage of 9th grade students who earned *at least* five (5) full-year credits by the end of the school year. This indicator has a maximum of 50 points, and will be assessed for schools that teach ninth grade students. Points will also be attributed back to the school that taught these students as eighth graders. The target percentage for this indicator is 94%.

Formula for Calculation:

Each student, i, will receive an individual score as follows:

$$IS7_i = \begin{cases} 0 & \text{4 or fewer full– year credits} \\ 1 & \text{5 or more full– year credits} \end{cases}.$$

These individual scores will then be attributed to the schools attended by each student in ninth and eighth grade. As such, it should be noted the score for a school teaching eighth grade students will represent their students from the previous school year; for example, the 2016-17 scores will represent the eighth grade class from 2015-16 and the ninth grade class from 2016-17. School scores will then be calculated by taking the sum of the student scores, dividing by the total number, N, of ninth grade (or eighth grade, as applicable) students. Points will be assigned as a prorated percentage of the target, out of a maximum of 50, as indicated in the formula below:

$$\text{School Score} = Min\left(\frac{\sum IS7_i}{N} \cdot \frac{50}{0.94}, 50\right).$$

Data Flow Steps: Overview

Indicator 7 is calculated using the following data steps:

6. Course completion data is collected from the districts in TCS, then cleaned and validated.
7. The data is further sorted to check for any potential duplicates by Student ID, School ID, Course Description, or School Year.
    a. In cases where duplicates appear to be multiple marking periods for a single year-long course, grades can be aggregated to the course level.
    b. In cases where duplicates occur but the course is not a year-long course, the record with the maximum credits earned and maximum available credit is selected.
8. Resolved duplicates are combined with unique outcomes and aggregated by Student ID to find the sum of credits earned for each student. The results are then filtered to retain students with five or more credits.

9. All current ninth grade students are then attributed to a current high school and a previous middle school.
10. The results of steps three and four are counted to obtain the total number of students who earned five or more credits at each school as well as the total number of current ninth graders on which the school will be assessed.

Data Flow Steps in Detail:

Step 1. Course completion data is collected from the districts, then cleaned and validated.

- *School districts submit course completion data.*

School districts use National Center for Education Statistics (NCES) course classification codes[5] to submit their course completion data using the Teacher-Course-Student (TCS) Data Collection Site[6]. Collection takes place between March and July at the end of each school year, however updates and corrections can be made up to the freeze date of September 30 to include summer school grades in the indicator calculations.

Before extracting data from TCS, the following data tables are loaded for reference:

11. *Dual Enrollment Codes*: Each observation represents one university offering dual enrollment.
    - **Variables**: TCS Dual Enrollment Code (Primary Key), Dual Enrollment Codes, University Name, University Description
12. *NCES Course Codes:* Each observation represents one potential course that could be offered.
    - **Variables:** TCS Course ID (Primary Key), NCES Course Description Code (five digits), Subject Area Code (two digits), Course ID Code (three digits), Subject Area Name, Course Name, Course Description, Elementary Flag (0 or 1), Secondary Flag (0 or 1), CSDE Created Course Flag (0 or 1)
13. *NCES Course Levels:* Each observation represents a level of courses that could be offered.
    - **Variables:** TCS Course Level (Primary Key), NCES Course Level Code (one character), Level Name, Level Description, Elementary Flag (0 or 1), Secondary Flag (0 or 1)
14. *Course Outcomes*: Each observation represents a potential course outcome, such as pass or fail.
    - **Variables**: TCS Grade Status (Primary Key), Grade Status Codes (one or two characters), Grade Status Name, Grade Description

[5] For more information on NCES Course Classification Codes, see (secondary and non-secondary respectively): files.eric.ed.gov/fulltext/ED515113.pdf and nces.ed.gov/pubs2011/2011801.pdf.
[6] For more information about TCS Data Collection, see www.csde.state.ct.us/public/tcs/.

15. *Teacher Type:* Each observation represents a type of teacher that could be teaching a course.
    - **Variables:** TCS Teacher Type (Primary Key), Teacher Type Code (three digits), Teacher Type Description, Teacher Type Category, Teacher Type SubClass, Educator Identification Number Requirement Flag (0 or 1)

The following data tables are extracted from TCS:

