DELAWARE SCHOOL SUCCESS FRAMEWORK

REFERENCE GUIDE FOR SCHOOL YEAR 2016-2017

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Table of Contents

1.0 Overview of Document 1

1.1 Introduction to the Delaware School Success Framework (DSSF) 1

1.1.1 Overview of the DSSF 2

1.1.2 Context Measures 2

1.1 Calculation and Aggregation Rules 3

1.2 Accountability Student Verification (ASV) Process 5

1.3 DSSF Contact Information 5

2.0 DSSF Academic Achievement Overview 6

2.1 Metrics Definition 6

2.2 Sources of Academic Achievement Data 6

2.3 Academic Achievement Business Rules 6

2.4 Participation Business Rules 8

3.0 DSSF Growth Metric Overview 9

3.1 Metric Definition 9

3.2 Sources of Growth Data 9

3.3 Growth Business Rules 9

4.0 DSSF On-Track-to-Graduation Metric Overview 11

4.1 Metric Definition 11

4.2 Sources of On-Track-to-Graduation Data 11

4.3 On-Track-to-Graduation Business Rules 12

4.4 On-Track-to-Graduation Data Collection Specifications and Timelines 14

5.0 DSSF College and Career Preparation Metric Overview 15

5.1 Metric Definition 15

5.2 Sources of College and Career Preparation Data 15

5.3 College and Career Preparation Business Rules 16

5.4 College and Career Preparation Data Collection Specifications and Timelines 18

6.0 DSSF Context Measures Overview 19

6.1 Measure Definition 19

6.2Sources of Context Measures Data 19

6.3 Context Measures Business Rules 19

6.3.1 5Essentials Survey Data 19

6.3.2 School/District Narratives 20

6.3.3 Postsecondary Outcomes 21

6.4 Context Measures Data Collection Specifications and Timelines 21

7.0 DSSF Accountability Standard Scoring 22
7.1 Standard Scoring Example 24
7.2 Star Ratings by Metric Area 25
7.3 Additional Aggregation Rules 26
8.0 DSSF Accountability Non-Standard Scoring 27
8.1 Introduction 27
8.2 Principles of Point Redistribution 27
8.3 Point Distribution Decisions for Academic Achievement – Elementary/ Middle 28
8.4 Point Distribution Decisions for Academic Achievement – High School 29
8.5 Point Distribution Decisions for Academic Achievement – District/State 31
8.6 Point Distribution Decisions for On-Track to Graduation – High School 32
8.7 Point Distribution Decisions for On-Track to Graduation – District/State 34
8.8 Point Distribution Decisions for College and Career Preparation – District/State 37
8.9 Scoring Metric Areas With Redistributed Points 39
9.0 Accountability Student Verification Process 41
9.1 Business Rules for Creation of AVS Rosters 41
Reference Page 43
Appendix – Student Growth Model for School Accountability 44
History of Changes 48

1.0 Overview of Document

The purpose of this document is to provide a reference guide to help school and district officials understand the components of the Delaware School Success Framework (DSSF) and how the components are aggregated to produce final accountability ratings.

This document is organized into the following eight sections:

- DSSF Overview – an overview of the DSSF as a whole.
- Academic Achievement Metric Overview – details of the metrics of the Academic Achievement area of the DSSF index.
- Growth Metric Overview – details of the metrics of the Growth area of the DSSF index.
- On-Track-to-Graduation Metric Overview – details of the metrics of the On-Track-to-Graduation area of the DSSF index.
- College and Career Preparation Metric Overview – details of the metrics of the College and Career Preparation area of the DSSF index.
- Context Measures Overview – details of the measures included to provide additional context for school performance.
- Accountability Calculation Rules – rules for the calculation and aggregation of the DSSF index.
- Accountability Student Verification (ASV) Process – details the process used by districts and schools to verify the students included in the accountability calculations.

1.1 Introduction to the Delaware School Success Framework (DSSF)

The DSSF is a comprehensive accountability system that measures and publicly reports on multiple areas of school success. This document provides detailed descriptions of the metrics included, the source of the data used, and method of aggregating the metrics to produce accountability ratings.

Federal law requires a single statewide system of accountability and supports for all public schools and districts. In the past, this was measured by Adequate Yearly Progress (AYP). Recognizing that AYP does not honor the full complexity of school performance, the Delaware Department of Education (DDOE) engaged with stakeholders across the state to devise a comprehensive and authentic structure for measuring school, district, and state performance that incorporates multiple metrics related to college and career readiness for all students.

Beginning in July 2014, a group of education stakeholders from across the state, known as the Accountability Framework Working Group (AFWG), came together to develop and recommend a new, multiple measure accountability system called the Delaware School Success Framework (DSSF). The AFWG was made up of school and district leaders from across the state, a parent representative, a teacher representative, and a representative from the State Board of Education. The development of the DSSF was also aided by vast public input on what Delaware residents wanted to see in a new accountability system. Delaware was the first state in the nation to survey its residents for their perspectives on how best to measure school performance. In addition to receiving feedback through four public Town Halls, DDOE received over 6,000 responses on a statewide accountability survey. Responses from that survey directly influenced the recommendations of the AFWG and also helped the state as it engaged in a process to redesign its federally required school report cards. The AFWG completed its

work in November 2015. Beginning in the 2015-2016 school year, the DSSF replaced AYP for all state and federal accountability.

1.1.1 Overview of the DSSF

The DSSF applies to all public schools, including charter schools and career technical schools that are subject to the calculation and reporting of AYP as prescribed by the federal Elementary and Secondary Education Act (ESEA), 20 U.S. C.A. §6301 et seq. and 14 DE Admin. Code 103 Accountability for Schools, Districts and the State. This Framework raises the expectations for students, schools, and districts as it is focused on college and career readiness. The DSSF is an index made up of four metric areas that include:

1. Academic Achievement
2. Growth
3. On-Track-to-Graduation
4. College and Career Preparation

These four metric areas are comprised of 9 individual elementary school (ES) and middle school (MS) metrics and 11 individual high school (HS) metrics. The metrics are:

- Proficiency in English language arts (ELA), mathematics, science, and social studies
- Growth in ELA and mathematics
- Growth to proficiency in ELA and mathematics (ES and MS only)
- Average daily attendance (ES and MS only)
- On track in 9th grade (HS only)
- Graduation rate for 4-, 5-, and 6-year cohort (HS only)
- Successful participation in a college or career experience while in high school, such as Advanced Placement (AP), International Baccalaureate (IB), dual enrollment, and technical skill attainment (HS only)

Schools and districts receive ratings based on performance in each area (e.g., Academic Achievement, Growth, On-Track-to-Graduation, and College and Career Preparation). Individual student data is aggregated at the school and district levels to generate a numeric score for each metric and metric area. Each of the metrics contributes a weighted value toward the numeric score, which is then converted into a star value for each of the four metric areas. Please refer to Section 7.2 – Star Ratings by Metric Area for more details.

DDOE intends to use this single, improved system for all accountability determinations, thereby reducing complexity for schools and districts and increasing public transparency.

1.1.2 Context Measures

In addition to the metrics that are used to determine a school's numeric accountability score, the DSSF includes a few measures that do not contribute to a school's ratings calculations. They provide additional context for school performance. These measures are referred to as Context Measures.

Context Measures include:

- School Environment Measures – Data collected via a research-based survey of students, parents, and teacher provides information on components of school success, including

effective leaders, collaborative teachers, involved families, supportive environment, and ambitious instruction.

- Narrative Reports – A section where schools and districts provide information on their programs.
- Postsecondary Outcomes – The percent of students who enroll in a postsecondary institution within a year after high school graduation.
- Student Gap Group – The percent of students who are in a subgroup that has historically demonstrated achievement gaps. This is an unduplicated count of students.

1.1 Calculation and Aggregation Rules

The metrics are aggregated on a 500-point scale reflecting different values for elementary/middle and high schools. There is also a district-level aggregation for LEAs with more than one school. Each metric area (e.g., Academic Achievement), will receive a star rating from one to five stars based on the aggregated performance on metrics in that particular area. The metrics weights and associated points are as follows:

Elementary/Middle School

Metric Area/Metrics	Weight	Points
Academic Achievement	***30%***	***150***
Proficiency ELA	10%	50
Proficiency Math	10%	50
Proficiency Science	5%	25
Proficiency Social Studies	5%	25
Growth	***40%***	***200***
Growth in ELA	20%	100
Growth in Math	20%	100
On-Track-to-Graduation	***10%***	***50***
Average Daily Attendance	10%	50
College and Career Preparation	***20%***	***100***
Growth to Proficiency in ELA	10%	50
Growth to Proficiency in Math	10%	50
Total	**100%**	**500**

High School

Metric Area/Metrics	Weight	Points
Academic Achievement	***25.0%***	***125.0***
Proficiency ELA	7.5%	37.5
Proficiency Math	7.5%	37.5
Proficiency Science	5.0%	25.0
Proficiency Social Studies	5.0%	25.0
Growth	***45.0%***	***225.0***
Growth in ELA	22.5%	112.5
Growth in Math	22.5%	112.5
On-Track-to-Graduation	***20.0%***	***100.0***
On-Track in 9th Grade	5.0%	25.0
4-Year Cohort Graduation Rate	10.0%	50.0
5-Year Cohort Graduation Rate	3.0%	15.0
6-Year Cohort Graduation Rate	2.0%	10.0
College and Career Preparation	***10.0%***	***50.0***
College and Career Preparation	10.0%	50.0
Total	**100.0%**	**500.0**

District

Metric Area/Metrics	Weight	Points
Academic Achievement	***27.5%***	***137.5***
Proficiency ELA	8.75%	43.75
Proficiency Math	8.75%	43.75
Proficiency Science	5.0%	25.0
Proficiency Social Studies	5.0%	25.0
Growth	***42.5%***	***212.5***
Growth in ELA	21.25%	106.25
Growth in Math	21.25%	106.25
On-Track-to-Graduation	***15.0%***	***75.0***
Average Daily Attendance	5.0%	25.0
On-Track in 9th Grade	2.5%	12.5
4-Year Cohort Graduation Rate	5.0%	25.0
5-Year Cohort Graduation Rate	1.5%	7.5
6-Year Cohort Graduation Rate	1.0%	5.0
College and Career Preparation	***15.0%***	***75.0***
Growth to Proficiency in ELA	5.0%	25.0
Growth to Proficiency in Math	5.0%	25.0
College and Career Preparation	5.0%	25.0
Total	**100.0%**	**500.0**

1.2 Accountability Student Verification (ASV) Process

To improve the accuracy and efficiency of calculating and releasing accountability data, DDOE created a process to verify the students that are included when calculating metrics for a school or district's accountability rating. This process is described in greater detail in Section 8.0 – Accountability Student Verification Process.

