

Accountability Indicators and School Performance Grades Business Rules 2018–19

This document contains the business rules applied to data used in North Carolina school accountability indicators reporting and the calculations of the School Performance Grades (SPG) for the 2018–19 school year. It provides information on how an indicator is calculated (determining the numerator and denominator). The following sections are found in this document:

Indicators in Every Student Succeeds Act (ESSA) Accountability Model (SPGs) Calculations for School Performance Grades

As noted, some indicators and calculation processes have distinct business rule documentation that explains those indicators.

The following notes apply to all indicators and School Performance Grade calculations:

Students must meet partial enrollment for each accountability indicator except Cohort Graduation Rate to be included in the School Performance Grades. Please refer to Partial Enrollment business rules for more information. Partial Enrollment business rules can be found on the Accountability Services website.

Subgroup Rules

- Students categorized as a Student with Disabilities (SWD) or an English Learner (EL) at any time during their designated 4-year graduation cohort count in these associated subgroups for calculations of the Cohort Graduation Rate.
- Students who met the defined criteria for exiting English Learners (EL) status at any point in the previous four years are included in the denominator of the EL subgroup for all indicators, except the English Learners Progress indicator.
- The following subgroups receive a school performance grade:

Race/Ethnicity groups (American Indian, Asian, Black, Hispanic, Two or More Races, and White)
Students with Disabilities
English Learners
Economically Disadvantaged

Indicators in ESSA Accountability Model (School Performance Grades)

Reading and Mathematics End-of-Grade (EOG) and End-of-Course (EOC) Assessments

Science End-of-Grade Assessments

English Learners Progress (ELP)

4-Year Cohort Graduation Rate (CGR)

Biology End-of-Course Assessments

NC Math 3 (Math Course Rigor)

ACT/ WorkKeys Assessments

School Growth

Elementary/Middle School Growth (Reading, Math and Science)

High School Growth (Reading and Math)

I. Reading and Mathematics End-of Grade (EOG) and End-of Course (EOC)

Annual assessments are administered as follows: EOG English Language Arts (ELA)/Reading and Mathematics at grades 3–8, EOC assessments in NC Math 1, NC Math 3, English II and the related alternate assessments (NCEXTEND1) for students receiving instruction on the extended content standards.

The ELA/reading assessments are reported as five academic achievement levels (Level 1, Level 2, Level 3, Level 4 and Level 5) with Levels 3–5 demonstrating North Carolina grade-level proficiency and Levels 4–5 demonstrating on track for career and college. The mathematics assessments are reported as four academic achievement levels (Level 2 and Below, Level 3, Level 4 and Level 5) with Levels 3–5 demonstrating North Carolina grade-level proficiency and Levels 4–5 demonstrating on track for career and college. SPG calculations use scores that meet grade-level proficiency (Levels 3–5).

1. The denominator includes all current year assessment scores for eligible students in membership (i.e., enrolled in a school) at grades 3 through 8 and in high school courses in which an EOC assessment is required.
 - a. The participation expectation for all assessments is 95%. If a school fails to meet the 95% participation rule for ELA/reading or mathematics, an adjustment is made to the denominator to ensure the denominator accounts for 95% of students expected to test. For more information regarding participation rules, go to the Accountability Services website.
 - b. Students who are in their first or second year in a U.S. school are not included in proficiency calculations;
 - c. NC Math 1 scores for students taking the course prior to their grade 8 year are counted when the student is in grade 8 – Please refer to NC Math Exemption Business Rules on the Accountability Services website.
 - d. The mathematics high school accountability assessment for students who took NC Math 1 for the first time prior to grade 9 is NC Math 3. Refer to the NC Math Exemption Business Rules on the Accountability Services website.

Note: When a student who took NC Math 1 for the first time prior to grade 9 repeats the NC Math 1 course for credit in high school, the NC Math 1 assessment, if administered, is used for accountability School Performance Grade calculations for that year. The student’s NC Math 3 assessment will be used for all accountability calculations including School Performance Grades, long-term goals and grade 11 participation expectations. For this indicator to be included in SPG calculations, the school must have a total of 30 reading and mathematics scores combined.
 - e. Students with a North Carolina Department of Public Instruction (NCDPI) approved medical exemption are excluded from all relevant proficiency calculations.
2. The numerator is based on the number of students scoring grade level proficiency. Annual assessments for SPGs are calculated by determining the percent of students who score at Achievement Level 3 or higher.
 - a. If two valid scores are received in the same accountability year for a student enrolled in an EOC course, the higher score is used for proficiency calculations.
 - b. Students earning credit through the Credit by Demonstrated Mastery (CDM) program in a course that administers an EOC assessment are counted as proficient.
 - c. Students in Grade 3 who are not proficient on the EOG but receive an Achievement Level 3 or higher on the Beginning of Grade 3 ELA/Reading Test (BOG) count as proficient.
 - d. Students who score below Achievement Level 3 on an EOG or EOC assessment (or the NCEXTEND1 alternate) in the current school year and obtain a higher score while enrolled in a summer program, that is completed (and test scores are submitted) before the published end of the accountability year, have the higher score replace the lower score in the performance calculations. (Testing for this purpose is available for grades 4–8 ELA/reading and English II.).