16. *Course Offerings:* Each observation represents one course section in one school in one district.
    - **Variables:** TCS Course Offering ID (Primary Key), District ID, School/Facility ID, TCS Course ID (PK from Table #2), NCES Course Level (PK from Table #3), NCES Course Code, Available Credit, Grade Span (Low and High), Sequence (Location and Limit), and Section Code.
17. *Course Enrollment:* Each observation represents one student enrolled in one section of a course at one school in one district. Many students, especially in secondary, will have multiple observations.
    - **Variables:** Record ID (Primary Key), TCS Student ID (PK from Table #8), Course Offering ID (PK from Table #6), TCS Grade Status (PK from Table #4), TCS Dual Enrollment Code (PK from Table #1), Letter Grade, Credits Earned, and Course Sessions (Attended and Total)
18. *Student Matching:* Each observation represents one matching of a SASID, a District Student ID, and/or a Registration ID.
    - **Variables**: TCS Student ID (Primary Key), SASID, District ID, School ID, Registration ID, District Student ID
19. *Teacher Matching:* Each observation represents one matching of an Educator Identification Number (EIN) to a District Teacher ID.
    - **Variables:** TCS Teacher ID (Primary Key), EIN, District ID, District Teacher ID
20. *Course Teaching:* Each observation represents one teacher teaching in a section in a school in a district. As some sections may be co-taught, some sections may have multiple observations.
    - **Variables:** Record ID (Primary Key), TCS Teacher Type (PK from Table #5), TCS Course ID (PK from Table #2), and TCS Teacher ID (PK from Table #9)

- *Data is cleaned, filtered, and prepared for use.*

1. Data tables are filtered to remove non-public schools, universities, etc.
2. Data tables are joined with existing CSDE data to validate
    a. School and district identification numbers, either missing, incorrect, or invalid
    b. SASIDs, either non-uniquely assigned, incorrect, missing, or invalid
    c. EINs, either incorrect, missing, or invalid
    d. Matching of SASIDs and EINs with most recent school and district IDs

3. Course offering data is joined with course enrollment data and student data. In cases where the available credit is missing or less than 1.0, error checking is completed to determine whether it is a partial year course, a middle or elementary school course (which would not assign credit), or a potential error.
4. At each stage, questionable observations are filtered into a separate data table for error checking.

Resulting table from Step 1: Each observation contains one course outcome for one student.

Variables: TCS Student ID (PK from Table #8), District ID, School ID, TCS Course ID (PK from Table #7), Grade, Grade Status Code, Credits Earned, Dual Enrollment Flag (0 or 1), Dual Enrollment Code

Step 2. The data is further sorted to check for any potential duplicates by Student ID, School ID, Course Description, or School Year.

As credits earned twice for the same course cannot count twice toward the five-credit total, duplicate observations must be removed from the data set. However, as some schools use marking periods rather than full year credits when entering their course information, the program must distinguish between these two cases.

1. When duplicate observations are found, the session dates are checked. If the session dates are the same, then the course is considered a duplicate. The program will select the observation with the maximum earned credits or maximum available credits if the earned credits are equal.
2. If the session dates are not the same, the program will aggregate the credits to create a single course record with the sum of the credits across the marking periods.

Step 3. Resolved duplicates are combined with unique outcomes and aggregated by Student ID to find the sum of credits earned for each student. The results are then filtered to retain students with five or more credits.

In this step, the program creates the individual student scores. The program finds the total number of credits earned for each student. Using the formula from page 1, if a student has five or more credits, they have met the requirements for indicator seven, and are retained in the numerator data table. If they have four or fewer credits, they are removed.

Step 4. All current ninth grade students are attributed to a current high school and a previous middle school.

In a separate data table, all students, regardless of whether or not they met the requirements for indicator seven, are attributed to schools for their eighth and ninth grade school years. For

students who attended more than one school during the school year, they will be attributed to the school they attended most recently.

Step 5. The results of steps three and four are counted to obtain the total number of students who earned five or more credits at each school as well as the total number of current ninth graders on which the school will be assessed.

In this step, the program will find the totals for the first half of the formula on page 1. The data from step 3 is aggregated at the school and district levels to determine the number of students who met the requirements for indicator seven, in other words, it calculates $\Sigma IS7_i$ for each school and district. The data from step 4 is aggregated at the school and district level to determine the number of students on which the school or district will be assessed. In other words, it calculates the denominator for each school and district. [7]

Step 6. These counts are then divided by the number of students in the relevant grade as determined in the June PSIS collection. If the rate is 94% or greater, the school receives the maximum score of 50 points. If the rate is less than 94%, the rate is then divided by 0.94 and multiplied by 50 to get their prorated score.

[7] If the number of students in the denominator, N, is less than 20, the calculation of the on-track rate is suppressed and the school or district gets no points awarded for this indicator. No possible points are attributed.

CALCULATION RULES FOR INDICATOR 12: ARTS ACCESS

Description:

Pro-rated percentage of students in grades nine through twelve participating in at least one dance, theater, music, or visual arts course during the school year. This indicator has a maximum of 50 points and will be assessed for all schools that teach students in grades nine through twelve. The target percentage for this indicator is 60%.