1.3 DSSF Contact Information

For more information about the DSSF, please contact:

Delaware Department of Education
401 Federal Street, Suite 2
Dover, DE 19901
DOEAccountability@doe.k12.de.us
(302)735-4090

2.0 DSSF Academic Achievement Overview

The Academic Achievement metric area measures student performance in relation to grade-level expectations. This area includes student performance data on statewide assessments in four content areas: ELA, math, science, and social studies. The Academic Achievement metrics account for 30% of elementary and middle school performance and 25% of high school performance on the DSSF.

2.1 Metrics Definition

Proficiency in a given subject is the percent of students who are on grade level (i.e., proficient) in said subject. Students that are on grade level (proficient) have a greater likelihood of entry and success in education and career training beyond high school.

2.2 Sources of Academic Achievement Data

Academic Achievement data is calculated based on statewide summative assessments.

Metric	Source
Proficiency in ELA	Smarter assessment data (grades 3-8) SAT[1] (grade 11) DCAS-Alt1 assessment data (grades 3-8, 11)
Proficiency in Math	Smarter assessment data (grades 3-8) SAT (grade 11) DCAS-Alt1 assessment data (grades 3-8, 11)
Proficiency in Science	DCAS assessment data (grades 5, 8, and 10) DCAS-Alt1 assessment data (grades 5, 8, and 10)
Proficiency in Social Studies	DCAS assessment data (grades 4, 7, and high school) DCAS-Alt1 assessment data (grades 4, 7 and high school)

2.3 Academic Achievement Business Rules

Proficiency in ELA:

1. Definition: Percent of students in grades 3-8 and 11 scoring at Achievement Level 3+ on the Smarter assessment in ELA, Achievement Level 3+ on the SAT in Evidence-Based Reading and Writing, or Performance Level 3+ on DCAS-Alt1 assessment in Reading.
2. Students included: Students enrolled in a school, district (but not necessarily the same school), and/or state from September 30 through May 31 of a school year will be deemed as being enrolled for a full academic year (FAY). No student is exempt from the assessment or accountability system based on demographics, instructional program, or type of school. If an unexpected medical condition prohibits testing, the district may submit documentation to request, on a case-by-case basis, that a student be dropped from the participation rate statistic.

[1] The SAT began serving as the grade 11 accountability assessment for academic achievement with the administration of the Common Core-aligned SAT in the spring 2016. In the previous year, Smarter assessment data were used for grade 11.

3. Subgroup accountability: Student Gap Group, which is an aggregate, unduplicated count of students that are in groups that have historically had achievement gaps, such as African American, Hispanic, Native American, English Learners (ELs), Economically Disadvantaged, and Students with Disabilities (SWDs).
4. Subgroups reported: All students, American Indian/Alaska Native, African American, Asian, Hawaiian/Pacific Islander, Hispanic, White, Multiracial, ELs, SWDs, and Economically Disadvantaged (e.g., Direct Certification).
5. Proration: Students are tracked to the school that provided the instructional services in grades K–2 on a prorated basis. When a FAY student takes the grade 3 assessment, the following occurs: the school that provided kindergarten services gets 10% of the score; the school that provided first grade services gets 20% of the score; the school that provided second grade services gets 30% of the score; and the school that provided third grade services gets 40% of the score.
6. Participation rate: Students who have completed at least six questions divided by the number of eligible students.

Proficiency in Math:

1. Definition: Percent of students in grades 3-8 and 11 scoring at Achievement Level 3+ on Smarter, Achievement Level 3+ on the SAT in Math, or Performance Level 3+ on DCAS-Alt1 assessment in Math.
2. Business rules are the same as proficiency in ELA.

Proficiency in Science:

1. Definition: Percent of students in grades 5, 8, and 10 scoring at Performance Level 3+ on the DCAS or DCAS-Alt1 Science assessment.
2. Students included: Students enrolled in a school, district (but not necessarily the same school), and/or state from September 30 through May 31 of a school year will be deemed as being enrolled for a FAY. No student is exempt from the assessment or accountability system based on demographics, instructional program, or type of school. If an unexpected medical condition prohibits testing, the district may submit documentation to request, on a case-by-case basis, that a student be dropped from the participation rate statistic.
3. Subgroups reported: All students, American Indian/Alaska Native, African American, Asian, Hawaiian/Pacific Islander, Hispanic, White, Multiracial, ELs, SWDs, and Economically Disadvantaged (e.g., Direct Certification).
4. Proration: Students are tracked to the school that provided the instructional services in prior grades on a pro-rated basis. For example, when a FAY student takes the grade 8 assessment in science, the following occurs: the school that provided 6th grade services gets 20% of the score, the school that provided 7th grade services gets 30% of the score, and the school that provided 8th grade services gets 50% of the score. Proration is repeated for all prior grades of the assessment and will only occur for a maximum of four prior years. For example, with the grade 5 assessment in science, the school that provided 2nd grade services gets 10% of the score, the school that provided 3rd grade services gets 20% of the score, the school that provided 4th grade services gets 30% of the score, and the school that provided 5th grade services gets 40% of the score. K–1 only schools will not receive a rating on this metric.

Proficiency in Social Studies:

1. Definition: Percent of students in grades 4, 7, and in high school scoring at Performance Level 3+ on DCAS or DCAS-Alt1 Social Studies and high school Social Studies assessment (per the 5-year assessment plan).
2. Business rules are the same as Proficiency in Science.

2.4 Participation Business Rules

For a student to count as a participant in the accountability participation calculation, the student must be enrolled within the school or district for the entire test window and complete 6 or more items on the relevant statewide assessment. If a student does not complete 6 or more items, the student will be counted as a non-participant in the participation calculation.

A student will receive an Achievement Level (AL) or a Performance Level (PL) and Scale Score if they count as a participant and complete at least 60% of the Smarter ELA or Math assessment(s), 100% of DCAS Science or Social Studies assessment(s), and 6 or more items on the SAT.

Please note: For accountability purposes, students in grade 11 who have not previously been administered the "School-Day SAT" or who are in their third year at a Delaware public high school regardless of grade will be included in the ELA and mathematics proficiency calculations.

For a detailed description of participation calculations, please see the link to Assessment Participation and Results Policies on the Reference Page at the end of this document.

3.0 DSSF Growth Metric Overview

The Growth area metrics measure how well schools are doing at improving student learning over time. This area includes metrics on the collective performance of students within a school as compared to students with similar assessment history in ELA and math. The Growth metrics account for 40% of elementary and middle school performance and 45% of high school performance on the DSSF.

3.1 Metric Definition

Growth in a given subject is the relative calculation of student progress over time as compared to their peers. The two subjects used in the Growth metric area are ELA and math.

3.2 Sources of Growth Data

Growth data is calculated based on statewide summative assessments.

Metric	Source
Growth in ELA	Smarter assessment (grades 3-8) or SAT (grade 11) data and up to 3 years of prior statewide summative assessment data, including DCAS.
Growth in Math	Smarter assessment (grades 3-8) or SAT (grade 11) data and up to 3 years of prior statewide summative assessment data, including DCAS.

3.3 Growth Business Rules

Growth in ELA:

1. Definition: Amount of growth in ELA demonstrated at the school level.
2. Students included: Students enrolled in a school, district (but not necessarily the same school), and/or state from September 30 through May 31 of a school year will be deemed as being enrolled for a FAY. Growth data are available for students in grades 4–8 and 11, with grade 3 assessment results serving as a baseline for growth metrics. To be included, students must have current and prior year assessment scores in congruent grades.
3. Model specifications: Retrospective growth analysis of observationally similar students using multiple prior assessments in ELA. The model controls for prior assessment history. The model will average three years of growth data.
4. Proration of students in high school: Growth will be apportioned to any high school where a student was enrolled on September 30, based on the number of years of enrollment. Each high school where a student is enrolled in grades 9, 10, and 11 will receive 33% of a student's growth score.

Growth in Math:

1. Definition: Amount of growth in math demonstrated at the school level.
2. Students included: Students enrolled in a school, district (but not necessarily the same school), and/or state from September 30 through May 31 of a school year will be deemed as being enrolled for a FAY. Growth data are available for students in grades 4–8 and 11, with grade 3 assessment results serving as a baseline for growth metrics. To be included, students must have current and prior year assessment scores in congruent grades.

3. Model specifications: Retrospective growth analysis of observationally similar students using multiple prior assessments in math. The model controls for prior assessment history. The model will average three years of growth data.
4. Proration of students in high school: Growth will be apportioned to any high school where a student was enrolled on September 30, based on the number of years of enrollment. Each high school where a student is enrolled in grades 9, 10, and 11 will receive 33% of a student's growth score.

4.0 DSSF On-Track-to-Graduation Metric Overview

The On-Track-to-Graduation area metrics aggregate student progress to and through high school graduation. The metrics in this area include information on students' attendance and course-taking patterns as well as the extent to which students graduated from high school within a certain time frame. The On-Track-to-Graduation metrics account for 10% of elementary and middle school performance and 20% of high school performance on the DSSF.

4.1 Metric Definition

For elementary and middle schools:

- *Average Daily Attendance* is the percent of days that students attend school. Students that attend school daily increase their likelihood of success.

For high schools:

- *On-Track in 9th Grade* is the percent of 9th grade students earning the credits necessary to be on track to graduate from high school on time. Students who are on track at the end of 9th grade have a greater chance of completing high school on time and are less likely to drop out.
- *Four-Year Graduation Rate* is the percent of students who graduate from high school within the traditional four-year time frame. Students that graduate from high school within four years increase their likelihood of entry and success in education and training beyond high school.
- *Five-Year Graduation Rate* is the percent of students who graduate from high school within five years. Some students take longer than four years to graduate from high school, including students that have a specific plan to extend their high school career.
- *Six-Year Graduation Rate* is the percent of students who graduate from high school within six years. Some students take longer than four years to graduate from high school, including students that have a specific plan to extend their high school career.

4.2 Sources of On-Track-to-Graduation Data

In elementary and middle schools, attendance data are used to calculate On-Track-to-Graduation metric.

In high schools, the data for the calculation of the On-Track in 9th Grade metric is gathered from course credit information. Graduation rates are calculated based on the number of student who earned a regular high school diploma divided by the total number of students in the cohort. The graduation information is verified using the Cohort Management System (CoMS).

