



Fall | 2012

A-F Letter Grade Accountability System
Technical Manual

Arizona Department of Education - John Huppenthal, Superintendent



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Introduction

The information in this guide is designed for educators, parents, and other interested stakeholders who would like to understand the Arizona A-F Letter Grade accountability system. The Arizona Department of Education's (ADE) ultimate goal is for all students to receive an education that prepares them for the opportunities and demands of college, the workplace, and life beyond high school. As a state, we are also committed to holding schools accountable to this goal using a fair accountability model that differentiates among the performance of our schools and Local Education Agencies (LEAs).

Through our A-F Letter Grade accountability system, Arizona makes annual accountability determinations for all schools and LEAs based on student academic status and growth. With the ubiquitous focus on the continued success of our students and gain in achievement, we strove to design a comprehensive accountability system for schools and LEAs.

Historical Context

The passage of Proposition 301 by Arizona voters in November 2001 was the first step in Arizona holding schools accountable for the academic performance of their students. The ADE developed an accountability system to measure school performance based on student mastery of grade-level standards, as measured by the Arizona's Instrument to Measure Standards (AIMS) in mathematics and reading. This system was dubbed AZ LEARNS (now referred to as the AZLEARNNS-Legacy) and required that all public schools in Arizona receive an achievement profile under the state accountability system.

In 2010, the Arizona Legislature enacted Arizona Revised Statute §15-241 (A.R.S. §15-241) to create the **A-F Letter Grade** accountability system which was adopted in June 2011 by the State Board of Education¹. The A-F Letter Grades are designed to place equal value on current year achievement and longitudinal academic growth, specifically the growth of all students as well as a school's lowest achieving students.

The revisions to the statute included an addition to the state-wide accountability system. School districts and charter holders (otherwise known as LEAs) were to be held accountable under the A-F Letter Grade accountability system, thus, receiving annual letter grades using the same calculation as individual schools. Arizona's Superintendent of Public Instruction, John Huppenthal felt strongly that LEAs should be recognized for accomplishments in building their schools' capacity to provide high quality instruction to all students. In his former role as State Senator and sponsor of the original A-F Letter Grade legislation, Superintendent Huppenthal was also determined to hold LEAs accountable when they failed to demonstrate success. Thus, in its implemented form, the A-F Letter Grade accountability system also acknowledges the responsibility that LEAs have in ensuring the academic success of the students within the schools they oversee.

Furthermore, A.R.S. §15-241 specifies that all schools and LEAs be held accountable to the A-F Letter Grade accountability system starting in the 2012-2013 school year. Senate Bill 1458 was passed in March 2012 revising the original law to hold schools accountable to their A-F Letter Grade designation in the 2011-2012 school year (one year prior). Thus, in the 2010-2011 school year, A-F Letter Grades were computed for all schools² and LEAs, but state accountability utilized AZ LEARNS-Legacy profiles. In the 2011-2012 school year, schools and LEAs were held accountable for the 2012 A-F Letter Grades exclusively.

¹A.R.S. §15-241 requires that the ADE shall determine the criteria for each school and LEA classification using a research based methodology, which is defined as the systematic and objective application of statistical and quantitative research principles to determine a standard measurement of acceptable academic progress for each school and LEA.

² The timing of the final State Board approval of the A-F Letter Grade calculation method, at the end of June, 2011, did not allow for the development of parallel models for alternative schools, extremely small schools, and K-2 schools in the first year, as required by A.R.S. §15-241. As a result, approximately 500 schools did not receive a 2011 A-F Letter Grade. The purpose of these models is to allow for the unique characteristics inherent in these schools.

Overview of the A-F Letter Grade Accountability System

Outlined by A.R.S. §15-241, ADE determined the criteria for each school and LEA classification using a research based methodology, which is defined as the systematic and objective application of statistical and quantitative research principles to determine a standard measurement of acceptable academic progress for each school and LEA.

The following were included in the evaluation of schools and LEAs under the A-F Letter Grade accountability system:

1. The percentage of students having met or exceeded performance levels on the AIMS assessment
2. A student mobility adjustment
3. The distribution of achievement at each school *and* LEA
4. Longitudinal indicators of student gain
5. ELL test results
6. For High Schools Only
 - a. Annual dropout rate
 - b. Annual graduation rate

Aside from the components listed above, state statute also mandates that 50 percent of the A-F Letter Grade determinations for schools and LEAs shall consist of academic performance measurements. The academic performance measurement shall consist of:

1. A measurement of academic gain for all pupils enrolled at the school or LEA (totaling 50 percent of the academic performance measurement) and
2. A measurement of the 25 percent of pupils with the lowest academic performance measurement enrolled at the school or LEA (totaling 50 percent of the academic performance measurement).

Arizona Revised Statute (*A.R.S. §15-241*) also requires that the ADE develop parallel models to evaluate the following types of schools in order to account for their unique school characteristics:

1. Alternative schools
2. Accommodation schools³
3. Extremely Small Schools
4. K-2 schools

³ It was determined in preparing the parallel models that accommodation schools appropriately fit under the Traditional, K-2, Small School, or Alternative School models; thereby, not requiring a separate model.

Student Data Selection Criteria

In general, students who had a performance level reported from the AIMS assessments were included in the composite and growth portions of the model (performance > 0), and students who had a performance level reported from the AIMS A assessment were included in the composite score. The following list provides specific details and descriptions of the selection criteria used to identify the students who were included in the calculation of the A-F Letter Grades for schools and LEAs.

Full Academic Year (FAY) students – Students were included in the composite and growth portions of the A-F Letter Grade models if they were enrolled within the first ten days of the school's calendar year and continuously enrolled up until the first day of AIMS testing.

LEA FAY students - Students were included in the composite and growth portions of the A-F Letter Grade models if they were enrolled within the first ten days of the LEA's calendar year and continuously enrolled in any school within that LEA up until the first day of AIMS testing.