Note: For the 2018–19 school year mathematics assessments are not available for summer program administration due to standard setting.

II. Science End-of Grade Assessments

Annual assessments administered are as follows: EOG Science at grades 5 and 8 and the related alternate assessments (NCEXTEND1).

The assessments are reported as five academic achievement levels (Level 1, Level 2, Level 3, Level 4, and Level 5) with Levels 3–5 demonstrating North Carolina grade-level proficiency and Levels 4–5 demonstrating on track for career and college. SPG calculations use scores that meet grade-level proficiency (Levels 3–5).

1. The denominator includes all current year assessments for eligible students in membership (i.e., enrolled in a school) at grades 5 and 8.
 - a. Students who are in their first or second year in a U.S. school are not included in proficiency calculations.
 - b. Students with a North Carolina Department of Public Instruction (NCDPI) approved medical exemption are excluded from all relevant proficiency calculations.
2. The numerator is based on the number of students scoring grade level proficiency. Annual assessments for SPGs are calculated by determining the percent of students who score at Achievement Level 3 or higher.
 - a. Students who score below Achievement Level 3 on an EOG assessment (or the NCEXTEND1 alternate) in the current school year and obtain a higher score while enrolled in a summer program, that is completed (and test scores are submitted) before the published end of the accountability year, have the higher score replace the lower score in the performance calculations. (Testing for this purpose is available for grades 5 and 8 science.)

III. English Learners Progress

1. The denominator is the number of ELs in grades 3–8 and 10.
2. The numerator is the number of ELs who met North Carolina’s definition of progress toward English language attainment as demonstrated on the language proficiency test, including exiting the English learner status.

Additional business rules for the EL Progress Indicator can be found on the Accountability Services website.

IV. 4-Year Cohort Graduation Rate

The Cohort Graduation Rate is the number of students that are part of a designated cohort as defined using the 4-year Cohort Graduation Rate business rules found on the Accountability Services website.

1. The denominator is the total number of students expected to graduate within four years in the current year’s cohort.
2. The numerator is the number of students who graduate (earned a high school diploma) on time as defined by the designated cohort.

V. Biology End-of Course Assessments

Annual assessments administered are as follows: Biology and the alternate assessment (NCEXTEND1).

The assessments are reported as five academic achievement levels (Level 1, Level 2, Level 3, Level 4, and Level 5) with Levels 3–5 demonstrating North Carolina grade-level proficiency and Levels 4–5 demonstrating on track for career and college. SPG calculations use scores that meet grade-level proficiency (Levels 3-5).

1. The denominator includes all current year assessments for eligible students in membership (i.e., enrolled in a school) in high school courses in which an End-of-Course (EOC) assessment is required.
 - a. Students who are in their first or second year in a U.S. school are not included in proficiency calculations.
 - b. For schools starting with grade 9, biology assessments taken prior to grade 9 are banked to grade 9 for calculations. Banked biology scores are not included in the school where the student took the assessment at grade 8 unless it is the same school in grade 9
 - c. Students with a North Carolina Department of Public Instruction (NCDPI) approved medical exemption are excluded from all relevant proficiency calculations.

2. The numerator is based on the number of students scoring at grade level proficient. Annual assessments for SPGs are calculated by determining the percent of students who score at achievement Level 3 or higher.
 - a. If two valid scores are received in the same accountability year for a student enrolled in an EOC course, the higher score is used for proficiency calculations.
 - b. Students earning credit through the Credit by Demonstrated Mastery (CDM) program in a course that administers an EOC assessment is counted as proficient.
 - c. Students who score below Achievement Level 3 on an EOC assessment (or the NCEXTEND1 alternate) in the current school year and obtain a higher score while enrolled in a summer school program, that is completed, and test scores are submitted before the published end of the accountability year, have the higher score replace the lower score in their performance calculations for SPG. (Testing for this purpose is available for biology).

VI. Passing NC Math 3 (Math Course Rigor)

1. The denominator is based on all grade 12 students. Grade 12 students are determined by grade level at each school's First Day of Spring (FDS) data collection or mid-year graduates or mid-year certificate earners who were also in grade 12 at First Day of Fall (FDF) data collection.
 - a. Students who transfer into a school are included in the denominator.
 - b. Students who are instructed in the Extended Content standards or on the Occupational Course of study are included in the denominator.