Metric	Source
Attendance	eSchoolPLUS
On-Track in 9th Grade	eSchoolPLUS (credit information) Smarter assessment data (statewide performance information)
4-, 5-, and 6-Year Graduation Rate	CoMS

4.3 On-Track-to-Graduation Business Rules

Average Daily Attendance (elementary and middle schools only):

1. Definition: Total number of days of attendance for all students divided by the total number of school days in a given year.
2. Students included: All enrolled students in a particular school from the school year of September 30 through May 31. A student is counted present only when he/she is actually at school, present at another activity sponsored by the school as part of the school's program, or personally supervised by a member of staff.

On-Track in 9th Grade (high school only):

1. Definition: Percent of 9th grade students that have earned a total or four or more combined credits by July 1 in at least four of the following subjects: ELA, math, science, social studies, and/or a world language.
2. Students included: All first-time 9th grade students.
3. Bottom 25th percentile bonus: Schools will receive a bonus in the calculation for students that scored in the bottom 25th percentile on the 8th grade statewide assessment in either ELA or math **and** that earn four credits by the end of 9th grade. The bottom 25th percentile group is derived from any student that scores in lowest quartile of 8th grade regular assessment in either ELA or math for all tested students. The 8th grade students identified as in the bottom 25th percentile will be shared with high schools at the start of the school year via the Ed Insight Dashboard.
4. Students with disabilities (SWDs): Any student with an Individual Education Plan (IEP) that targets graduation in more than four years (i.e., certificate track) will be considered to have met the core credit expectation that corresponds with their specific IEP for 9th grade.

4-Year Cohort Graduation Rate (high school only):

1. Definition: The percentage of students who graduate from a secondary school with a regular high school diploma within four years.
2. Calculation: $\text{Graduation rate} = \frac{4\text{−}year\ graduates\ in\ year\ x}{(First\text{−}time\ entering\ ninth\ graders\ in\ year\ x - 4) + (transfers\ in) - (transfers\ out)}$
3. Subgroup accountability: Student Gap Group, which is an aggregate, unduplicated count of students that are in groups that have historically had achievement gaps (i.e., African American, Hispanic, Native American, ELs, Economically Disadvantaged, and SWDs).
4. Subgroups reported: All students, American Indian/Alaska Native, African American, Asian, Hawaiian/Pacific Islander, Hispanic, White, Multiracial, ELs, SWDs, and Economically Disadvantaged (e.g., Direct Certification).
5. Students included: Cohort is based only on students who are first time 9th graders. Students who drop out before beginning 9th grade are not included in the cohort. The 4-year graduation rate counts a student who graduates with a regular high school diploma in four years or less as a high school graduate in his or her original cohort—that is, the cohort in which he/she started the 9th grade. For instance, a student that graduates in three years will be counted and "banked" for a year until his/her cohort graduates. A student who graduates in more than four years is counted as a non-graduate in the 4-year graduation rate.
6. Other rules:

a. Graduation calculations “lag” in order to include students who graduate in the summer after their fourth year of high school among the cohort members who graduate in four years.
b. A high school whose grade configuration is other than grades 9–12 shall have its calculation adjusted accordingly (calculated only for the grades included in the high school).
c. There is no reassignment for students with IEPs or in an EL situation. Only students who graduate with a regular high school diploma in four years or less may be included in the numerator of the 4-year graduation rate.
d. Students who change subgroup membership are assigned to the subgroup they are in at the time they graduate.
e. eSchoolPLUS codes will drive the transfer out calculation decisions.
f. All coding is the responsibility of the district/school.
    1) Students who transfer within the state should be recoded to the correct school. If there is no school coded, the appeal will be rejected.
    2) Unknowns will be considered dropouts if there is no exit code in eSchoolPLUS, and they are not in the Diploma table unless the school provides evidence of a records request.
g. Only a student who transfers out and enrolls in another school or in an educational program that culminates in the award of a regular high school diploma, emigrates to another country, or dies may be removed from a high school’s or LEA’s cohort. Before removing a student from a cohort, a school or LEA must obtain confirmation in writing that the student transferred out, emigrated, or is deceased. No other students may be removed from the cohort.
h. If a student who has repeated a grade transfers into a school, the student should be assigned to the cohort in which the student started 9th grade for the first time.
i. Students who enroll in the Groves diploma program and finish in four years will be considered a transfer out. These students need to be coded (07), and documentation that they are on the appropriate diploma list must be available.
j. A student who is retained in a grade, enrolls in a GED program, or leaves school for any other reason not mentioned in this section (a.–r.) may not be counted in the 4-year graduation rate as a transfer and must remain in the adjusted cohort (must be included in the denominator of the graduation rate for that cohort).
k. If a student re-enrolls before the state determines the 4-year graduation rate for that student’s cohort, the student would no longer be recorded as a dropout and the student record system (eSchoolPLUS) is adjusted.
l. If a student leaves a public high school to enroll in a private school (in or out of state), that student would be considered to be a transfer out.
m. Out of state (eSchoolPLUS exit code 08): If the school provides evidence of a records request from the receiving school, they are approved, and the student is removed from the cohort.
n. Private school (eSchoolPLUS exit code 06): If the school provides evidence of a records request from the receiving school, they are approved, and the student is removed from the cohort.
o. Home school (eSchoolPLUS exit code 09): If the school provides evidence of home school enrollment, they are approved, and the student is removed from the cohort.

p. MAP students should be coded 38/50.

q. Department of Services for Children, Youth and Their Families (DSCYF): Students coded to 97/996 are moved to DSCYF as this is a diploma program.

r. An incarcerated student may be considered a transfer only if the prison or juvenile facility to which the student is confined has a school (as defined under state law) or provides an educational program that culminates in the award of a regular high school diploma. Otherwise, the student remains in the denominator of the calculation.

5-Year Cohort Graduation Rate (high school only)

1. Definition: The percentage of students who graduate from a secondary school with a regular high school diploma within five years.
2. No subgroup accountability—only subgroup reporting (same subgroups from 4-year cohort graduation rate).
3. All business rules from 4-year cohort graduation rate apply with modifications to take into account the fifth year.

6-Year Cohort Graduation Rate (high school only)

1. Definition: The percentage of students who graduate from a secondary school with a regular high school diploma within six years.
2. No subgroup accountability—only subgroup reporting (same subgroups from 4-year cohort graduation rate).
3. All business rules from 4-year cohort graduation rate apply with modifications to take into account the sixth year.

4.4 On-Track-to-Graduation Data Collection Specifications and Timelines

For graduation verification, the following timeline is used:

- ***First Wednesday in September*** – Reminder sent to relevant school personnel (school's diploma order coordinator) to complete graduation verification process.
- ***Second Friday in October*** – DEADLINE for verification of graduates by each high school.
- ***First Monday in November*** – Cohort Management System 2.0 (CoMS 2.0) will be opened to districts and charters to begin review of previous school year's graduation cohort list (e.g., class of 2015 cohort is reviewed in November 2015).
- ***Last Monday in November*** – DEADLINE for graduation appeals submission through CoMS 2.0.
- ***Third Friday in December*** – Graduation appeals decisions updated in CoMS 2.0.
- ***January*** – FINAL school graduation rates released.

5.0 DSSF College and Career Preparation Metric Overview

The College and Career Preparation metrics aggregate student preparation for education, training, and careers beyond high school. The metrics in this area include information on whether students are growing enough to be proficient in the future as well as how many students have demonstrated college and career preparation while in high school. The College and Career Preparation metrics account for 20% of elementary and middle school performance and 10% of high school performance on the DSSF.

5.1 Metric Definition

For elementary and middle schools:

Growth to Proficiency is the percent of students who are on track to be on grade level in a given content area within three years. This indicates that students are growing fast enough to meet and maintain academic success. For the Growth to Proficiency metric, the content areas used are ELA and math.

For high schools:

College and Career Preparation is the percent of students who have demonstrated preparation for education and career training after high school through Smarter, AP, IB, SAT, Career and Technical Education (CTE) pathways, and dual enrollment. Students that demonstrate early success in these areas increase their likelihood of entry and success in education and career training after high school.

5.2 Sources of College and Career Preparation Data

In elementary and middle schools, Growth to Proficiency in ELA and math is based on three years of statewide assessment data.

Metric	Source
Growth to Proficiency ELA	Smarter assessment data and up to three years of prior statewide summative assessment data, including DCAS.
Growth to Proficiency Math	Smarter assessment data and up to three years of prior statewide summative assessment data, including DCAS.

In high schools, College and Career Preparation is based on the various sources listed below.

Metric	Source
3+ on both the Smarter ELA and Mathematics Assessments[2]	Smarter assessment data
1550+ on the SAT (or equivalent on the new SAT)[3]	College Board
3+ on an AP exam (excluding AP Seminar)	College Board
4+ on an IB exam	International Baccalaureate Organization
B or higher grade in a DDOE-approved, non-elective course in the state course transfer matrix (i.e., dual enrollment)	eSchoolPLUS transcript data
Technical skills attainment with a 6+ (combined) on Smarter ELA and Mathematics Assessments[4]	eSchoolPLUS DDOE CTE user-defined screen and Smarter assessment data
Technical skills attainment with completion of a co-op job training opportunity	eSchoolPLUS transcript data

5.3 College and Career Preparation Business Rules

Growth to Proficiency in ELA (elementary and middle schools only)

1. Definition: Percent of FAY students on track to be proficient in ELA in less than three assessment years or by 11th grade.
2. Students included: Students principally enrolled in a school, district (but not necessarily the same school), and/or state from September 30 through May 31 of a school year will be deemed as being enrolled for a FAY. Growth data are available for students in grades 4–8, with grade 3 assessment data serving as a baseline for growth metrics. To be included, students must have current and prior year assessment scores in congruent grades.
3. Calculation: Calculate total growth needed for each student in the state to be proficient (or remain proficient) in ELA within three assessment years, based on an expected growth path that takes into account variations in the amount of growth demonstrated on average statewide for each grade level. Divide the number of students within a school that have demonstrated a "growth path" to reach or maintain proficiency in three assessment periods by the total number of FAY students in the qualifying grade span (i.e., grades 4–8).

Growth to Proficiency in Math (elementary and middle schools only)

1. Definition: Percent of FAY students on track to be proficient in math in less than three assessment years or by 11th grade.

[2] Since College and Career Preparation is based on 12th grade students, Smarter results from spring 2015 will be used for the 2015-2016 school year. This metric will be revisited for the 2016-2017 school year.
[3] Since College and Career Preparation is based on 12th grade students, SAT results from spring 2015 will be used for the 2015-2016 school year. Beginning with the 2016-2017 school year, the criterion will change to the equivalent score under the new SAT.
[4] Same as note 2 above.