Alternative Full Academic Year (FAY) students – Students were included in the composite and growth portions of the Alternative A-F Letter Grade model if they were enrolled in a school up through the first school day in October and continuously enrolled through the first day of AIMS testing.

English Language Learner (ELL) students – Any student identified with an ELL need (i.e., with a less than proficient score on AZELLA in the current or prior fiscal year) and enrolled in an ELL program (i.e., SEI, Bilingual Waiver, ILLP, withdrawn by parent request in FY 2011 or FY 2012) for one or more days in the current fiscal year. Only ELL students who were non-mobile (i.e., FAY) and had a valid test score were included in the composite and growth portions of the model.

Special Education (SPED) students - Any student determined as having a disability and whose individualized education program (IEP) allowed for testing were also included in the composite score.

Students with a student growth percentile (SGP) – To have a SGP, the student must have had a test score for the two most recent school years (i.e., FY11 and FY12) at minimum. Students with test scores for only school year 2011-2012 were included in the composite portion of the model, but were *not* included in the student growth calculations. AIMS Mathematics and Reading scale scores were used to measure growth for students in grades 3-8 from the years 2006 through 2012. Growth for students in grade 3 was calculated using Grade 2 Stanford 10⁴ Reading and Mathematics scale scores. Growth for Grade 10 students

⁴ It was approved that Stanford 10 Grade 2 scale scores be used to determine the SGPs for Grade 3 students and Stanford 10 Grade 9 scale scores be used to determine the SGPs for Grade 10 students as referenced by the author of the growth model, Dr. Damian Betebenner.

is calculated using Grade 9 Stanford 10⁵ Reading and Mathematics scale scores and their AIMS scores from as far back as 2006.

95% Tested and 1% Cap Requirements

In alignment with the U.S. Department of Education's approval of Arizona's request for flexibility from the Elementary and Secondary Education Act (ESEA), the new 95% tested rule requires schools and LEAs to test 95% of students taking AIMS and AIMS A in the current year. Schools testing fewer than 95% of their students will have their maximum allowable letter grade reduced according to the scale below:

Table 1: Maximum Allowable Letter Grade based on Percent Tested

Percentage of Students Tested	Maximum Letter Grade Allowed	Eligible Points
95% or higher	A	200+
85-94%	B	139
75-84%	C	119
Less than 75%	D	99

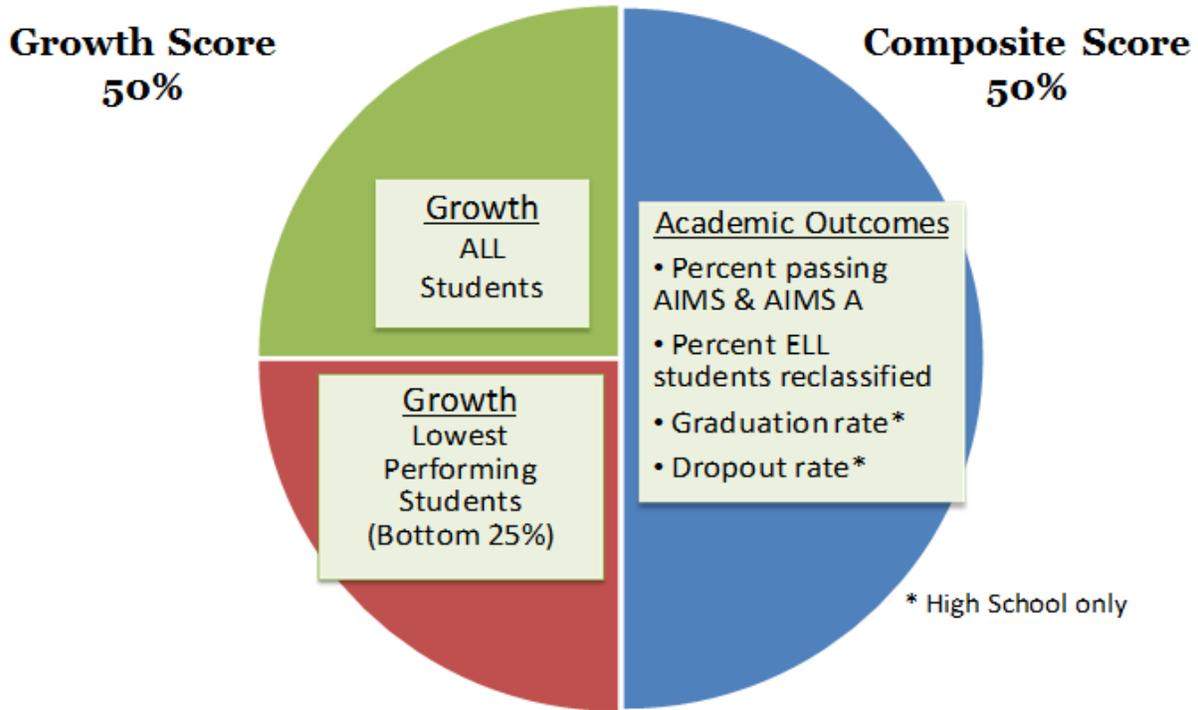
In addition to the 95% tested rule, federal requirements mandate that no more than 1% of an LEA's special education student population are counted as passing the AIMS A tests. If more than 1% of an LEA's special education students passed the AIMS A, the performance level of those students exceeding 1% are recoded as non-passing.

⁵ The same reference applies to Grade 10 SGPs as noted in footnote 4.

Traditional School Model

The formula used to calculate the A-F Letter Grade for traditional schools and LEAs⁶ is based on a point system that weights equally students' academic outcomes and academic growth. The final score has 200 points possible – 100 for academic outcomes and 100 for academic growth. A letter grade is then assigned to each LEA and school based on the number of points earned.