Formula for Calculation:

Each student, i, will receive an individual score as follows:

$$IS12_i = \begin{cases} 0 & \text{not enrolled in any applicable arts course} \\ 1 & \text{enrolled in at least one applicable arts course} \end{cases}.$$

These individual scores will then be attributed to the schools attended by each student. School scores will then be calculated by taking the sum of the student scores, dividing by the total number, N, of students in grades nine through twelve. Points will be assigned as a prorated percentage of the target, out of a maximum of 50, as indicated in the formula below:

$$\text{School Score} = Min\left(\frac{\sum IS12_i}{N} \cdot \frac{50}{0.60}, 50\right).$$

Data Flow Steps: Overview

Indicator twelve is calculated using the following data steps:

1. Course completion data is collected from the districts in TCS, then cleaned and validated.
2. The data is further sorted to check for any potential duplicates by Student ID, School ID, Course Description, or School Year. Resolved duplicates are combined with unique outcomes.
3. All students enrolled in at least one applicable arts course are flagged in the data. The number of students flagged is counted for each school and district.
4. The total number of students in grades nine through twelve on which each school and district is being evaluated is determined using the June PSIS collection from that year.
5. The number of students meeting the requirements for indicator twelve is divided by the total number of students in grades nine through twelve. If the ratio is 60% or greater, the school receives the maximum score of 50 points. If the score is less than 60%, the score is then divided by 0.60 and multiplied by 50 to get their prorated score.

Data Flow Steps in Detail:

Step 1. Course completion data is collected from the districts, then cleaned and validated.

- *School districts submit course completion data.*

School districts use National Center for Education Statistics (NCES) course classification codes[8] to submit their course completion data using the Teacher-Course-Student (TCS) Data Collection Site[9]. Collection takes place between March and July at the end of each school year, however updates and corrections can be made up to the freeze date of September 30 to include summer school grades in the indicator calculations.

- *CSDE extracts data from TCS Data Collection Site.*

Before extracting data from TCS, the following data tables are loaded for reference[10]:

1. *Dual Enrollment Codes*: Each observation represents one university offering dual enrollment.
    a. **Variables**: TCS Dual Enrollment Code (Primary Key), Dual Enrollment Codes, University Name, University Description
2. *NCES Course Codes:* Each observation represents one potential course that could be offered.
    a. **Variables:** TCS Course ID (Primary Key), NCES Course Description Code (five digits), Subject Area Code (two digits), Course ID Code (three digits), Subject Area Name, Course Name, Course Description, Elementary Flag (0 or 1), Secondary Flag (0 or 1), CSDE Created Course Flag (0 or 1)
3. *NCES Course Levels:* Each observation represents a level of courses that could be offered.
    a. **Variables:** TCS Course Level (Primary Key), NCES Course Level Code (one character), Level Name, Level Description, Elementary Flag (0 or 1), Secondary Flag (0 or 1)
4. *Course Outcomes*: Each observation represents a potential course outcome, such as pass or fail.
    a. **Variables**: TCS Grade Status (Primary Key), Grade Status Codes (one or two characters), Grade Status Name, Grade Description
5. *Teacher Type:* Each observation represents a type of teacher that could be teaching a course.
    - **Variables:** TCS Teacher Type (Primary Key), Teacher Type Code (three digits), Teacher Type Description, Teacher Type Category, Teacher Type SubClass, Educator Identification Number Requirement Flag (0 or 1)

The following data tables can then be extracted from TCS:

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[8] For more information on NCES Course Classification Codes, see (secondary and non-secondary respectively): files.eric.ed.gov/fulltext/ED515113.pdf and nces.ed.gov/pubs2011/2011801.pdf.

[9] For more information about TCS Data Collection, see www.csde.state.ct.us/public/tcs/.

[10] Throughout this document, variables and tables used exclusively for the purpose of managing updates are not included, such as district certification and last modification date/by whom. Also, variable and table names are modified to provide a descriptive understanding of the tables described, and may not necessarily represent the order in which the variables appeared in the table.

6. *Course Offerings:* Each observation represents one course section in one school in one district.
    - **Variables:** TCS Course Offering ID (Primary Key), District ID, School/Facility ID, TCS Course ID (PK from Table #2), NCES Course Level (PK from Table #3), NCES Course Code, Available Credit, Grade Span (Low and High), Sequence (Location and Limit), and Section Code.
7. *Course Enrollment:* Each observation represents one student enrolled in one section of a course at one school in one district. Many students, especially in secondary, will have multiple observations.
    - **Variables:** Record ID (Primary Key), TCS Student ID (PK from Table #8), Course Offering ID (PK from Table #6), TCS Grade Status (PK from Table #4), TCS Dual Enrollment Code (PK from Table #1), Letter Grade, Credits Earned, and Course Sessions (Attended and Total)
8. *Student Matching:* Each observation represents one matching of a CT State Student ID (SASID), a District Student ID, and/or a Registration ID.
    - **Variables**: TCS Student ID (Primary Key), SASID, District ID, School ID, Registration ID, District Student ID
9. *Teacher Matching:* Each observation represents one matching of an Educator Identification Number (EIN) to a District Teacher ID.
    - **Variables:** TCS Teacher ID (Primary Key), EIN, District ID, District Teacher ID
10. *Course Teaching:* Each observation represents one teacher teaching in a section in a school in a district. As some sections may be co-taught, some sections may have multiple observations.
    - **Variables:** Record ID (Primary Key), TCS Teacher Type (PK from Table #5), TCS Course ID (PK from Table #2), and TCS Teacher ID (PK from Table #9)