2. The numerator is the number of grade 12 students who have earned credit in the designated math course of NC Math 3 or equivalent. The course codes used to determine course credit are: 2300, 2301, 2302, or 2309.

VII. ACT/ WorkKeys Assessments

3. The denominator is the number of grade 12 students who have either a valid ACT (from grade 11) or a valid WorkKeys assessment score (i.e. student must also be a Career and Technical Education (CTE) Concentrator).
 - a. Students with an approved ACT or WorkKeys Exemption score are included in the denominator
 - b. Grade 12 students are students who are in grade 12 at the First Day Spring testing date or mid-year graduates who are in grade 12 at the First Day Fall testing date.
 - c. English Learners who take both assessments during their first or second year in a U.S. school are not included.
 - d. Students who do not have a valid ACT or WorkKeys assessment are not included in the denominator, this includes:
 - i. Students who are instructed on the Extended Content Standards and participated in the *NCEXTEND1* at grade 11
 - ii. Students with an NCDPI approved Medical Exemption

- iii. Students who take the College and Career Readiness Achievement Assessment (CCRAA) alternate assessment.
 - iv. English Learners who earned the score in their first or second year in a U.S. school are excluded from the denominator for SPG purposes but are included in other state reporting documents.
 - v. For 2017 and prior ACT scores, the EL exemption rule only applies to students who were in their first year at a U.S. school at the time of testing and applies to SPG calculations and all other state reports.
4. The numerator is the number of students who either achieved a composite score of 17 or higher on the ACT or achieved a Silver, Gold or Platinum on the WorkKeys assessment.
- a. Students with an approved ACT or WorkKeys exemption are included in the numerator.
 - b. When an eligible English Learner takes the WorkKeys assessment in their third year in a U.S. school the score is included. If the WorkKeys assessment is not proficient (Silver or higher) the ACT score is reviewed and if proficient (Composite 17 or higher), the student is included in the numerator.
 - c. A student's WorkKeys score is only considered for inclusion in the numerator if they are also a CTE concentrator.

VIII. School Growth

North Carolina uses the EVAAS growth index for the specified subjects and converts the index to a 100-point value prior to inclusion in the SPG.

Rules applied to growth are as follows:

- a. Elementary and middle schools use ELA/Reading EOG, Mathematics EOG/EOC and Science EOG assessments for growth calculations.
- b. High schools use ELA/Reading and Mathematics EOC assessments for growth calculations.
- c. EOG and EOC mathematics assessments taken in the current accountability year are used in school accountability growth calculations. Some assessments are included in growth that may not be included in other accountability measures like proficiency, participation, or long-term goal calculations. For example, students who take NC Math 1 in grade 7 will have their NC Math 1 EOC score used when the student is in grade 8 for proficiency, participation and long-term goals. This student's NC Math 1 score will be included in the growth calculation for the year the student was in grade 7.
- d. Only NC Math 3 EOC assessments of students on the accelerated pathway (i.e. took NC Math 1 prior to grade 9) are used in school accountability growth calculations. (All NC Math 3 EOC assessments are used for educator growth calculations.)
- e. Subgroups receive a growth score for inclusion in the subgroup school performance grade.
- f. A growth index is only used if there are 30 current year scores that are used for the growth calculation for the school/subject or subgroup.
- g. Summer program scores are not used for growth, only in performance as noted above.
- h. If two valid scores are received in the same accountability year for a student enrolled in an EOC course (i.e. student took the assessment in both the fall and spring semesters), both scores are included in growth calculations.

Growth for high schools is defined as part of the academic achievement indicator, but the weight of growth, as required by § 115C-83.15, is 20% of the model.

For elementary and secondary schools that are not high schools, the School Quality or Student Success Indicator for all grade spans and all schools is growth which accounts for 20% of the model as required by §115C-83.15.

North Carolina school growth is measured by EVAAS, a value-added growth model that includes student performance on all applicable subject assessments for that school. The growth model calculations result in a composite growth value. The composite growth value spans a range from -10.0 to 10.0 (it is possible to achieve values greater than 10.0 or below

-10.0 but are transformed to 10.0 and -10.0 for use in the accountability model). These composite growth values are transformed to a 100-pt score rounded to 10th and this score is used as 20% of the overall school/subgroup grade. North Carolina reports the growth values that correspond to EVAAS designations for all schools. The distribution of the growth designations (did not meet, met, and exceeded) allows for additional meaningful differentiation between schools and subgroups.