Figure 1: Components of the Traditional School A-F Letter Grade Profile



Growth Score + Composite Score = A-F Letter Grade

(100 points possible) + (100 + 3 + 3* + 3* points possible) = 200+ points possible

The purpose of the **Growth Score** is to acknowledge the academic growth of students within a school or LEA, even if a student has not yet reached grade-level proficiency. Arizona uses a student-level growth measure – **Student Growth Percentiles (SGP)** – that describes each student's academic gains relative to other students at their grade level with the same academic history. The SGPs for students are calculated separately for AIMS mathematics and reading, then the medians of those two percentiles are averaged for the "all students" and for the "bottom 25%" calculations. The overall growth score is an average of the "all student" growth mean (i.e., the average of the AIMS Reading and Mathematics medians) within

⁶ All LEA letter grades were calculated using the Traditional A-F Letter Grade model at the student level with two exceptions: 1) if an LEA was comprised of only alternative schools then the LEA's letter grade was an average of their alternative schools' letter grades, and 2) if an LEA has only one school then the LEA was given the same grade as the school regardless of which model was used to calculate the school's letter grade.

a school or LEA and the growth from the “bottom 25%” of students (i.e., the average of the AIMS Reading and Mathematics medians) in a school or LEA.

The academic achievement component, the **Composite Score**, of the A-F Letter Grade accountability system holds schools accountable for student proficiency on the AIMS assessment. Proficiency is determined by calculating the percentage of students who scored a “Meets” or “Exceeds” on AIMS reading and mathematics. The number of students proficient on the AIMS test is averaged across all FAY students within a school, using both reading and mathematics tests, creating a school-wide average percent passing that is multiplied by 100 to create whole numbers between 0 and 100.

In addition to the AIMS and AIMS A assessments, the composite score includes other measures of academic achievement. Those other measures include points for reclassification of 30% of FAY ELLs, as well as graduation and dropout rates for high schools.

The **Total Score** is calculated by adding a school’s composite score and its overall growth score together for a possible total of between 0 and 200 points (plus additional points for meeting criteria for ELL reclassification, graduation and dropout rates), and those points correspond to a grade classification scale, illustrated in Table 2 below, to determine the final A-F Letter Grade. Table 2 shows the range of points for each A-F Letter Grade level and a description of each A-F Letter Grade as described in A.R.S. 15-241. Under the state statute, a letter grade of ‘F’ is designated if a school or district receives a letter grade of ‘D’ for three consecutive years. In 2012, ‘F’ schools were determined by a committee of experts in the field through the ADE School Improvement division of schools that received an “underperforming” by AZLEARNS/Legacy in 2010 and 2011 and who earned a ‘D’ letter grade in 2012.

Table 2: Traditional School A-F Letter Grades, Total Scores, and Descriptions

Rating	Total Score	Description¹
A	140-200*	LEA/school demonstrates an excellent level of performance
B	120-139	LEA/school demonstrates an above average level of performance
C	100-119	LEA/school demonstrates an average level of performance
D	0-99	LEA/school demonstrates a below average level of performance
F		Those schools identified as “underperforming” by AZLEARNS/Legacy in 2010 and 2011 and who earned a ‘D’ letter grade in 2012

¹ Pursuant to A.R.S. 15-241

*Plus additional points earned for meeting criteria for ELL reclassification, graduation and dropout rates.

Components of the Traditional School Model

Composite Score (100 points + Additional points)

The academic achievement component of the A-F Letter Grade accountability system holds schools accountable for students' achievement in the current year on four measures for high schools and two measures for elementary schools. Table 3 shows the measures and the corresponding point values in the A-F Letter Grade determinations. Each measure is further defined in the following sections.

Table 3: Academic Achievement Measures, Corresponding Grades, Description and Point Values in the A-F Letter Grade Determinations

Measure	Grades Served	Description	Point Range
Proficiency on AIMS test	K-12	Percent of students who pass	0-100
Results of the ELL test AZELLA	K-12	30% of FAY ELL students reclassified as proficient	0 or 3
Annual dropout rate	9-12	Meet Dropout Target	0 or 3
Annual graduation rate	9-12	Meet Graduation Rate Target	0 or 3

Proficiency on the AIMS & AIMS A Tests

Proficiency (i.e., “Meets” or “Exceeds” the standard) is determined by calculating the percentage of students proficient on AIMS for a given grade in reading and mathematics. The percentage of students proficient on AIMS is averaged across each subject and grade to derive a school-wide average. To convert this school wide average percentage to points the percentage is multiplied by 100 to create whole numbers between 0 and 100.

Example 1: Calculating Percent Passing

Table 4a: Percent Passing- AIMS READING

Grade	Number of FAY Students Tested	Number of FAY Students Passing	Grade / Subject Percent Passing
3	71	60	84.51%
4	91	83	91.21%
5	104	91	87.50%
School-wide	266	234	87.97%

Table 4b: Percent Passing- AIMS MATHEMATICS

Grade	Number of FAY Students Tested	Number of FAY Students Passing	Grade / Subject Percent Passing
3	71	59	83.10%
4	91	76	83.52%
5	104	82	78.85%
School-wide	266	217	81.58%

Table 4c: Percent Passing- AIMS A READING

Grade	Number of FAY Students Tested	Number of FAY Students Passing	Grade / Subject Percent Passing
3	12	9	75.00%
4	7	7	100.00%
5	15	11	73.33%
School-wide	34	27	79.41%

Table 4d: Percent Passing- AIMS A MATHEMATICS

Grade	Number of FAY Students Tested	Number of FAY Students Passing	Grade / Subject Percent Passing
3	12	10	83.33%
4	7	6	85.71%
5	14	13	92.86%
School-wide	33	29	87.88%

Table 4e: Calculation of Overall Percent Passing

All FAY Students Passed	507
All FAY students Tested	599
Percent Passing	85%
Passing Points	85

Elementary Schools

FAY Students in grades 3-8 who took the AIMS Reading and/or Mathematics, or who took the AIMS A Reading and/or Mathematics tests were included. The percent of those students who passed the AIMS or AIMS A tests in the current year were identified for both subjects. Across all grades, the number of students passing either the AIMS or AIMS A was divided by the total number of students who took either test. The final average percent across was converted into a 0-100 points scale.