- *Data is cleaned, filtered, and prepared for use.*

1. Data tables are filtered to remove non-public schools, universities, etc.
2. Data tables are joined with existing CSDE data to validate
    a. School and district identification numbers, either missing, incorrect, or invalid
    b. SASIDs, either non-uniquely assigned, incorrect, missing, or invalid
    c. EINs, either incorrect, missing, or invalid
    d. Matching of SASIDs and EINs with most recent school and district IDs
3. Course offering data is joined with course enrollment data and student data. In cases where the available credit is missing or less than 1.0, error checking is completed to determine whether it is a partial year course, a middle or elementary school course (which would not assign credit), or a potential error.
4. At each stage, questionable observations are filtered into a separate data table for error checking.

Resulting table from Step 1: Each observation contains one course outcome for one student.

Variables: TCS Student ID (PK from Table #8), District ID, School ID, TCS Course ID (PK from Table #7), Grade, Grade Status Code, Credits Earned, Dual Enrollment Flag (0 or 1), Dual Enrollment Code

Step 2. The data is further sorted to check for any potential duplicates by Student ID, School ID, Course Description, or School Year. Resolved duplicates are combined with unique outcomes.

Duplicate entries in the course offerings are resolved, either by aggregating marking periods into a full-year course or taking a single entry of several, depending on whether or not the start dates are the same. Once resolved to single course observations, these entries can be re-joined to the non-duplicated courses to create a data table with all courses. Students are then attributed to their current school using the June Public School Information System (PSIS) collection[11].

Step 3. All students enrolled in at least one applicable arts course are flagged in the data. The number of students flagged is counted for each school and district.

In this step, the program will find the individual student scores, $IS12_i$, and use them to calculate the first part of the formula for the school and district scores, ΣIS_{12}.

The NCES secondary course classification codes for all applicable arts courses begin with the subject area code 05. All students in grades nine through twelve enrolled in a course with this flag are flagged as having met the requirements for indicator twelve. This data is aggregated to find the number of students in each school and district enrolled in at least one arts course during the school year.

Applicable SAS Code: `where TCSCourseDim.SubjectAreaCode = “05”`

Step 4. The total number of students in grades nine through twelve on which each school and district will be evaluated is determined using the June PSIS collection from that year.

In this step, the program calculates N, the total number of students on which the school or district will be evaluated. To do this, it counts all students in grades nine through twelve, whether or not they were enrolled in at least one arts course, in the June PSIS collection of that school year.

[11] For more information about PSIS, see the help site at http://www.csde.state.ct.us/public/psis/.

Step 5. The number of students meeting the requirements for indicator twelve is divided by the total number of students in grades nine through twelve. If the ratio is 60% or greater, the school receives the maximum score of 50 points. If the score is less than 60%, the score is then divided by 0.60 and multiplied by 50 to get their prorated score.

In this step, the program creates the final scores. For each school or district, the number of students who were enrolled in at least one arts course is divided by the total number of students ($\Sigma IS12_i/N$), which is the ratio of these values. This ratio will necessarily be less than or equal to 1. If it is greater than or equal to 0.60, meaning that the school has met or exceeded the target score of 60%, the school or district score will be the maximum 50 points. If the ratio is less than 0.60, meaning that the school has not met the target score of 60%, the points awarded will be a prorated percentage of the target. This can be found by multiplying the ratio by 50 and dividing by 0.60.

HOW TO READ ACCOUNTABILITY REPORTS

The sample report below shows a district's performance on all indicators reported for the 2015-16 school year. To support appropriate interpretation, a brief explanation for every column heading is provided below the table.