2. Students included: Students principally enrolled in a school, district (but not necessarily the same school), and/or state from September 30 through May 31 of a school year will be deemed as being enrolled for a FAY. Growth data are available for students in grades 4–8, with grade 3 assessment data serving as a baseline for growth metrics. To be included, students must have current and prior year assessment scores in congruent grades.
3. Calculation: Calculate total growth needed for each student in the state to be proficient (or remain proficient) in math within three assessment years, based on an expected growth path that takes into account variations in the amount of growth demonstrated on average statewide for each grade level. Divide the number of students within a school that have demonstrated a "growth path" to reach or maintain proficiency in three assessment periods by the total number of FAY students in the qualifying grade span (i.e., grades 4–8).

College and Career Preparation (high school only)

1. Definition: Percent of 12th grade students who have demonstrated success on one or more examples of college and career preparation in high school.
2. Students included: 12th grade students in the current school year who were enrolled in the same high school for 11th and 12th grades. Students transferring into the state in their 12th grade year will be removed from the denominator.
3. Attribution of success: Scores will be attributed to the school where the student is enrolled on September 30 in the school year of their 12th grade year.
4. Options to demonstrate success:
   a. 3+ on **both** Smarter ELA and Mathematics[5]
   b. 1550+ on SAT (or equivalent on the new SAT)
   c. 3+ on AP exam (excluding AP Seminar)
   d. 4+ on IB exam
   e. B or higher grade in a DDOE-approved, non-elective course in the state course transfer matrix (i.e., dual enrollment).
   f. Technical skills attainment with a 6+ (combined) on Smarter ELA and Mathematics Assessments. (Note: Technical Skill Attainment is defined as an industry recognized certificate or credential earned through an approved CTE program of study that holds value at the professional level, postsecondary level, or in an associate or baccalaureate degree program.)
   g. Technical skills attainment with completion of a co-op job training opportunity.

[5] For the 2014-2015 school year only, data from the 2013-2014 DCAS assessment was used as a proxy for this success option. Students in 11th grade tested on Smarter in 2014-2015, and the denominator for this metric is based on 12th grade students. As a result, the Smarter 3+ in both content areas option was not available for the cohort of students making up this measure in 2014-2015 accountability calculations. Performance of PL4 in each content on the 10th grade DCAS was used instead for the 2014-2015 calculations.

5.4 College and Career Preparation Data Collection Specifications and Timelines

College and Career Preparation Data is collected as follows:

- SAT data
  - June: Student-level data received from the College Board
  - June: DDOE matches SAT data to determine student ID for each student
- AP data
  - July: Student-level data received from the College Board
  - July: DDOE matches AP data to determine student ID for each student
- IB data
  - July: Student-level data received from the International Baccalaureate Organization
  - July: DDOE matches IB data to determine student ID for each student
- Dual enrollment data
  - June: Student-level data pulled from eSchoolPLUS
- Technical skills attainment data
  - First week of June: Preliminary student-level data course pulled from eSchoolPLUS
  - First three weeks of June: Verification of student-level course data
  - Late June: Final student-level data course pulled from eSchoolPLUS
- Co-op job training opportunity data
  - Third week of June: Final student-level participation pulled from eSchoolPLUS
  - Late June: Student-level participation data verified against Unit Count data

6.0 DSSF Context Measures Overview

The DSSF includes a number of non-scored measures to provide additional context for school, district, and state performance. The measures below are intended for informational purposes only and are not included in a school's overall rating. The current Context Measures include the Student, Teacher, and Parent surveys (e.g., 5Essentials Survey), School/District Narrative, and Postsecondary Outcomes as well as school/district directory and student demographic data, which now includes "gap group" data.

Student Gap Group is the aggregate, unduplicated percent of students enrolled in a school or district that are in a subgroup that has historically demonstrated achievement gaps. Student groups combined into the Student Gap Group include ethnicity/race (African American, Hispanic, and Native American), SWD, Economically Disadvantaged (Direct Certification), and ELs. No individual student is counted more than one time, and all students belonging to included groups are counted once.

6.1 Measure Definition

Context Measures include information from Surveys, Narratives, and Postsecondary Outcomes.

5Essentials Survey is the statewide survey of students and teachers on the efficacy of school leadership, collaboration among teachers, involvement of families, school environment, and rigor of instruction.

School/District Narrative is the opportunity for schools/districts to provide information about their educational offerings.

Postsecondary Outcomes is the percent of Delaware graduates that enroll in an institution of higher education within 12 months of graduation.

6.2 Sources of Context Measures Data

Metric	Source
5Essentials Survey	University of Chicago Impact collects and provides all data for 5Essentials Survey
School/District Narrative	School and district administrators enter this data directly into the School Profiles Application annually
Postsecondary Outcomes	National Student Clearinghouse Delaware Institutions of Higher Education
School Demographic Data	Demographic information from eSchoolPLUS

6.3 Context Measures Business Rules

6.3.1 5Essentials Survey Data

All schools have the opportunity to complete the 5Essentials Survey on a biannual basis. Students in grades 4–12 are eligible to complete the student survey.

The 5Essentials Teacher Survey is completed by certified teachers whose primary responsibilities involve teaching students for the majority of the school day and year. Individuals in the following positions, who also teach, are among those encouraged to participate:

- Self-contained and subject-specific classroom teachers

- Instructional coaches and subject-matter specialists
- Teacher aides, paraprofessionals, and Cooperating Classroom Teachers (CCTs)
- Special education teachers working in a single classroom or across classrooms
- Counselors, librarians, and other staff members who teach students

The following positions are **ineligible** to participate in the survey:

- Substitute teachers
- Tutors
- Principals, assistant principals, superintendents, or other administrators who do not otherwise teach students
- Student teachers

A 5Essentials Report will be generated if a school achieves a 50% response rate for students and/or a 50% response rate for teachers. Additionally, at least 8 valid teacher and 15 valid student responses must be submitted in order for the respective data to be generated.

The 5Essentials also includes an optional parent survey. A parent report will be generated if a school achieves a 20% response rate for parents.

6.3.2 School/District Narratives

School/District Narratives are limited to 1,000 characters. Schools and districts are provided the following guiding questions and examples prior to submission.

Planning/guiding questions:

- What unique cultural, academic, or extracurricular programs enhance learning and socioemotional development in your school? Please identify the programs and supports in your school that enhance learning and socioemotional development. For example: curricular offerings (including supports for at-risk and gifted students, honors, AP, arts, etc.), athletics, mentoring, on-site before- or after-care, preschool, etc.
- What opportunities for parent and community involvement are in your school? Examples: Parent Teacher Association/Parent Teacher Organization (PTA/PTO), partnerships with community programs or businesses, etc.
- What other distinguishing features of your school are you most proud of?

Example:

> (School) offers various opportunities for college and career experiences while enrolled. For instance, all CTE participants undertake an internship, and our bioscience CTE pathway provides students the unique opportunity to gain 2 years credit in pre-med programs. (School) partners with the community through our _____ programs. (School) partners with Big Brothers Big Sisters, with over 50 mentors actively engaged in the school each month. (School) has received the _____ award for the past ___ years for _____.

DDOE reviews narratives for grammar and alignment to guiding questions for quality control purposes. Any school or district that does not submit a narrative will have the following included as its narrative: *"Please visit the [school/district] website for more information."*

6.3.3 Postsecondary Outcomes

1. Definition: Percent of Delaware high school graduates enrolled in a postsecondary institution by May 31 of the year following graduation (e.g., within 12 months of a spring graduation).
2. Students included: Data from the following two sources are annually collected and matched to a cohort file of graduates from Delaware public schools:
    a. National Student Clearinghouse (NSC):
        1) NSC provides a nationwide, central repository of information on the enrollment status and educational achievements of postsecondary students. Participating higher educational institutions submit information to the NSC, including the enrollment statuses of all of their students and listings of the alumni to whom they have awarded degrees or certificates. They appoint the NSC as their agent for purposes of reporting student information to authorized recipients.
        2) DDOE provides NSC with a rolling 6-years of Graduation Cohorts to enable ongoing updates to the postsecondary outcomes of graduates.
    b. Delaware Institutions of Higher Education: In addition to the data from NSC, the following institutions have agreed to provide school enrollment, course enrollment and grades, GPA, and cumulative credits for students who have graduated from a Delaware high school. Each school provides files with this information annually.
        1) Goldey-Beacom College
        2) Delaware Technical and Community College
        3) Delaware State University
        4) University of Delaware
        5) Wesley College
        6) Wilmington University

6.4 Context Measures Data Collection Specifications and Timelines

5Essentials Survey Data:

- January: Roster verification for teachers using the 5Essentials Log-In
- February–March: Teachers, parents, students complete the survey
- May–June: DDOE, districts, and schools receive data back from 5Essentials Survey
- August: Data reported publicly through the DSSF

School/District Narratives:

- Due on or before June 30
- Can be annually updated any time between March through June 30.

Postsecondary Outcomes:

- June: Student-level data received from the NSC and Delaware Institutions of Higher Education
- July: DDOE matches postsecondary outcome data to determine student ID for each student

7.0 DSSF Accountability Standard Scoring

Schools and districts will receive ratings based on performance in each DSSF metric area (e.g., Academic Achievement, Growth, On-Track-to-Graduation, and College and Career Preparation). Student data for each metric will be individually reported at the school and district levels and aggregated to generate a numeric score for each metric area. The numeric score will be translated into a rating of one to five stars, with equal performance thresholds based on total points available for each metric area.

Each of the metrics contributes a weighted value toward the assignment of points in the metric area. The metrics are aggregated on a 500-point scale, with the points in each area aligning to the specified weights. A school's performance on each metric is multiplied by the number of points available for that metric. Points are summed to generate a school's performance in a particular metric area. For instance, an elementary school that has 50% proficiency in ELA, math, science, and social studies content areas, would receive a total of 75 points for the Academic Achievement metric area (e.g., 25 points for ELA, 25 for math, 12.5 for science, and 12.5 for social studies).

Schools serving grades 9–12 as well as grades below grade 9 use the metrics and weights for high schools.[6]

The following are the standard DSSF weights and points for the elementary/middle, high school, and district levels.

Elementary/Middle School

Metric Area/Metrics	Weight	Points
Academic Achievement	***30%***	***150***
Proficiency ELA	10%	50
Proficiency Math	10%	50
Proficiency Science	5%	25
Proficiency Social Studies	5%	25
Growth	***40%***	***200***
Growth in ELA	20%	100
Growth in Math	20%	100
On-Track-to-Graduation	***10%***	***50***
Average Daily Attendance	10%	50
College and Career Preparation	***20%***	***100***
Growth to Proficiency in ELA	10%	50
Growth to Proficiency in Math	10%	50
Total	**100%**	**500**

[6] A school must have at least grade 11 to use the high school metrics and weights.