Equation 1: Percent Passing Current Year, Elementary Schools

$$\text{Percent Passing in Current Year} = \frac{\text{Current Year \# Students Passing AIMS Reading and/or Mathematics} + \text{\# Students Passing AIMS A Reading and/or Mathematics}}{\text{Current year \# Students Tested on AIMS Reading and/or Mathematics} + \text{\# Students Tested on AIMS A Reading and/or Mathematics}}$$

High Schools

High school students who were FAY in grade 10 and earned a “Meets” or “Exceeds” on the AIMS or AIMS A Reading and/or Mathematics assessments in the current year were included. Because high school students are permitted to re-take the “Grade 10” AIMS or AIMS A test up to 2 times per year while in Grade 11 and 12, the high school calculation also includes the highest scores attained in each subject by students between grades 10 and 12. For all FAY students in the school, the number of students who met or exceeded was divided by the total number of students who took the test. Students who retook the test only contributed their single best performance to the final calculation. The final average percent passing was converted into points (0-100 points possible).

Equation 2: Percent Passing Current Year, High Schools

$$\text{Percent Passing in Current Year} = \frac{\text{Current Year \# Students Passing AIMS Reading and/or Mathematics} + \text{\# Students Passing AIMS A Reading and/or Mathematics}}{\text{Current year \# Students Tested on AIMS Reading and/or Mathematics} + \text{\# Students Tested on AIMS A Reading and/or Mathematics}}$$

Additional Points

Additional points are available beyond the 100 composite points. If the school meets the ELL criteria, all schools can receive three additional points for reclassification. High schools are eligible for meeting graduation and dropout rate criteria as outlined below which are worth three points respectively.

ELL Point Criteria

A school/LEA can earn three additional points for ELL reclassification above and beyond the possible 100 from the AIMS percent passing if the school/LEA meets three criteria. The criteria were based on guidance from the Family Educational Rights and Privacy Act (FERPA), state law and ELL impact data. First, a school/LEA must have **at least 10 ELL students** enrolled in an ELL program for one or more days during the current fiscal year. Second, a school/LEA must **test 95% of all students with an ELL need** on the annual year-end AZELLA. Fluent English Proficient, Initial Fluent English Proficient, and students withdrawn from ELL services due to SPED criteria were **NOT** included in the 95% tested criteria. Third, a school/LEA must **reclassify 30% or more** FAY ELL students as proficient in English. The criteria apply to all school types (i.e., Alternative, K-2, Small, and Traditional) and LEAs.

For school year 2011-2012, the AZELLA year-end testing window was December 2011 through May 2012. Any student tested on AZELLA during this time received credit toward the 95% tested criteria. Any student who scored proficient at any time during the Fiscal Year also received credit on the 95% tested criteria.

Table 5: Criteria for Earning ELL Additional Points

Criteria for ELL points (3)
1. Only schools/LEAs with 10 or more ELL students are evaluated
2. Schools/LEAs must test 95% of students with an ELL need on the annual year-end AZELLA
3. 30% or more of FAY ELL students across all grades reclassified as proficient

Note: An **ELL student** is any student with an ELL need in the current or prior fiscal year and enrolled in an ELL program for one or more days in the current fiscal year. **ELL need** is defined as any student with a less than proficient score on AZELLA in the current or prior fiscal year. **ELL program enrollment** is defined as any student enrolled in an ELL program (i.e., SEI, Bilingual Waiver, ILLP, or those students whose parents withdrew them from ELL services in FY 2011 or FY 2012) for one or more days in the current fiscal year.

Equation 3: 95% Tested on AZELLA

$$95\% \text{ Tested on AZELLA} = \frac{\# \text{ of Students Tested on AZELLA in Annual Testing Window}}{\# \text{ of Students with ELL need}}$$

A school's reclassification rate is the number of FAY ELL students scoring proficient at any time in the current fiscal year divided by the total number of FAY ELL students.

Equation 4: ELL Reclassification Rate

$$\text{Reclassification Rate} = \frac{\# \text{ of FAY ELL Students Tested Proficient on AZELLA}}{\text{Total Number of FAY ELL Students Tested}}$$

Annual 5-year Cohort Graduation Rate

High schools are also held accountable for meeting stringent criteria for graduation rates. The **Graduation Rate** is a longitudinal measure of how many students graduate from high school within 5 years of first entering grade 9. High schools can earn 3 points, above and beyond the possible 100 from the AIMS percent passing by meeting one of the following three criteria.

Table 6: Criteria for Earning Graduation Rate Additional Points

Graduation Rates		Criteria to meet the Target
3-Yr Average for 5-Year Grad Rate		≥ 90%
Current Year	≥ 74%	1% point Increase
	< 74%	2% point Increase

The graduation rate formulas used are:

Equation 5: Single Year Graduation Rate

$$\text{Single Year Graduation Rate} = \frac{\text{\# in cohort who graduated within 5 years}}{\text{Original cohort} + \text{Transfers in} - \text{Transfers out}}$$

Equation 6: Three-year Average Graduation Rate

$$\text{Three-year Average Graduation Rate} = \frac{\text{2009} + \text{2010} + \text{2011 five-year grad rates}}{(\text{2009 Original cohort} + \text{Transfers in} - \text{Transfers out}) + (\text{2010 Original cohort} + \text{Transfers in} - \text{Transfers out}) + (\text{2011 Original cohort} + \text{Transfers in} - \text{Transfers out})}$$

In 2012, the Baseline Year was 2006 or the school's first year serving grade 12, whichever was the latest. A school's annual average growth is calculated by subtracting the baseline year's rate from the current year's rate and dividing by the number of years spanned in the calculation.