No:	Indicator	Index/ Rate		Target	Points Earned	Max Points	% Points Earned	*State Avg Index/Rate*	
1a.	ELA Performance Index – All Students	67.8		75	45.2	50	90.4%	*67.7*	
1b.	ELA Performance Index – High Needs Students	61.5		75	41.0	50	82.0%	*56.7*	
1c.	Math Performance Index – All Students	61.6		75	41.1	50	82.1%	*61.4*	
1d.	Math Performance Index – High Needs Students	55.7		75	37.2	50	74.3%	*49.9*	
1e.	Science Performance Index – All Students	59.0		75	39.3	50	78.7%	*57.5*	
1f.	Science Performance Index – High Needs Students	50.9		75	33.9	50	67.8%	*47.0*	
2a.	ELA Avg. Percentage of Growth Target Achieved – All Students	65.7%		100	65.7	100	65.7%	*63.8%*	
2b.	ELA Avg. Percentage of Growth Target Achieved – High Needs Students	61.4%		100	61.4	100	61.4%	*58.3%*	
2c.	Math Avg. Percentage of Growth Target Achieved – All Students	63.7%		100	63.7	100	63.7%	*65.0%*	
2d.	Math Avg. Percentage of Growth Target Achieved – High Needs Students	59.0%		100	59.0	100	59.0%	*57.4%*	
4a.	Chronic Absenteeism – All Students	8.2%		<=5%	43.7	50	87.4%	*9.6%*	
4b.	Chronic Absenteeism – High Needs Students	13.9%		<=5%	32.1	50	64.3%	*15.6%*	
5	Preparation for CCR – % taking courses	69.5%		75%	46.3	50	92.6%	*67.6%*	
6	Preparation for CCR – % passing exams	37.9%		75%	25.3	50	50.5%	*40.7%*	
7	On-track to High School Graduation	88.7%		94%	47.2	50	94.4%	*85.1%*	
8	4-year Graduation All Students (2015 Cohort)	89.0%		94%	94.7	100	94.7%	*87.2%*	
9	6-year Graduation - High Needs Students (2013 Cohort)	82.7%		94%	88.0	100	88.0%	*78.6%*	
10	Postsecondary Entrance (Class of 2015)	73.9%		75%	98.6	100	98.6%	*71.9%*	
11	Physical Fitness (estimated part rate) and (fitness rate)	96.3%	51.5%	75%	34.3	50	68.6%	*89.2%*	*50.5%*
12	Arts Access	60.9%		60%	50.0	50	100.0%	*47.5%*	
	Accountability Index				**1047.6**	**1350**	**77.6%**		

- **No**: Every indicator in the system is assigned a number. When an indicator has subcomponents (e.g. All Students, High Needs Students) a lettering system is used alongside the number.

- **Indicator**: This column provides a brief explanation of what is being measured. A full explanation of every indicator is included in the main section of this document (*Using Accountability Results to Guide Improvement*).
- **Index/Rate**: All components of indicator 1 are reported as performance indices. All other indicators are reported as rates (i.e. percentages). The values presented in this column are the performance indices and rates earned by this district on the associated indicators.
- **Target**: This value is the ultimate target established for all schools and districts statewide.
- **Points Earned**: This value represents the points earned on the relevant indicator for the district. In every case, points are prorated based on the district's actual performance (i.e. index or rate) as compared to the target. The rules used for prorating points for each of the indicators are explained in the main section of this document.
- **Max Points**: This value is the maximum number of points possible on the associated indicator.
- **% Points Earned**: By indicator this column shows the percentage of the "max points" earned by this district.
- **State Avg**. **Index/Rate**: The values presented in this column are the performance indices (Indicator 1) and rates earned by the State on the associated indicators.

Many schools have one or more indicators that cannot be measured. In these cases, school reports will display "N/A" in the Index/Rate field and there will be 0 in the Points Earned, Max Points, and % Points Earned cells for those indicators. The overall Accountability Index (in the district example above, 77.6) is the percentage of total possible points earned on all available indicators. A schools are classified into one of five categories. The school-level Accountability Index is the primary factor used to determine placement in categories 1, 2, and 3 with additional consideration given to participation rates, achievement gaps, and graduation rate gaps.

Note that the table above does not include Indicator 3, which is the participation rate for every subject for All Students and the High Needs group. Participation data are reported in a separate table within the report.

The gap table below shows the ELA, Math, and Science index scores for High Needs students and Non-High Needs students in this district. The size of the gap in index score points is reported and that difference is compared to the average gap across all districts statewide. If the district's gap is more than one standard deviation beyond the state gap mean, then the district is reported as having an "outlier gap." In the example below, the size of the gaps in ELA, Math, and Science are all less than the standard used to identify outliers. The same approach is used at the school level with the size of the gap compared to the average gap across all schools statewide.

Graduation rate gaps are determined in the same way. The graduation rate gap is based on the difference in 6-year graduation rates for High Needs and Non-High Needs students. As shown in the table below, this district has a gap that is less than the standard used to identify graduation rate gap outliers.

While there are no points associated with the gap measures, these data are used when placing schools in one of five categories. Additionally, schools are not eligible to be a School of Distinction if reports indicate that the school has an achievement gap or graduation rate gap this is considered an outlier.