High School

Metric Area/Metrics	Weight	Points
Academic Achievement	***25.0%***	***125.0***
Proficiency ELA	7.5%	37.5
Proficiency Math	7.5%	37.5
Proficiency Science	5.0%	25.0
Proficiency Social Studies	5.0%	25.0
Growth	***45.0%***	***225.0***
Growth in ELA	22.5%	112.5
Growth in Math	22.5%	112.5
On-Track-to-Graduation	***20.0%***	***100.0***
On-Track in 9th Grade	5.0%	25.0
4-Year Cohort Graduation Rate	10.0%	50.0
5-Year Cohort Graduation Rate	3.0%	15.0
6-Year Cohort Graduation Rate	2.0%	10.0
College and Career Preparation	***10.0%***	***50.0***
College and Career Preparation	10.0%	50.0
Total	**100.0%**	**500.0**

District

Metric Area/Metrics	Weight	Points
Academic Achievement	***27.5%***	***137.5***
Proficiency ELA	8.75%	43.75
Proficiency Math	8.75%	43.75
Proficiency Science	5.0%	25.0
Proficiency Social Studies	5.0%	25.0
Growth	***42.5%***	***212.5***
Growth in ELA	21.25%	106.25
Growth in Math	21.25%	106.25
On-Track-to-Graduation	***15.0%***	***75.0***
Average Daily Attendance	5.0%	25.0
On-Track in 9th Grade	2.5%	12.5
4-Year Cohort Graduation Rate	5.0%	25.0
5-Year Cohort Graduation Rate	1.5%	7.5
6-Year Cohort Graduation Rate	1.0%	5.0
College and Career Preparation	***15.0%***	***75.0***
Growth to Proficiency in ELA	5.0%	25.0
Growth to Proficiency in Math	5.0%	25.0
College and Career Preparation	5.0%	25.0
Total	**100.0%**	**500.0**

Once the numerical score for each metric is calculated and aggregated at the metric area level, then star ratings from 1 to 5 are assigned for each school according to the following (with all numerical scores rounded to the nearest whole number):

7.1 Standard Scoring Example

Elementary/Middle School

Metric Area	Metric Name	Metric Data	Available Points	Metric Score	Area Score	Area Rating
Academic Achievement	Proficiency ELA	63.1%	50	31.55	86.13	3 Star
	Proficiency Math	49.2%	50	24.6		
	Proficiency Science	66.0%	25	16.5		
	Proficiency Social Studies	53.9%	25	13.48		
Growth	Growth ELA	64.83	100	64.83	133.17	4 Star
	Growth Math	68.33	100	68.33		
On-Track-to-Graduation	Attendance	98.3%	50	49.15	49.15	5 Star
College and Career Preparation	Growth to Proficiency ELA	78.1%	50	39.05	79.65	5 Star
	Growth to Proficiency Math	81.2%	50	40.6		

High School

Metric Area	Metric Name	Metric Data	Available Points	Metric Score	Area Score	Area Rating
Academic Achievement	Proficiency ELA	72.5%	37.5	27.19	61.35	3 Star
	Proficiency Math	28.6%	37.5	10.73		
	Proficiency Science	62.1%	25	15.53		
	Proficiency Social Studies	31.6%	25	7.9		
Growth	Growth ELA	51.67	112.5	58.13	142.51	4 Star
	Growth Math	75	112.5	84.38		
On-Track-to-Graduation	On Track in 9th	89.0%	25	22.25	88.8	5 Star
	4-Year Graduation	83.1%	50	41.55		
	5-Year Graduation	88.2%	15	15		
	6-Year Graduation	88.2%	10	10		
College and Career Preparation	College and Career Preparation	67.2%	50	33.6	33.6	4 Star

District

Metric Area	Metric Name	Metric Data	Available Points	Metric Score	Area Score	Area Rating
Academic Achievement	Proficiency ELA	61.5%	43.75	26.91	72.35	3 Star
	Proficiency Math	48.6%	43.75	21.26		
	Proficiency Science	59.1%	25	14.78		
	Proficiency Social Studies	37.6%	25	9.4		
Growth	Growth ELA	61.67	106.25	65.52	115.11	3 Star
	Growth Math	46.67	106.25	49.59		
On-Track-to-Graduation	Attendance	94.3%	25	23.58	66.75	5 Star
	On Track in 9th	91.2%	12.5	11.4		
	4-Year Graduation	84.1%	25	21.03		
	5-Year Graduation	85.1%	7.5	6.38		
	6-Year Graduation	87.2%	5	4.36		
College and Career Preparation	Growth to Proficiency ELA	74.1%	25	18.53	53.63	4 Star
	Growth to Proficiency Math	76.2%	25	19.05		
	College and Career Preparation	64.2%	25	16.05		

7.2 Star Ratings by Metric Area

Metric Area	Level	1 Star	2 Star	3 Star	4 Star	5 Star
Academic Achievement	ES/MS	0-29	30-59	60-89	90-119	120-150
	HS	0-24	25-49	50-74	75-99	100-125
	District	0-27	28-54	55-82	83-109	110-137.5
Growth	ES/MS	0-39	40-79	80-119	120-159	160-200
	HS	0-44	45-89	90-134	135-179	180-225
	District	0-42	43-84	85-127	128-169	170-212.5
On-Track-to-Graduation	ES/MS	0-9	10-19	20-29	30-39	40-50
	HS	0-19	20-39	40-59	60-79	80-100
	District	0-14	15-29	30-44	45-59	60-75
College and Career Preparation	ES/MS	0-19	20-39	40-59	60-79	80-100
	HS	0-9	10-19	20-29	30-39	40-50
	District	0-14	15-29	30-44	45-59	60-75

7.3 Additional Aggregation Rules

The following details the additional business rules in place when calculating accountability ratings:

- Beginning with school year 2015–2016 (accountability year 2016–2017), ELA and math proficiency for all schools will be adjusted when calculating the numerical score for the Academic Achievement area. This adjustment is only for the purposes of accountability calculations and determinations and not for reporting on the school reports. The adjustment is based on the following calculation:

  (Participation Rate in Content Area / 0.95) * Proficiency Rate in Content area

  For instance, if School A has a participation rate of 100% and proficiency rate of 50% in ELA, the school's adjusted rate would be 1 / 0.95 = 1.053 * 50% = 52.6%.

- For the purposes of the numerical aggregation, growth is converted from a 0–6 range to a 0–100 range by subtracting 3, multiplying by (50 / 3), and then adding 50. The converted growth score is capped at 0 and 100.
- For the purposes of the numerical aggregation, the following adjustment is made for students that scored in the bottom quartile of state performance on the 8th grade summative assessment demonstrating that they are on track at the end of 9th grade:
  - Count students that were in the bottom quartile of performance on state assessments in 8th grade and on track as 1.25 towards the numerator for on-track percentage and 1.00 towards the denominator.
  - Cap adjusted on-track score at 100%.
- For the purposes of the numerical aggregation, the 5-year and 6-year cohort graduation rates are adjusted based on (1) whether the school met the 4-year graduation rate goal (85.6% in 2015) and (2) the extent of its improvement over the previous 4-year and 5-year graduation rate, respectively. The adjustments occur as follow:
  - Schools at or above 85.6% in years 5 and/or 6 receive 100% of the metric value (i.e., full points).
  - Schools below 85.6% on 5-year graduation rate receive points based on the following calculation: 5-year graduation rate + growth between 4-year and 5-year graduation rates, divided by 85.6%, and then capped at 100% of the metric value.
  - Schools below 85.6% on 6-year graduation rate receive points based on the following calculation: 6-year graduation rate + growth between 5-year and 6-year graduation rates, divided by 85.6%, and then capped at 100% of the metric value.
- Any metric with an N-count fewer than 30 will not be included when calculating accountability ratings. When this occurs, the weight of that metric is redistributed within the indicator area (e.g., Academic Achievement) or across all areas, if necessary.

8.0 DSSF Accountability Non-Standard Scoring

8.1 Introduction

The DSSF provides an initial metric point distribution within each of the four metric areas (Academic Achievement, Growth, On-Track to Graduation, and College and Career Preparation). If a score cannot be determined for an individual metric—e.g., the Proficiency in Science metric within the Academic Achievement metric area—the points associated with that metric must be redistributed to the other metrics within the same metric area.

There are two reasons why a metric score cannot be determined. The first reason is if a school has a grade configuration such that a metric cannot be calculated (e.g., a school with a 6-7 grade configuration cannot report Proficiency in Science because the statewide Science assessment is administered in grades 5, 8 and in 10). The second reason is if the number of students that comprise the denominator of the metric is less than the accountability threshold (i.e., less than 30 students). In both of these situations, the points associated with the metric must only be redistributed to the other metrics within that metric area. Redistributing metric points across metric areas, such as from Academic Achievement to On-Track to Graduation, is not permitted according to the business rules as currently written.

The following sections detail how points are redistributed under various circumstances.

8.2 Principles of Point Redistribution

When determining how many redistribution scenarios exist within a metric area, one must consider the number of metrics. Each metric can either a) keep its points or b) redistribute its points. This "yes/no" (or binary) principle dictates the number of redistribution scenarios that exist within any given area. For example, in the Academic Achievement metric area there are four metrics:

Proficiency ELA	Proficiency Math	Proficiency Science	Proficiency Social Studies	Decision

Each metric can either "keep (yes)" or "redistribute (no)" its points based on the value in the metric and the students that make up the metric. For each possible combination of "yes" and "no," how to redistribute points among the metrics must be decided.

Proficiency ELA	Proficiency Math	Proficiency Science	Proficiency Social Studies	Decision
Yes/No	Yes/No	Yes/No	Yes/No	???

There are 16 possible "yes/no" combinations when using four metrics to make a redistribution decision. However, not every possible combination requires redistribution. If each metric has both a value AND enough students to meet the accountability threshold, then there is no need to redistribute any points to another metric. In this case the decision is to "no redistribution required."

Proficiency ELA	Proficiency Math	Proficiency Science	Proficiency Social Studies	Decision
Yes	Yes	Yes	Yes	No redistribution required

Conversely, if neither metric has a value NOR enough students to meet the accountability threshold, the entire metric area cannot be scored.

Proficiency ELA	Proficiency Math	Proficiency Science	Proficiency Social Studies	Decision
No	No	No	No	Cannot score metric area—no redistribution required

That means given the information outlined above, there are 14 possible scenarios that require a redistribution decision in Academic Achievement for Elementary/Middle Schools.