Equation 7: Average Annual Growth in Graduation Rate

$$\text{Average Annual Growth} = \frac{\text{Current one-year rate} - \text{Baseline one-year rate}}{\text{Number of years in span}}$$

Calculating Additional Points for Dropout Rate

The **dropout rate** is a measure of how many students drop out of a school during a twelve-month reporting period. High schools and LEAs can earn 3 points, above and beyond the possible 100 from the AIMS percent passing by meeting one of the following three criteria.

Table 7: Criteria for Earning Dropout Rate Additional Points

Dropout Rates		Criteria to meet the Target
3-Yr Average		≤ 6%
Current Year	≤ 9%	1% Average annual decrease
	> 9%	2% Average annual decrease

Equation 8: One-year Dropout Rate

$$\text{One-year Dropout Rate} = \frac{\text{\# students who dropped out}}{\text{\# students enrolled during the school year}}$$

Equation 9: Three-year Dropout Rate

$$\text{3-year Average Dropout Rate} = \frac{\text{Total \# dropouts for 2010, 2011, and 2012}}{\text{Total \# of students enrolled in 2010, 2011, and 2012}}$$

In 2012, the Baseline Year was 2006 or the school's first year of operation, whichever was the latest. A school's annual average decrease is calculated by subtracting the baseline year's rate from the current year's rate and dividing by the number of years spanned by the calculation. A school will not be evaluated on dropout rate if it has less than 15 students in the group.

Equation 10: Average Annual Decrease in Dropout Rate

$$\text{Average Annual Decrease} = \frac{\text{Baseline one-year rate} - \text{Current one-year rate}}{\text{Number of years in span}}$$

Calculating Total Composite Points

The Composite points comprise half of the total points in a school or LEA's Letter Grade calculation. The composite points are calculated by adding the points earned for each element on the achievement side.

Table 8: Calculating Total Composite Points

	Elementary/ Middle Schools	High Schools
Percent Passing AIMS	0 - 100	0 - 100
ELL Target	0 or 3	0 or 3
Graduation Rate Target	-	0 or 3
Dropout Rate Target	-	0 or 3
TOTAL	103	109

Growth Score (100 possible points)

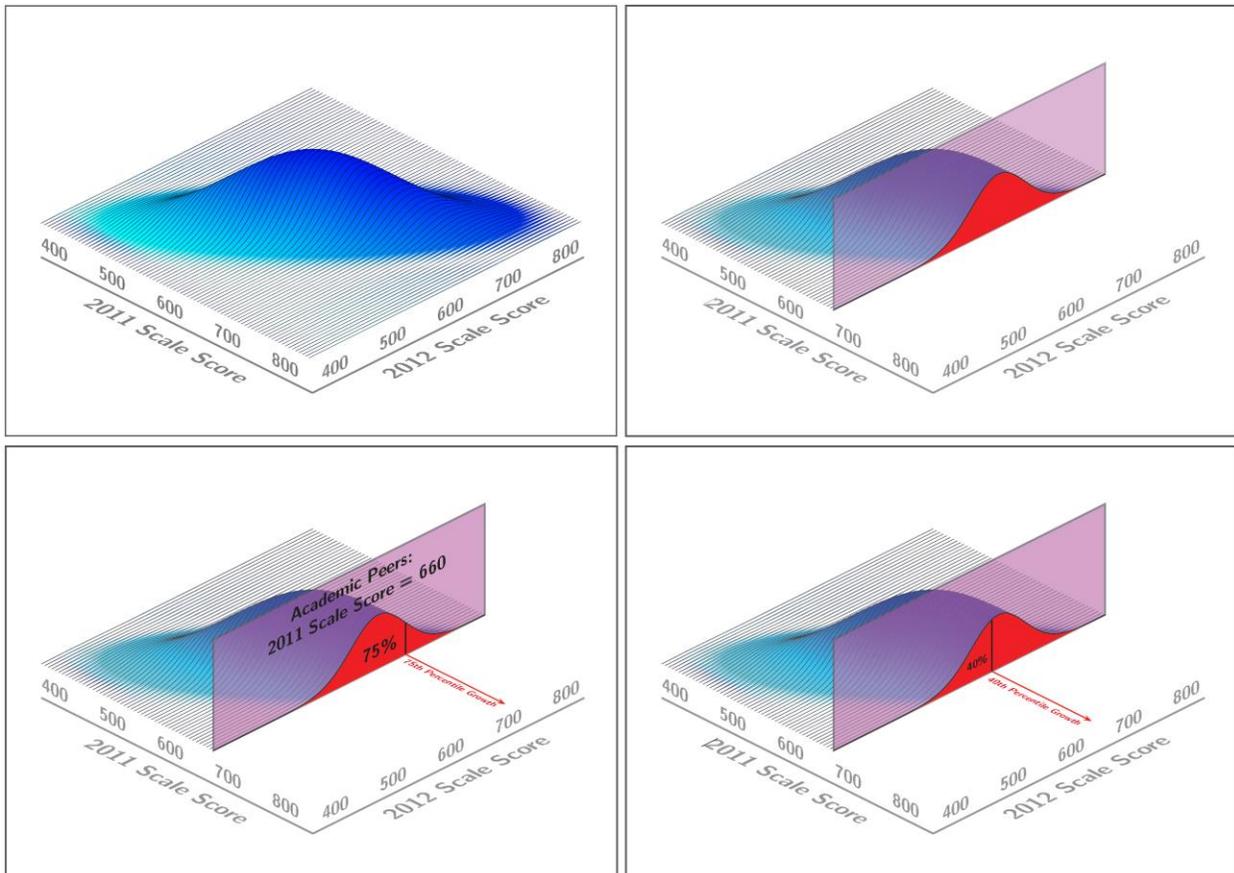
Overview

The purpose of the growth component is to acknowledge the academic growth a student has made in the past year, even if he/she has not yet reached grade-level proficiency. In June 2011, the Arizona State Board of Education approved for use in the A-F Letter Grades a student-level growth measure – **Student Growth Percentiles (SGPs)** – that describes each student's academic gains relative to their academic peers with the same achievement history. Including a student growth component into an accountability system is particularly important because it recognizes the degree to which the lowest achieving students strive to "gain ground" academically from one year to the next.