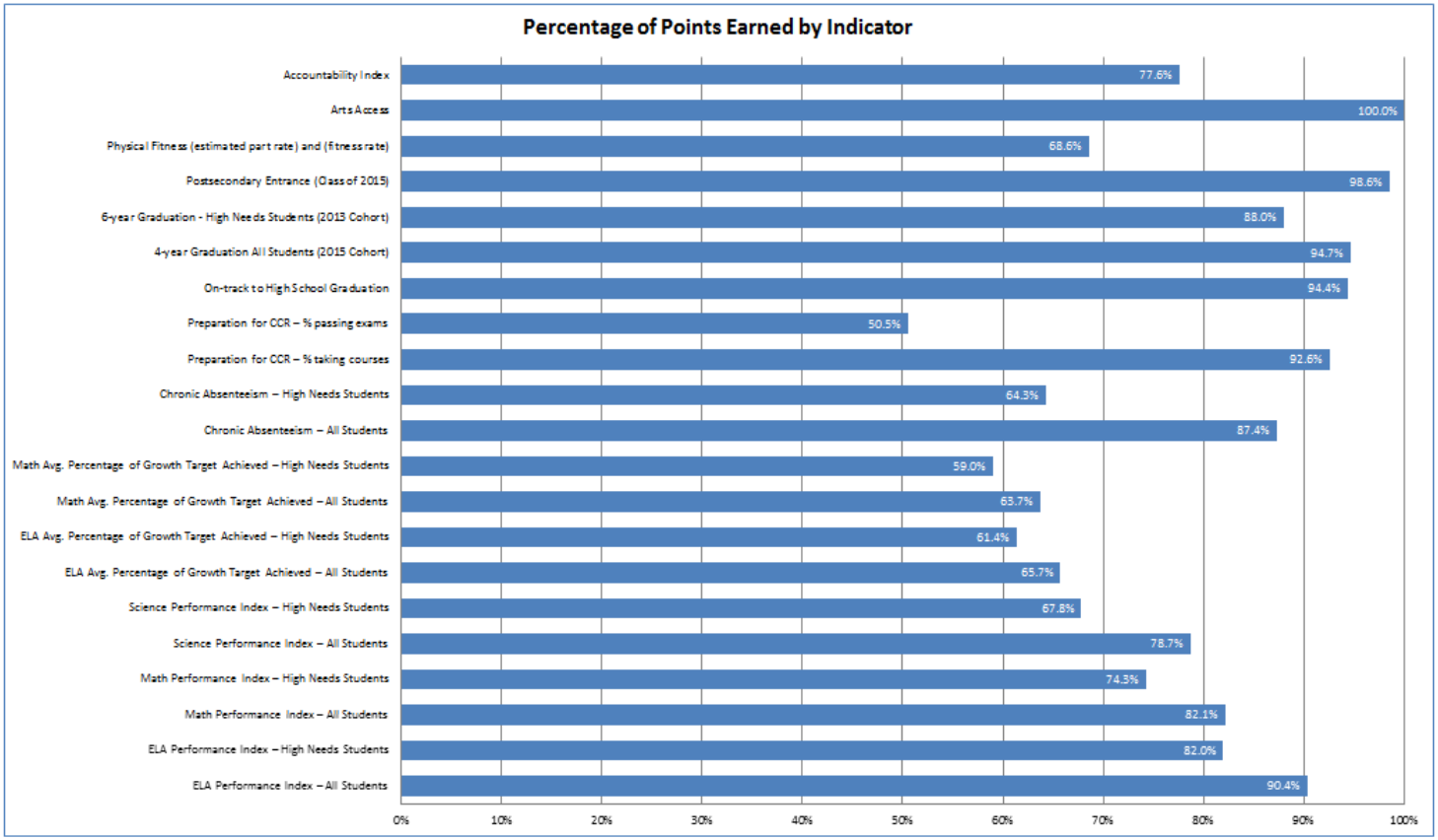
Gap Indicators	Non-High Needs Rate*	High Needs Rate	Size of Gap	State Gap Mean + 1 Stdev**	Is Gap an Outlier?
Achievement Gap Size Outlier?					N
ELA Performance Index Gap	73.1	61.5	11.6	16.5	
Math Performance Index Gap	66.5	55.7	10.8	18.9	
Science Performance Index Gap	65.2	50.9	14.4	17.2	
Graduation Rate Gap (2013 Cohort)	94.0%	82.7%	11.3%	15.3%	N

The participation rate table below includes all of the data for Indicator 3. The expectation for all tested subjects across all tests (i.e., Smarter Balanced, CTAA, CMT/CAPT Science, CMT/CAPT Skills Checklist Science, and SAT) for All Students and High Needs students is at least 95%. Any rate less than 95% means that the district or school did not meet participation requirements. There are no points associated with Indicator 3, but like the gap indicators, these data are used when placing schools in one of five categories. Additionally, schools are not eligible to be a School of Distinction if reports indicate that the school has not met participation requirements.

Participation Rate	Rate
ELA – All Students	99.8%
ELA – High Needs Students	100.0%
Math – All Students	99.8%
Math – High Needs Students	99.8%
Science – All Students	98.5%
Science – High Needs Students	98.3%

The bar chart below provides an at-a-glance view of the percentage of points earned on every indicator. The bar at the top of the graphic is the Accountability Index, representing the percentage of total possible points earned on all *available* indicators.