- If a school or subgroup achieves a composite growth value below -2.0, the growth expectation was not met.
- If a school or subgroup achieves a composite growth value between -2.0 and 2.0, the growth expectation was met.
- If a school or subgroup achieves a composite growth value equal to or above 2.0, the growth expectation was exceeded.

Calculations for School Performance Grades

For all indicators, the denominator must meet the minimum number of data points (30), after all business rules are applied, to be included in the SPG or subgroup grade calculation. All non-growth indicators account for 80 percent of the SPG. The indicators' denominators are added together to create the composite denominator. The corresponding numerators are added to make the composite numerator. The numerator is divided by the denominator and multiplied by 100 to get a total achievement score rounded to 10th. This score is multiplied by .8 (80%). This result is added to the converted 100-point growth score after it is multiplied by .2 (20%) to achieve a final SPG or subgroup grade.

Sample high school Calculation, assuming all Indicators had at least 30 scores after all business rules are applied:

| Measure | Numerator | Denominator | Achievement Score Used in Final Calculations |
|--|------------------------------------|--------------------------------------|--|
| Academic Achievement Assessments (AAA) (Combines ELA/Reading and Math) | 117 (Math) + 135 (English II) | 269 (Math) + 274 (English II) | |
| 4-year Cohort Graduation Rate | 284 | 330 | |
| EL Progress | 9 | 34 | |
| EOC Biology | 124 | 240 | |
| ACT/WorkKeys Assessments | 197 | 238 | |
| Math Course Rigor | 261 | 273 | |
| Total | 1127 (sum of numerators) | 1658 (sum of denominators) | |
| | Composite Index | | Growth Score Used in Final Calculations |
| Accountability Growth Score (Reading and Math Composite) | -0.95 | | 75.2 |

$$\text{Total Score} = 68.0(.8) + 75.2(.2) = 54.4 + 15.04 = 69.44$$

A similar calculation is conducted to determine a separate Reading and a separate Mathematics SPG for schools serving grades 3-8. Separate Reading and Mathematics SPGs are for whole school only, not subgroups.

When calculating the SPGs and subgroup grades, the achievement score is rounded to the 10th before being combined with the growth score. Prior to assigning all letter grades the final score is rounded to the whole.

As per the ESSA, School Performance grades are used to meaningfully differentiate schools for the identification of:

1. Comprehensive Support and Improvement (CSI) schools and;
2. Targeted Support and Improvement (TSI) schools

The following rules may apply to schools without enough data for calculations:

- a. K-2 schools receive the same SPG as the school in the LEA receiving the highest percentage of their students for third grade.
- b. When a school does not have any indicators with enough data to compute a designation using current year data only, the school's SPG is determined from a combined 3-year calculation.

- c. If a school who does not have enough data to compute a designation is also a NC approved alternative school, the school has the option to use a 3-year calculation or have all scores returned to other schools within the district and the alternative school receives the SPG of the school to which most of the scores were returned. Alternative charter schools will default to a 3-year calculation option if needed.

Alternate Calculation for Special Weighting

To ensure School Quality or Student Success (SQSS) measures do not have significantly more weight in the High School accountability model, NCDPI conducts a relative percent analysis to ensure the growth (20%) plus the Achievement Relative Percent (HS Math, HS Reading, 4-year cohort graduation rate and EL Progress measures) is greater than the relative percent of the SQSS measures (Biology, AWA Indicator and Math Course Rigor).

The following calculations is used for this analysis:

Achievement Denominator (AD) = HS Math denominator + English II denominator +
4-year Cohort Graduation Rate denominator + English Learners Progress
denominator

SQSS Denominator (SD) = Biology denominator + AWA Indicator denominator + Math Course Rigor
denominator

Growth Percent (GP) = 20 (or 0 if not enough data to calculate growth)

Achievement Relative Percent (ARP) = $[AD/(AD+SD)] \times 0.8$

SQSS Relative Percent (SRP) = $[SD/(AD+SD)] \times 0.8$

If $(GP + ARP) < SRP$ then SQSS has more weight than the Achievement Indicators. When this occurs, these schools' measure of annual differentiation is adjusted in the following manner:

The English EOC, Math EOCs, 4-year Cohort Graduation Rate and EL Progress academic achievement indicators: account for 31% of the schools' overall score. The growth academic achievement indicator accounts for 20% of the overall score. All the academic achievement indicators combined account for 51% of the model. Thus, the high school SQSS measures (Biology, AWA Indicator and Math Course Rigor) account for 49% of the schools' overall score. This ensures that the academic indicators result in a greater weight than the SQSS indicators.

Additional details regarding the calculations of SPGs can be found in the *Accountability Brief: School Performance Grades* on the Accountability Services website.