8.3 Point Distribution Decisions for Academic Achievement – Elementary/Middle

For the Academic Achievement metric area, there are 14 scenarios for which a redistribution decision must be made. The maximum point value for the Academic Achievement metric area for Elementary/Middle Schools is 150. As you read the table below, "No" means the metric does NOT have a value or enough students and, therefore, MUST redistribute its points to another available metric. The scenarios are as follows:

Proficiency ELA	Proficiency Math	Proficiency Science	Proficiency Social Studies	Decision
No	No	No	Yes	• ELA – 0 points • Math – 0 points • Science – 0 points • Social Studies – 150 points
No	No	Yes	No	• ELA – 0 points • Math – 0 points • Science – 150 points • Social Studies – 0 points
No	No	Yes	Yes	• ELA – 0 points • Math – 0 points • Science – 75 points • Social Studies – 75 points
No	Yes	No	No	• ELA – 0 points • Math – 150 points • Science – 0 points • Social Studies – 0 points
No	Yes	No	Yes	• ELA – 0 points • Math – 125 points • Science – 0 points • Social Studies – 25 points
No	Yes	Yes	No	• ELA – 0 points • Math – 125 points • Science – 25 points • Social Studies – 0 points
No	Yes	Yes	Yes	• ELA – 0 points • Math – 100 points • Science – 25 points • Social Studies – 25 points
Yes	No	No	No	• ELA – 150 points • Math – 0 points • Science – 0 points • Social Studies – 0 points
Yes	No	No	Yes	• ELA – 125 points

Proficiency ELA	Proficiency Math	Proficiency Science	Proficiency Social Studies	Decision
				• Math – 0 points • Science – 0 points • Social Studies – 25 points
Yes	No	Yes	No	• ELA – 125 points • Math – 0 points • Science – 25 points • Social Studies – 0 points
Yes	No	Yes	Yes	• ELA – 100 points • Math – 0 points • Science – 25 points • Social Studies – 25 points
Yes	Yes	No	No	• ELA – 75 points • Math – 75 points • Science – 0 points • Social Studies – 0 points
Yes	Yes	No	Yes	• ELA – 62.5 points • Math – 62.5 points • Science – 0 points • Social Studies – 25 points
Yes	Yes	Yes	No	• ELA – 62.5 points • Math – 62.5 points • Science – 25 points • Social Studies – 0 points

8.4 Point Distribution Decisions for Academic Achievement – High School

For the Academic Achievement metric area, there are 14 scenarios for which a redistribution decision must be made. The maximum point value for Academic Achievement metric area for high schools is 125. As the table below illustrates, "No" means the metric does NOT have a value or enough students and, therefore, MUST redistribute its points to another available metric. The scenarios are as follows:

Proficiency ELA	Proficiency Math	Proficiency Science	Proficiency Social Studies	Decision
No	No	No	Yes	• ELA – 0 points • Math – 0 points • Science – 0 points • Social Studies – 125 points
No	No	Yes	No	• ELA – 0 points • Math – 0 points • Science – 125 points • Social Studies – 0 points
No	No	Yes	Yes	• ELA – 0 points • Math – 0 points • Science – 62.5 points • Social Studies – 62.5 points
No	Yes	No	No	• ELA – 0 points • Math – 125 points

Proficiency ELA	Proficiency Math	Proficiency Science	Proficiency Social Studies	Decision
				• Science – 0 points • Social Studies – 0 points
No	Yes	No	Yes	• ELA – 0 points • Math – 100 points • Science – 0 points • Social Studies – 25 points
No	Yes	Yes	No	• ELA – 0 points • Math – 100 points • Science – 25 points • Social Studies – 0 points
No	Yes	Yes	Yes	• ELA – 0 points • Math – 75 points • Science – 25 points • Social Studies – 25 points
Yes	No	No	No	• ELA – 125 points • Math – 0 points • Science – 0 points • Social Studies – 0 points
Yes	No	No	Yes	• ELA – 100 points • Math – 0 points • Science – 0 points • Social Studies – 25 points
Yes	No	Yes	No	• ELA – 100 points • Math – 0 points • Science – 25 points • Social Studies – 0 points
Yes	No	Yes	Yes	• ELA – 75 points • Math – 0 points • Science – 25 points • Social Studies – 25 points
Yes	Yes	No	No	• ELA – 62.5 points • Math – 62.5 points • Science – 0 points • Social Studies – 0 points
Yes	Yes	No	Yes	• ELA – 50 points • Math – 50 points • Science – 0 points • Social Studies – 25 points
Yes	Yes	Yes	No	• ELA – 50 points • Math – 50 points • Science – 25 points • Social Studies – 0 points

8.5 Point Distribution Decisions for Academic Achievement – District/State

For the Academic Achievement metric area, there are 14 scenarios for which a redistribution decision must be made. The maximum point value for Academic Achievement metric area for district and state calculations is 137.5. As the table below illustrates, "No" means the metric does NOT have a value or enough students and, therefore, MUST redistribute its points to another available metric. The scenarios are as follows:

Proficiency ELA	Proficiency Math	Proficiency Science	Proficiency Social Studies	Decision
No	No	No	Yes	• ELA – 0 points • Math – 0 points • Science – 0 points • Social Studies – 137.5 points
No	No	Yes	No	• ELA – 0 points • Math – 0 points • Science – 137.5 points • Social Studies – 0 points
No	No	Yes	Yes	• ELA – 0 points • Math – 0 points • Science – 68.75 points • Social Studies – 68.75 points
No	Yes	No	No	• ELA – 0 points • Math – 137.5 points • Science – 0 points • Social Studies – 0 points
No	Yes	No	Yes	• ELA – 0 points • Math – 112.5 points • Science – 0 points • Social Studies – 25 points
No	Yes	Yes	No	• ELA – 0 points • Math – 112.5 points • Science – 25 points • Social Studies – 0 points
No	Yes	Yes	Yes	• ELA – 0 points • Math – 87.5 points • Science – 25 points • Social Studies – 25 points
Yes	No	No	No	• ELA – 137.5 points • Math – 0 points • Science – 0 points • Social Studies – 0 points
Yes	No	No	Yes	• ELA – 112.5 points • Math – 0 points • Science – 0 points • Social Studies – 25 points
Yes	No	Yes	No	• ELA – 112.5 points • Math – 0 points • Science – 25 points • Social Studies – 0 points

Proficiency ELA	Proficiency Math	Proficiency Science	Proficiency Social Studies	Decision
Yes	No	Yes	Yes	• ELA – 87.5 points • Math – 0 points • Science – 25 points • Social Studies – 25 points
Yes	Yes	No	No	• ELA – 68.75 points • Math – 68.75 points • Science – 0 points • Social Studies – 0 points
Yes	Yes	No	Yes	• ELA – 56.25 points • Math – 56.25 points • Science – 0 points • Social Studies – 25 points
Yes	Yes	Yes	No	• ELA – 56.25 points • Math – 56.25 points • Science – 25 points • Social Studies – 0 points

8.6 Point Distribution Decisions for On-Track to Graduation – High School

For the On-Track to Graduation metric area, there are 14 scenarios for which a redistribution decision must be made. The maximum point value for the On-Track to Graduation metric area for high schools is 100. As the table below illustrates, "No" means the metric does NOT have a value or enough students and, therefore, MUST redistribute its points to another available metric. Also, "OT9" represents "On-Track in 9th Grade," "ESEA" represents "4-Year Graduation Rate," "ESE5" represents "5-Year Graduation Rate," and "ESE6" represents "6-Year Graduation Rate." The scenarios are as follows:

On-Track 9th Grade	4-Year Grad Rate	5-Year Grad Rate	6-Year Grad Rate	Decision
No	No	No	Yes	• OT9 – 0 points • ESEA – 0 points • ESE5 – 0 points • ESE6 – 100 points
No	No	Yes	No	• OT9 – 0 points • ESEA – 0 points • ESE5 – 100 points • ESE6 – 0 points
No	No	Yes	Yes	• OT9 – 0 points • ESEA – 0 points • ESE5 – 65 points • ESE6 – 35 points
No	Yes	No	No	• OT9 – 0 points • ESEA – 100 points • ESE5 – 0 points • ESE6 – 0 points
No	Yes	No	Yes	• OT9 – 0 points • ESEA – 75 points • ESE5 – 0 points • ESE6 – 25 points

On-Track 9th Grade	4-Year Grad Rate	5-Year Grad Rate	6-Year Grad Rate	Decision
No	Yes	Yes	No	• OT9 – 0 points • ESEA – 75 points • ESE5 – 25 points • ESE6 – 0 points
No	Yes	Yes	Yes	• OT9 – 0 points • ESEA – 75 points • ESE5 – 15 points • ESE6 – 10 points
Yes	No	No	No	• OT9 – 100 points • ESEA – 0 points • ESE5 – 0 points • ESE6 – 0 points
Yes	No	No	Yes	• OT9 – 90 points • ESEA – 0 points • ESE5 – 0 points • ESE6 – 10 points
Yes	No	Yes	No	• OT9 – 85 points • ESEA – 0 points • ESE5 – 15 points • ESE6 – 0 points
Yes	No	Yes	Yes	• OT9 – 25 points • ESEA – 0 points • ESE5 – 45 points • ESE6 – 30 points
Yes	Yes	No	No	• OT9 – 25 points • ESEA – 75 points • ESE5 – 0 points • ESE6 – 0 points
Yes	Yes	No	Yes	• OT9 – 25 points • ESEA – 65 points • ESE5 – 0 points • ESE6 – 10 points
Yes	Yes	Yes	No	• OT9 – 25 points • ESEA – 60 points • ESE5 – 15 points • ESE6 – 0 points

8.7 Point Distribution Decisions for On-Track to Graduation – District/State

For the On-Track to Graduation metric area, there are 30 scenarios for which a redistribution decision must be made. The maximum point value for the On-Track to Graduation metric area for district/state is 75. As the table below illustrates, "No" means the metric does NOT have a value or enough students and, therefore, MUST redistribute its points to another available metric. Also, "ADA" stands for "Average Daily Attendance," "OT9" represents "On-Track in 9th Grade," "ESEA" represents "4-Year Graduation Rate," "ESE5" represents "5-Year Graduation Rate," and "ESE6" represents "6-Year Graduation Rate." The scenarios are as follows:

ADA	On-Track 9th Grade	4-Year Grad Rate	5-Year Grad Rate	6-Year Grad Rate	Decision
No	No	No	No	Yes	• ADA – 0 points • OT9 – 0 points • ESEA – 0 points • ESE5 – 0 points • ESE6 – 75 points
No	No	No	Yes	No	• ADA – 0 points • OT9 – 0 points • ESEA – 0 points • ESE5 – 75 points • ESE6 – 0 points
No	No	No	Yes	Yes	• ADA – 0 points • OT9 – 0 points • ESEA – 0 points • ESE5 – 57.5 points • ESE6 – 17.5 points
No	No	Yes	No	No	• ADA – 0 points • OT9 – 0 points • ESEA – 75 points • ESE5 – 0 points • ESE6 – 0 points
No	No	Yes	No	Yes	• ADA – 0 points • OT9 – 0 points • ESEA – 62.5 points • ESE5 – 0 points • ESE6 – 12.5 points
No	No	Yes	Yes	No	• ADA – 0 points • OT9 – 0 points • ESEA – 62.5 points • ESE5 – 12.5 points • ESE6 – 0 points
No	No	Yes	Yes	Yes	• ADA – 0 points • OT9 – 0 points • ESEA – 50 points • ESE5 – 13.75 points • ESE6 – 11.25 points
No	Yes	No	No	No	• ADA – 0 points • OT9 – 75 points • ESEA – 0 points • ESE5 – 0 points • ESE6 – 0 points

ADA	On-Track 9th Grade	4-Year Grad Rate	5-Year Grad Rate	6-Year Grad Rate	Decision
No	Yes	No	No	Yes	• ADA – 0 points • OT9 – 37.5 points • ESEA – 0 points • ESE5 – 0 points • ESE6 – 37.5 points
No	Yes	No	Yes	No	• ADA – 0 points • OT9 – 37.5 points • ESEA – 0 points • ESE5 – 37.5 points • ESE6 – 0 points
No	Yes	No	Yes	Yes	• ADA – 0 points • OT9 – 37.5 points • ESEA – 0 points • ESE5 – 22.5 points • ESE6 – 15 points
No	Yes	Yes	No	No	• ADA – 0 points • OT9 – 37.5 points • ESEA – 37.5 points • ESE5 – 0 points • ESE6 – 0 points
No	Yes	Yes	No	Yes	• ADA – 0 points • OT9 – 37.5 points • ESEA – 25 points • ESE5 – 0 points • ESE6 – 12.5 points
No	Yes	Yes	Yes	No	• ADA – 0 points • OT9 – 37.5 points • ESEA – 25 points • ESE5 – 12.5 points • ESE6 – 0 points
No	Yes	Yes	Yes	Yes	• ADA – 0 points • OT9 – 37.5 points • ESEA – 25 points • ESE5 – 7.5 points • ESE6 – 5 points
Yes	No	No	No	No	• ADA – 75 points • OT9 – 0 points • ESEA – 0 points • ESE5 – 0 points • ESE6 – 0 points
Yes	No	No	No	Yes	• ADA – 37.5 points • OT9 – 0 points • ESEA – 0 points • ESE5 – 0 points • ESE6 – 37.5 points

ADA	On-Track 9th Grade	4-Year Grad Rate	5-Year Grad Rate	6-Year Grad Rate	Decision
Yes	No	No	Yes	No	• ADA – 37.5 points • OT9 – 0 points • ESEA – 0 points • ESE5 – 37.5 points • ESE6 – 0 points
Yes	No	No	Yes	Yes	• ADA – 37.5 points • OT9 – 0 points • ESEA – 0 points • ESE5 – 22.5 points • ESE6 – 15 points
Yes	No	Yes	No	No	• ADA – 37.5 points • OT9 – 0 points • ESEA – 37.5 points • ESE5 – 0 points • ESE6 – 0 points
Yes	No	Yes	No	Yes	• ADA – 37.5 points • OT9 – 0 points • ESEA – 32.5 points • ESE5 – 0 points • ESE6 – 5 points
Yes	No	Yes	Yes	No	• ADA – 37.5 points • OT9 – 0 points • ESEA – 30 points • ESE5 – 7.5 points • ESE6 – 0 points
Yes	No	Yes	Yes	Yes	• ADA – 37.5 points • OT9 – 0 points • ESEA – 25 points • ESE5 – 7.5 points • ESE6 – 5 points
Yes	Yes	No	No	No	• ADA – 50 points • OT9 – 25 points • ESEA – 0 points • ESE5 – 0 points • ESE6 – 0 points
Yes	Yes	No	No	Yes	• ADA – 25 points • OT9 – 12.5 points • ESEA – 0 points • ESE5 – 0 points • ESE6 – 37.5 points
Yes	Yes	No	Yes	No	• ADA – 25 points • OT9 – 12.5 points • ESEA – 0 points • ESE5 – 37.5 points • ESE6 – 0 points

ADA	On-Track 9th Grade	4-Year Grad Rate	5-Year Grad Rate	6-Year Grad Rate	Decision
Yes	Yes	No	Yes	Yes	• ADA – 25 points • OT9 – 12.5 points • ESEA – 0 points • ESE5 – 22.5 points • ESE6 – 15 points
Yes	Yes	Yes	No	No	• ADA – 25 points • OT9 – 12.5 points • ESEA – 37.5 points • ESE5 – 0 points • ESE6 – 0 points
Yes	Yes	Yes	No	Yes	• ADA – 25 points • OT9 – 12.5 points • ESEA – 32.5 points • ESE5 – 0 points • ESE6 – 5 points
Yes	Yes	Yes	Yes	No	• ADA – 25 points • OT9 – 12.5 points • ESEA – 30 points • ESE5 – 7.5 points • ESE6 – 0 points

8.8 Point Distribution Decisions for College and Career Preparation – District/State

For the College and Career Preparation metric area, there are 6 scenarios for which a redistribution decision must be made. The maximum point value for the College and Career Preparation metric area for district/state is 75. As the table below illustrates, "No" means the metric does NOT have a value or enough students and, therefore, MUST redistribute its points to another available metric. Also, "GTPE" represents "Growth to Proficiency ELA," "GTPM" represents "Growth to Proficiency Math," and "CCP" represents "College and Career Preparation." The scenarios are as follows:

GTP ELA	GTP Math	CCP	Decision
No	No	Yes	• GTPE – 0 points • GTPM – 0 points • CCP – 75 points
No	Yes	No	• GTPE – 0 points • GTPM – 75 points • CCP – 0 points
No	Yes	Yes	• GTPE – 0 points • GTPM – 37.5 points • CCP – 37.5 points
Yes	No	No	• GTPE – 75 points • GTPM – 0 points • CCP – 0 points
Yes	No	Yes	• GTPE – 37.5 points • GTPM – 0 points • CCP – 37.5 points

GTP ELA	GTP Math	CCP	Decision
Yes	Yes	No	• GTPE – 37.5 points • GTPM – 37.5 points • CCP – 0 points

8.9 Scoring Metric Areas With Redistributed Points

In order to properly score a metric area in the DSSF, the following must be identified:

- The student count for each metric;
- The metric value for each metric;
- The standard points for each metric; and
- The redistributed points for each metric if applicable;

The example below shows a sample elementary school that tested its students in 3 of the 4 DSSF-relevant subjects for the given school year. Business rules dictate that the points associated with the missing Science metric must be redistributed equally to the ELA and Math metrics while the Social Studies metric is left to receive its standard score.

Elementary/Middle School – Academic Achievement Redistribution

Metric Area	Metric Name	Students	Metric Value	Standard Points	Standard Score	Adjust Points?	Adjusted Points	Adjusted Score
Academic Achievement	Proficiency ELA	155.3	69.91%	50	34.95	Yes	62.5	43.69
	Proficiency Math	155.1	61.35%	50	30.68	Yes	62.5	38.35
	Proficiency Science			25		Yes	0.0	
	Proficiency Social Studies	80.8	68.32%	25	17.08	No	25.0	17.08

In this example, the elementary school's Academic Achievement metric area score rises from 82.71 (3 Stars) to 99.12 (4 Stars).

The example below shows a sample high school that has yet to receive a 6-year graduation rate. Business rules dictate that the points associated with the missing graduation rate metric must be redistributed to the 4-year graduation metric with the On-Track to Graduation for 9th Graders and 5-year graduation rate metrics are left to receive their standard scores.

High School – On-Track to Graduation Redistribution

Metric Area	Metric Name	Students	Metric Value	Standard Points	Standard Score	Adjust Points?	Adjusted Points	Adjusted Score
On-Track To Graduation	On-Track 9th Grade	430	70.00%	25	17.50	No	25	17.50
	4-Year Grad Rate	476	87.39%	50	43.70	Yes	60	52.44
	5-Year Grad Rate	414	88.16%	15	13.22	No	15	13.22
	6-Year Grad Rate			10		Yes	0	

In this example, the high school's On-Track to Graduation score rises from 74.42 (4 Stars) to 83.16 (5 Stars).

9.0 Accountability Student Verification Process

To support the transition to the DSSF, DDOE developed a system to verify the students that will be counted in a school's or district's accountability rating. The purpose of the Accountability Student Verification (ASV) system is to improve transparency and increase efficiency in the production of accountability ratings so that students, parents, teachers, administrators, policymakers, and the general public have an accurate account of educational performance.

The ASV system is built on the same platform as the Educator of Record Roster Verification System (RVS). The ASV draws upon data in eSchoolPLUS and RVS to automatically generate rosters for each school in the state for students in grades K–12. The ASV tool then communicates with a number of other databases, including homeschool and private school enrollment and the Dropout Verification System (DVS), to increase the accuracy of a student's placement for accountability purposes. A significant amount of the information included in the ASV is verified through other internal DDOE processes (e.g., September 30 count), thereby limiting the number of students that need to be reviewed.

Students identified in this system and verified by the LEA encompass the base list of students who are used in the calculation of the metrics described above. All students have additional validation of their FAY status prior to their inclusion in the calculation of specific metrics.