A SGP describes how a “typical” student’s current-year test score is compared with the current-year test scores of those students with the exact same prior test scores—his/her academic peers. In this sense, a SGP is a “norm-referenced quantification” (Betebenner, 2011, p.3)⁷ of student academic growth. Comparison with academic peers is accomplished by employing quantile regression that relates the prior scores of each grade by subject cohort with their current-year scores. The result is the current-year score of each individual student in the state to be put in a matrix ranging from the 1st percentile to the 99th percentile as if each student were compared with his/her academic peers. Each student is compared to his actual and conceptual academic peers. In the event a student is without actual academic peers based on their individual data, the individual student is compared to his “conceptual” academic peers only.

Figure 2 illustrates what an academic peer group is and how assessment data is used to determine a SGP where there are only test scores from two consecutive years, (e.g., the scale scores of 2011 [the prior year] and the scale scores of 2012 [the current year]).

Figure 2: Distribution associated with 2011 (prior year) and 2012 (current year) student scale scores together with the conditional distribution and associated growth percentile.



⁷Betebenner, D. W. (2011). A technical overview of the student growth percentile methodology: Student growth percentiles and percentile growth projections/Trajectories. Retrieved from http://www.nj.gov/education/njsmart/performance/SGP_Technical_Overview.pdf

The upper left figure is the density distribution between the hypothetical scale scores of these two years, the higher the distribution is, the more frequently the pair of scores appear across the state. The red slice taken out of the density distribution as shown in the upper right figure represents an academic peer group—a group of students who scored exactly the same (in this case at 660) in the prior year of 2011. The lower left figure shows, there is one student among this academic peer group who scored 710 in 2012. This student's growth from 660 in 2011 to 710 in 2012 exceeded the growth of approximately 75 percent of his/her academic peers and thus the 75th percentile is the growth percentile this student received for 2012. The lower right figure shows another student who scored 670 in 2012. This student's growth from 660 in 2011 to 670 in 2012 placed him/her at the 40th percentile among his/her academic peers who also scored 660 in 2011; therefore, this second student's growth percentile for 2012 is the 40th percentile. Generally speaking, if a student's current year score exceeded the scores of 50 percent of his/her academic peers, in a normative sense this student has done as well. If a student's current year score did not exceed the scores of 50 percent of his/her academic peers, in a normative sense this student has not done as well. For technical details on the calculation of SGPs, please see Appendix A.

Students must have at minimum 2 consecutive years of AIMS test data from two consecutive grades to be included in the SGP calculation. Up to seven consecutive years of AIMS test data from 2006 to 2012 were included in the SGP calculation.

Only the SGPs for FAY students were used for school and LEA accountability purposes. The SGPs of eligible FAY students are aggregated to the school level, or to the LEA level for accountability in the state's A-F Letter Grade system. First, the **median** growth for all students within a school is calculated, which is the center of the student growth distribution within a school. Next, the median SGP was calculated for the students whose scores on AIMS (accounting for grade level) in the previous year put them among the bottom 25% of students in their school. Using this metric, schools and LEAs are held responsible for the growth of all students and the growth of the students in the bottom 25% of the school/LEA. ADE then averages these two medians to calculate the school-wide or LEA-wide total growth score. The SGP has a range from 1-99, but all schools received one additional point allowing for their growth points to reach a total possible of 100 points to equate to the composite side of the model.

Calculating Median Growth Percentiles & Growth Points

For each school and LEA, median growth percentile was calculated for all FAY students and the FAY students at the bottom 25 percent. Because the SGP is a ranked measure (more precisely, a probability distribution), the more appropriate summative statistic is the median (i.e., the center of the SGP distribution) rather than the mean.

The steps to calculate a median growth percentile for all FAY students within a given school are as follows:

1. For each grade, a median growth percentile was calculated for all FAY students. This is done separately by subject.
2. The grade-specific median SGP for Reading and that for Mathematics were averaged as the median growth for that grade.
3. The school-wide median for Reading and that for Mathematics were averaged as the median growth of all FAY students within that school.

Table 9: An elementary school serving grades 3-8

Grade	Mathematics	Reading
3	47	37
4	31	51
5	56	67
6	61	41
7	42	38
8	48	25
Median	45	43
Median Growth – ‘All Students’	44	

Identifying the Bottom Quartile Students

Identifying the bottom quartile of FAY students is based upon achievement on AIMS reading and mathematics (separately) and on those of the Stanford 10 test from the prior year. Student growth percentiles are not used to identify the bottom quartile, but rather, once the bottom quartile of FAY students is identified, the median growth percentile for this group is calculated for a school or LEA for use in their A-F Letter Grade formula. For FAY students in grades 4-8, the first step is to calculate the difference between each student’s prior year AIMS scale score and prior year *grade level* AIMS passing cut score (cut score for *Meets*) in mathematics and reading separately.

Difference = (Prior Year Scale Score – Prior Year Grade-Level “Pass” Cut Score)

Table 10: Difference scores cut scores for reading and mathematics

Grade	Reading Cut Score	Mathematics Cut Score
4	431	347
5	450	366
6	468	381
7	478	398
8	489	411

Table 11: Reading Difference

Reading Difference				
IF Current Year Grade is:			(Minus)	Reading
4	=	Grade 3 (Student PY Scale Score)	-	431
5	=	Grade 4	-	450
6	=	Grade 5	-	468
7	=	Grade 6	-	478
8	=	Grade 7	-	489

Table 12: Mathematics Difference

Mathematics Difference				
IF Current Year Grade is:			(Minus)	Mathematics
4	=	Grade 3 (Student PY Scale Score)	-	347
5	=	Grade 4	-	366
6	=	Grade 5	-	381
7	=	Grade 6	-	398
8	=	Grade 7	-	411

Next, a mathematical transformation was used to remove negative numbers and account for the different passing scores in each grade, so that all students could be compared in a school, regardless of grade level. This transformation does not alter the essence of the data because each data point receives the same treatment and is reversible when the data need to be brought back to their original structure.