Please note that the subject-specific index scores are measured against a target of 75. The percentage of points earned is based on what percentage of the target is met. Therefore the subject-specific percentages presented below are not index values. Additionally, it may be helpful for those sharing these reports to provide audiences with district or school context regarding how many students are represented in the All Students group and how many students are members of the High Needs group.



CONNECTICUT ASSESSMENT AND ACCOUNTABILITY REPORTING OF "RECENTLY ARRIVED" ENGLISH LEARNERS (ELS)

	2014-15 School Year	2015-16 School Year and Beyond
Recently Arrived EL Definition	An EL enrolled for the first time in a U.S. school for fewer than 12 calendar months at the time of testing.	An EL enrolled for the first time in a U.S. school for fewer than 24 calendar months at the time of testing.
Assessment Participation Requirements	Recently arrived ELs MUST participate in mathematics and science and MAY be excused (i.e. exempt) from the English Language Arts (ELA) assessment.	All ELs, including all recently arrived ELs, must participate in all assessments. This includes mathematics, ELA and science as well as the English language proficiency assessment.
Assessment Reporting (typically in the summer months)	When 2014-15 results were released in September 2015, recently arrived ELs who may have taken ELA were not included in the results. However, when the agency's new portal, EdSight, is fully implemented, recently arrived ELs will be included in all assessment results for schools and districts per federal law.	Federal law requires that all ELs be included in assessment reporting regardless of time in a U.S. school.
Accountability Reporting—Achievement Status	Recently arrived ELs were not included in any of the Achievement Status (Indicator 1) calculations.	Scores earned by recently arrived ELs are not included in Achievement Status (Indicator 1) calculations.
Accountability Reporting—Achievement Growth	Measuring growth is not possible based only on 2014-15 data because this was the first administration of the operational Smarter Balanced assessment.	Recently arrived ELs who have participated in two Smarter Balanced administrations are included in growth calculations (Indicator 2).
Accountability Reporting—Participation Rates	Recently arrived ELs are not included in ELA participation rates because their participation was not a requirement. However, they are included in math and science rates.	All students are included in participation rate calculations for all subjects.

Note regarding EL subgroup reporting: When reviewing accountability reports and exploring subgroup results for English learners in particular, keep in mind the "EL Flex" group for accountability. EL Flex includes students who were formerly identified as an EL. Specifically, any student who is not an EL at the time of testing but who had been a member of the EL subgroup in any time up to four years previous, are included in the EL flexibility subgroup. For Indicator 1 calculations this means that previous subgroup status is determined by using the EL PSIS collection variable from October, January, and June of the current and four prior school years. If the student was identified as EL in any of those collections, the student is included as an EL in Indicator 1 calculations.

ASSIGNING SCHOOL CATEGORIES

As required under Connecticut General Statutes Section 10-223e, Connecticut has implemented a five category school classification system. In 2015-16, CSDE identified schools in Category 4 and Category 5. Category 4 schools were newly identified Turnaround and Focus Schools, and Category 5 schools were Turnaround and Focus schools that had not exited since initial identification in 2012. For a full explanation of the Turnaround and Focus School designations made in 2015-16 (using 2014-15 data), please see *Schools Identified for Targeted Intervention and Support (Turnaround and Focus)*. In 2016-17, CSDE did not make any changes to Category 4 and 5 schools but identified all other schools as Category 1, Category 2, or Category 3. In 2017-18, CSDE will not identify new Category 4 and 5 schools, but all remaining schools will be reclassified as Category 1, Category 2, or Category 3 based on updated accountability data.

To begin the school classification process, the following schools must be removed from the data file:

- Unified School District #1;
- Detention Centers; and
- Schools with 100 or fewer possible points.

The next step is to identify every school as either elementary/middle or high school. Any school that serves Grade 9 or above is a high school. All other schools are considered elementary/middle for this purpose.

Elementary/middle and high schools are sorted separately from highest to lowest based on the Accountability Index.

- Schools in the top quartile based on the Accountability Index are *preliminarily* placed in Category 1.
- Schools in the middle two quartiles are *preliminarily* placed in Category 2.
- Schools in the bottom quartile based on the Accountability Index are placed in Category 3.
- Further review of Category 1 and Category 2 schools is necessary. Any Category 1 or Category 2 school is lowered a category if one or more of the following are true:
    - an outlier achievement gap in ELA, Math, or Science;
    - an outlier graduation rate gap based on the six-year graduation rate; or
    - an assessment participation rate below 95% in any subject for All Students or High Needs students.
- Schools that were identified as Category 4 and 5 Turnaround schools in March 2016 maintain their category assignment regardless of their quartile position. Category 4 and 5 Focus schools are evaluated to determine eligibility to exit Focus school status. Focus schools that do not exit will remain in Category 4 or 5 regardless of quartile position. Focus schools that have met the exit criteria will be reclassified as Category 1, 2, or 3 based on the rules above.