9.1 Business Rules for Creation of AVS Rosters

1. Extract all students in grades K–12 from the final September 30 Unit Count snapshot, which is hereafter referred to as UnitCount dataset.
    a. Race/Ethnicity, Grade, SWD, ELL, and LowSES are initially set based on this snapshot.
2. School changed from Unit Count school to Accountability school, if explicitly set in eSchoolPLUS (and transferred to DELSIS).
3. Extract all students in grades K–12 who enrolled in a Delaware public school after September 30, which is hereafter referred to as DELSIS dataset.
    a. Race/Ethnicity, Grade, SWD, ELL, and LowSES are initially set based on this snapshot.
4. Service enrollment records are removed when the student also has an active enrollment record—targeted at dual enrolled Delaware Adolescent Program, Inc. (DAPI) students.
5. Update UnitCount dataset SchoolCode based on enrolled school changes found in the DELSIS dataset for matching students.
6. Delete students from DELSIS dataset that exist in the UnitCount dataset.
7. Add remaining DELSIS dataset students to the UnitCount dataset.
8. Update UnitCount dataset SchoolCode to homeschool for those students who are (still) associated with a non-accountability school.
9. Update UnitCount dataset SchoolCode to previously enrolled school for those students who are (still) associated with a non-accountability school.
10. SWD status updated from current December 1 SWD determinations.
    a. Any students not previously identified who tested during the test window have been reviewed, and if they are identified as SWD or have used accommodations during testing, they are identified as SWD.

11. ELL status updated from current ELL 2.0 system data.
    a. ELL status of “Y” or within the 2-Year monitoring window is considered ELL
12. Race/Ethnicity updated from current DELSIS enrollment data.
13. Add Students to ASV.
14. Associate Students with ASV rosters based on matching SchoolCode.
15. Student Membership and Attendance Days calculated based on eSchoolPLUS calendar days and total absences reported. This is calculated at the school level. The data is extracted from eSchoolPLUS for both membership and absence days. The attendance days are calculated based on the excused and unexcused absences for a student, which are then subtracted from the membership days.
16. Student FAY for school, district, and state computed.
    a. If student is actively enrolled in a school/district/state for 85% of the FAY window, which is September 30 through May 31, the student is considered FAY at the school/district/state level.
17. The following students have their roster status set to “not included” based on vetted data found electronically in other data sources:
    a. Z-Calendar students are found in eSchoolPLUS data.
    b. Students who transferred out based on eSchoolPLUS data.
    c. Previous year’s summer graduates whose enrollment were mistakenly included in a current roster.
    d. Out-of-country and deceased students based on eSchoolPLUS data.
    e. Students found in the Groves graduation data.
    f. Students found in the current Groves enrollment data.
    g. Students found in current nonpublic (private/home) school data.
    h. Students found in graduation data with a diploma or certificate.
18. Students in grades K-2 are automatically approved.

Reference Page

Accountability Verification System Information:
http://www.doe.k12.de.us//site/Default.aspx?PageID=2694

Assessment Participation and Results Policies:
http://www.doe.k12.de.us/cms/lib09/DE01922744/Centricity/Domain/111/participation%20and%20results%20policies%20r1-26-16.pdf

Delaware School Accountability Growth Model Frequently Asked Questions:
http://www.doe.k12.de.us/cms/lib09/DE01922744/Centricity/Domain/309/Delaware School Accountability Growth Model FAQ 10142015.pdf

Graduation Verification CoMS Guidance Document:
http://www.doe.k12.de.us/cms/lib09/DE01922744/Centricity/Domain/309/Graduation Verification CoMS Guidance Document .pdf

Graduation Appeals CoMS Guidance Document:
http://www.doe.k12.de.us/cms/lib09/DE01922744/Centricity/Domain/309/Graduation Appeals CoMS Guidance Document.pdf

5Essentials Survey Information
http://www.doe.k12.de.us//site/Default.aspx?PageID=2571

NCES Codes for Course Classification/Identification
http://www.doe.k12.de.us/Page/2695

Appendix – Student Growth Model for School Accountability

This appendix was prepared for the Delaware Department of Education by Education Analytics to describe how the growth metric is calculated.

STUDENT GROWTH MODEL FOR SCHOOL ACCOUNTABILITY

The Delaware Department of Education (DDOE) is in the second year of the transition from the Delaware Comprehensive Assessment System (DCAS) to the Smarter Balanced Assessments in English language arts/literacy (ELA) and mathematics. Student growth is one component of the school accountability framework being developed by DDOE with assistance from Education Analytics, Inc (EA). This memo briefly describes features of the statistical model used for the student growth calculations in the 2015-16 school year.

STATISTICAL MODEL

Equation (1) below gives the generic growth model of post-achievement in terms of prior achievement.

$$y_{ti} = \sum_{k} \lambda_{t-k} y_{t-ki} + \sum_{j} \alpha_j S_{ij} + \varepsilon_i \qquad (1)$$

where

- y_{ti} is post achievement measured by the Spring 2016 Smarter Balanced ELA or mathematics score for student i;
- y_{t-ki} is the k-th lag of prior achievement measured by the Spring Smarter Balanced or DCAS score in the same subject in period $t-k$, with slope parameter λ_{t-k};
- S_{ij} is the proportion of time spent by student i in school j, called the school 'dose' variable, with coefficient α_j; and
- ε_i is the unexplained portion of the post achievement that is orthogonal to all explanatory variables included in the model.

The coefficient α_j on the school dose variable gives the growth measure associated with school j. EA employs a number of enhancements of the simple growth model given above.

MISSING DATA ON LAGGED PRETESTS

The model described in equation (1) controls for prior achievement from up to three lagged assessment periods. In the 2015-16 school year, post achievement is measured by the Smarter Balanced assessment and prior achievement is measured by up to three lagged Smarter Balanced or DCAS scores in the same subject. For example, to estimate a student's growth in 8th grade mathematics, the model compares the student's Spring 2015 Smarter Balanced grade 8 math score with that of students with similar Smarter Balanced math scores from grade 7 and similar DCAS math scores from grades 6 and 5 in the previous three years. For a student to be included in the growth calculation, the student must have valid Smarter Balanced math scores in grades 8 and 7. If the student is missing data on the DCAS grade 6 and grade 5 math scores,

the missing data test data are imputed using a linear function of the student's observed data. This linear function is estimated using the sample of students who have non-missing data. Extending the example, a score is imputed for any student with missing data on the twice- and thrice-lagged prior achievement score.

Measurement Error Correction

Note that equation (1) assumes that both post and prior achievement are perfectly measured by the available test scores. Acknowledging the presence of measurement error in the pretest scores, the model incorporates a measurement error correction method that uses an estimate of the overall magnitude, or variance, of measurement error (Fuller, 1987). It is especially important to control for measurement error in the pretests because uncorrected measurement error can lead to biased estimates of school growth (Meyer, 1996; Meyer, 1999). Estimates of pretest measurement error variance are calculated from the standard errors of measurement reported by the Smarter Balanced and DCAS test vendors along with the scale score.

Shrinkage Estimation

Statistical models rely on large sample sizes for increased precision. This means that schools with fewer students are likely to have less precise results than those with a larger student enrollment because a performance measure based on fewer students is more likely to be influenced by randomness. This, in turn, increases the likelihood that the average improvement among a school's students is very high or very low when a school has a smaller number of students.

Empirical Bayes estimation, sometimes known as shrinkage estimation, addresses this problem by adjusting for the number of students within a given school. Under this technique, schools with a much smaller number of students have "shrunk" estimates to adjust for their wider distribution (or statistical variance) that may occur simply as a result of having fewer students. Including shrinkage thus avoids overrepresentation of schools with small numbers of students at both the top and bottom of the distribution of measured performance (Searle, Casella and McCulloch, 1992; Longford, 1999).

References

Fuller, W. A. (2009). *Measurement Error Models.* New York: Wiley.

Longford, N. T. (1999). Multivariate shrinkage estimation of small area means and proportions. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 162 (2), pp. 227-245.

Meyer, R. (1996). Value-added indicators of school performance. In Hanushek, E. and Jorgenson, W. (Eds.), *Improving America's schools: The role of incentives*, pp. 197–223. Washington, DC: National Academy Press.

Meyer, R. (1999). The production of mathematics skills in high school: What works? In Mayer, S. and Peterson, P. (Eds.), *Earning and learning: How schools matter*, pp. 169–204. Washington, DC: The Brookings Institution.

Searle, S. R., Casella, G., and McCulloch C. E. (1992). *Variance components*. New York: Wiley.

History of Changes

This section summarizes the history of changes made to the DSSF and this document over the course of school years. The original framework Reference Guide documented the DSSF as it was calculated based on the data from 2014-2015 school year. The sections below show changes made in subsequent years.

2015-2016

Date	Section(s)	Description
3/10/2016	Sources of Academic Achievement Data; Academic Achievement Business Rules; Source of Growth Data	• Text was added to reflect the change from Smarter to SAT for the grade 11 assessment. • Text was added to indicate the grades in which each assessment is given.
3/10/2016	Sources of College and Career Preparation Data	• An edit was made to the section to move the Growth-to-Proficiency metric information under the text regarding elementary and middle schools.
3/10/2016	Sources of College and Career Preparation Data	• Footnotes were added to explain changes related to the move from Smarter to SAT for the following high school measures: ▪ 3+ on both the Smarter ELA and Mathematics ▪ 1550+ on the SAT (or equivalent on the new SAT) ▪ Technical skills attainment with a 6+ (combined) on Smarter ELA and Mathematics
3/10/2016	College and Career Preparation Business Rules	• Edits were made to correct the reference to "graduating students". Late in the process in 2014-2015, the metric was changed to be based on 12th grade students and this change did not get reflected in the final document.
6/16/2016	Calculation and Aggregation Rules	• Text was added indicating that there is a district-level aggregation for DSSF. • A table was added that shows the metric areas, metrics, weights, and points for the district-level aggregation.
6/16/2016	On-Track-to-Graduation Business Rules	• The deadline for student transcript updates in eSchoolPlus was changed from July 31 to July 1.
6/16/2016	DSSF Accountability Ratings Rules	• Text was added indicating that there is a district-level aggregation for DSSF. • A table was added that shows the metric areas, metrics, weights, and points for the district-level aggregation. • The text regarding the redistribution of weights when one or more metrics is missing was updated. • Two examples of the redistribution of weights were added.
6/16/2016	Star Ratings by Metric Area	• District rows were added to the Star Ratings table for each metric area to show the point ranges for each star level for district-level ratings.

Date	Section(s)	Description
6/16/2016	Examples of Accountability Rating Calculation	• A table was added to show an example of district-level rating calculation.
6/16/2016	Reference Page	• A reference and link to the NCES Codes for Course Classification/Identification was added.
7/11/2016	Accountability Student Verification Process	• Section titled Business Rules for Creation of AVS Rosters was added.
7/25/2016	DSSF Accountability Ratings Rules	• Inserted section 7.3 – Non-Standard Metric Weighting Business Rules • Old section 7.3 now section 7.4
11/16/2016	Appendix – Student Growth Model for School Accountability	• Information provided by Education Analytics to describe how the growth metric is calculated.
11/16/2016	Updated Section 7.0	• Clarification of Standard versus Non-Standard Weightings