In this transformation, each student's **Difference** score is weighted by the prior year AIMS "performance level". There are four performance levels for each grade, with vertically scaled cut scores. In this analysis, a numeric value between 1 and 4 is assigned to the grade-appropriate performance level, as follows:

- 1 = Falls Far Below**
- 2 = Approaches**
- 3 = Meets**
- 4 = Exceeds**

The numeric performance level is first multiplied by 1,000, which adjusts for negative values from the *Difference* score but keeps the students in the same ordinal ranking.

$$\text{Adjusted Difference} = (\text{Difference} + [\text{AIMS performance level} \times 1,000])$$

For each school, across all grades served, students' **Adjusted Difference** scores are rank ordered from low to high by subject and separated into quartiles. The lowest quartile of students in reading and mathematics represent a school's lowest performing students – the bottom 25%. The growth percentiles of each student in this group are then used to determine the median growth score in reading and mathematics within each school.

Table 13: Student Adjusted Differences

2011 Grade	2010 Scale Score	2010 Cut Score	Difference score (2010 scale score - 2010 cut score)	2010 Performance Level (FAME 1-4)	Adjusted Difference Score (Difference + (AIMS performance level x 1,000))	Quartile
6	315	381	-66	1	934	Determined by rank order of adjusted difference scores so that the lowest quartile of students are those with the lowest adjusted difference scores within a given school

Because the Stanford 10 norm-referenced test rather than the AIMS test is administered to Arizona students in grades 2 and 9, the ADE developed adjusted criteria for identifying the bottom 25% for grade 3 and for grade 10 based on their prior year Stanford 10 scale scores. For FAY students in grade 3 and in grade 10, their prior year Stanford 10 reading and mathematics scale scores from grade 2 or from grade 9 are rank ordered from low to high by subject and separated into quartiles.

Calculating Growth Points

The determination of growth points for a school or LEA was based 50% on the SGPs of all FAY students and 50% on the SGPs of the bottom quartile FAY students; thus, the Overall Growth Score was the average of the Median SGP of 'All Students' and the Bottom 25%. The SGP has a range from 1-99, but all schools receive one additional point allowing for their growth points to reach a total possible of 100 points to equate to the composite side of the model.

Table 14: Range of Possible Points for Median Growth Percentile

	Points Possible
Median growth percentile of all students in Reading and Mathematics combined ("All Student" Rank)	1 to 99
Median growth percentile of bottom quartile of students in Reading and Mathematics combined (Bottom 25%)	1 to 99
Overall Growth Score = <u>average</u> median SGP of All Students and the Bottom 25% + 1 (1-100 points)	

Total Score- Calculating an A-F Letter Grade

The total score for a school or LEA was calculated by summing the composite score and the growth score together for a possible point total between 0 and 200 points. Additional points were then added to the sum of composite and growth points. The total points earned by a school or LEA are compared to the classification scale shown in Table 15 to determine the Letter Grade.

Table 15: Range of Possible Points used to Determine Final Letter Grades

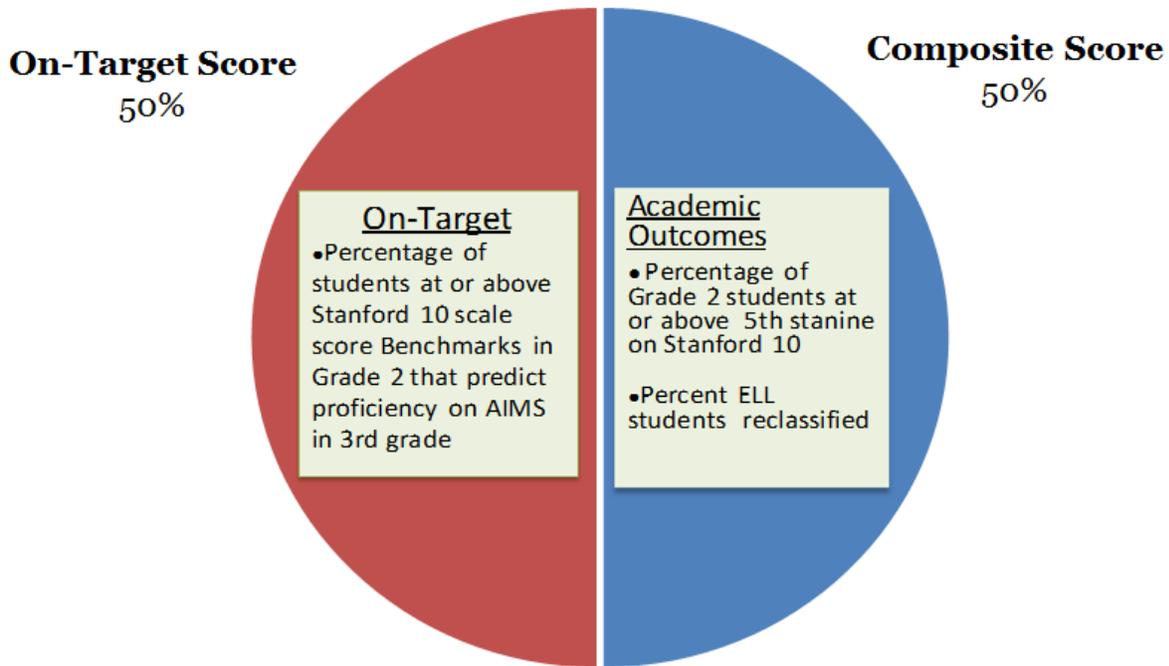
Letter Grade ⁸	Total Points
A	140 – 200
B	120 - 139
C	100 - 119
D	0 - 99

⁸ A letter grade of 'F' was assigned by a committee made up of experts from the field to a school receiving a letter grade of 'D' for 2012 and an "underperforming" rating the two previous years.