Accountability Index Quartile Cutoffs for 2016-17

	Bottom Quartile Cutoff	Top Quartile Cutoff
Elementary/Middle Schools	64.73316078	77.57936419
High Schools	65.85096394	81.71721362

The assignment of school categories will change in 2018-19 (using 2017-18 data) based on Connecticut's approved ESSA plan (p. 47). Rather than a normative approach (i.e. quartiles) to assigning school categories based on the accountability index, criterion-referenced cut points will be established. The selection of these cut points will be informed by accountability results from the two prior years.

IDENTIFYING SCHOOLS OF DISTINCTION 2016-17

Annually, the CSDE identifies a group of schools as Schools of Distinction based on a variety of factors. In 2016-17, the identification centers on overall performance, growth, and change in overall performance from 2015-16 to 2016-17. The guidelines for each distinction type are included below.

HIGHEST PERFORMING

Elementary/middle and high schools are evaluated separately for the Highest Performing distinction. For each school type, the full list of Category 1-5 schools is sorted based on the Accountability Index from highest to lowest. The top 10% become eligible for distinction status. All eligible schools must have data reported for Indicator 1 (Academic Achievement). Additionally, all eligible schools must NOT have any of the following if the school is to be named a School of Distinction:

- an outlier achievement gap based on the difference in index scores between the High Needs subgroup and the non-High Needs group in ELA, Math, or Science;
- an outlier graduation rate gap based on the six-year graduation rate difference between the High Needs subgroup and the Non-High Needs group;
- an assessment participation rate below 95% for the All Students group or the High Needs subgroup in Math, ELA, or Science; or
- Category 4 or 5 status.

HIGHEST GROWTH

Schools with Indicator 2 (academic growth) values are evaluated separately from schools without Indicator 2. For schools with Indicator 2 values, there are two distinction types, Highest Growth for All Students and Highest Growth for High Needs Students.

In both cases (All Students and High Needs), the percentage of possible points earned across ELA and Mathematics must be calculated separately for All Students and High Needs students respectively. Schools are then sorted based on the percentage of possible points earned from highest to lowest.

- **All Students**: Schools in the top 10% of percentage of possible points earned across indicator 2 (academic growth) for the All Students group are *eligible* for a highest growth distinction.
- **High Needs Students**: Schools in the top 10% of percentage of possible points earned across indicator 2 (academic growth) for the High Needs students group are *eligible* for a highest growth distinction.

The schools flagged as eligible for one or more distinctions in the highest growth category must NOT have any of the following if the school is to be named a School of Distinction:

- an outlier achievement gap based on the difference in index scores between the High Needs subgroup and the non-High Needs group in ELA, Math, or Science;
- an outlier graduation rate gap based on the six-year graduation rate difference between the High Needs subgroup and the Non-High Needs group;
- an assessment participation rate in 2015-16 or 2016-17 below 95% for the All Students group or the High Needs subgroup in Math, ELA, or Science ; or
- Category 4 or 5 status.

GREATEST IMPROVERS

Schools without Indicator 2 (academic growth) are eligible for distinction in the "Greatest Improvers" category. These schools have shown the greatest percentage improvement in their Accountability Index. Percentage improvement is calculated for every school by subtracting the 2015-16 Accountability Index from the 2016-17 Accountability Index and dividing the difference by the 2015-16 Accountability Index. Then every school is sorted from highest to lowest based on the percentage improvement in Accountability Index.

Schools in the top 10% of percentage improvement in Accountability Index are *eligible* for the Greatest Improver distinction. All eligible schools must have data reported for Indicator 1 (Academic Achievement). Additionally, the schools flagged as eligible for this distinction category must NOT have any of the following if the school is to be named a School of Distinction:

- an outlier achievement gap in 2015-16 or 2016-17 based on the difference in index scores between the High Needs subgroup and the non-High Needs group in ELA, Math, or Science;
- an outlier graduation rate gap between the High Needs subgroup and the Non-High Needs group in the two most recent six-year cohort graduation rates;
- an assessment participation rate in 2015-16 or 2016-17 below 95% for the All Students group or the High Needs subgroup in Math, ELA, or Science; or
- Category 4 or 5 status.

Schools of Distinction 2016-17 Minimum Values by Distinction Type

Distinction Type	Measure	Top 10 Percent Minimum Value
Highest Performing: Elementary/Middle Schools	Accountability Index	84.5887213649311
Highest Performing: High Schools	Accountability Index	87.4725991659552
Highest Growth: All Students	Percentage of possible points earned across subjects for Indicator 2 by the "All Students" group	76.3229514
Highest Growth: High Needs	Percentage of possible points earned across subjects for Indicator 2 by the "High Needs" group	68.0348454
Greatest Improvers	Percentage improvement in the Accountability Index from 2015-16 to 2016-17	9.039073