K-2 Parallel Model

The Letter Grade model for K-2 schools equally weights student achievement and growth, but uses measures different from the traditional school model since students in kindergarten through grade 1 are not tested using a statewide standardized assessment, and grade 2 students are assessed with the Stanford-10 assessment.

Figure 3: Components of the K-2 School A-F Letter Grade Profile



Growth Score + Composite Score = A-F Letter Grade

(100 points possible) + (100 + 3 points possible) = 200+ points possible

Components of the K-2 Model

On-Target Score (100 points)

In K-2 schools, students in grade 2 are the only students assessed using a standardized assessment, the Stanford 10 Norm-Referenced test. Without previous year test scores, student growth percentiles cannot be calculated for these grade 2 students. The On-Target score was included in the K-2 model as a proxy for student growth.

The On-Target Score is a measure indicating the degree to which students in Grade 2 are on-track to grade-level proficiency on AIMS Reading and Mathematics in Grade 3. To identify

the score a grade 2 student would need in order to meet proficiency on the grade 3 AIMS test, a regression model was used to predict Grade 3 AIMS scores from Grade 2 Stanford 10 scores in 2010. Only students with valid test scores in both 2010 and 2011 were included in the predictive model. The regression analysis provided an intercept and slope that was used to identify the minimum value on the grade 2 Stanford 10 that predicted an AIMS scale score identified as proficient in grade 3.

Academic Outcomes

Stanford 10 5th stanine cut-score

The composite score of the K-2 model utilizes Grade 2 Stanford 10 scores in reading and mathematics to identify students who score at or above a threshold identified as proficient. Students who score at or above the 5th stanine on the grade 2 Stanford 10 mathematics and/or reading tests are identified as proficient. The percentage of students who meet the proficient threshold within a K-2 school is identified with the formula below:

Equation 11: Percent Proficiency on Grade 2 Stanford 10

$$\text{Percent Proficient Grade 2 Stanford 10} = \frac{\text{\# FAY students at or above 5th Stanine on Stanford 10 Reading and/or Mathematics Test}}{\text{\# FAY students completing Stanford 10 Reading and/or Mathematics Test}}$$

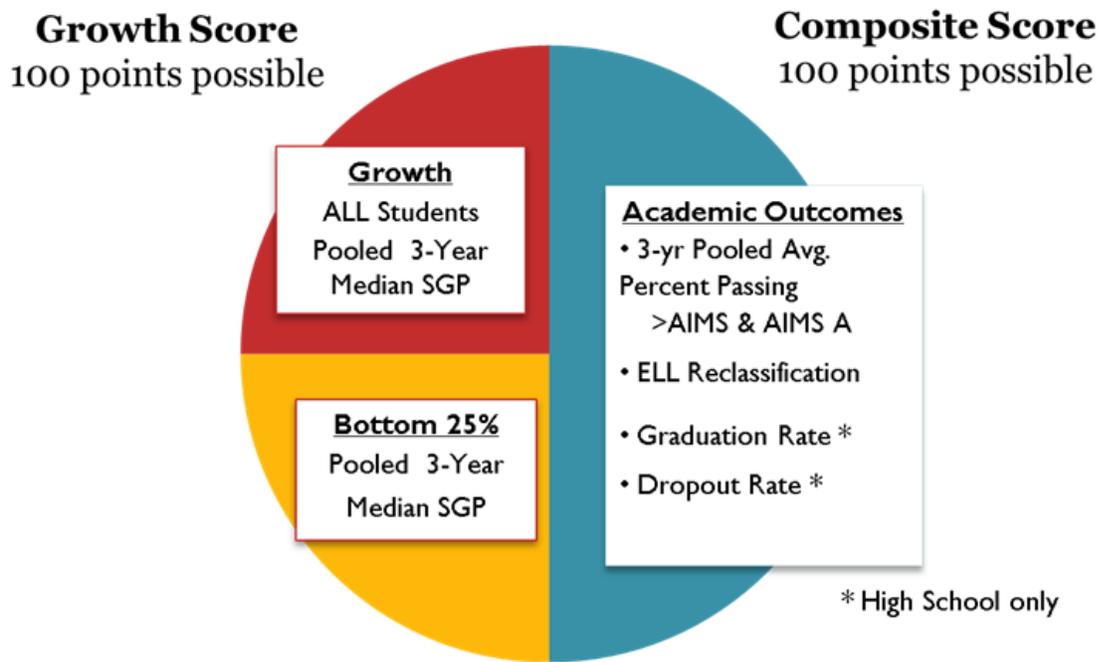
ELL Points

ELL additional points are calculated for K-2 schools in a manner identical to the other school accountability models. Please refer to Chapter 3 section I.i. for a technical description of calculating ELL additional points.

Small School Model

Holding schools with small student populations accountable for their academic performance requires methods able to assure accurate statistical measures. To account for the unique characteristics of small school populations, the A-F Letter Grade model for small schools identifies those schools defined as small (i.e., less than 100 student enrollment). A combination of years (3 or 5 pooled years) of academic achievement of students over multiple years was used to develop student counts that can be reliably used in summary statistics, such as, percentages and averages.

Figure 4: Components of the Small School A-F Letter Grade Model



Growth Score + Composite Score = A-F Letter Grade
(100 points possible) + (100 + 3 + 3* +3* points possible) = 200+ points possible

Definition of a Small School

A Small School is defined as any school with 100 or fewer students enrolled in the first day of the AIMS testing window in the current school year. Alternative schools with fewer than 100 students based on this definition were held accountable to the Alternative School A-F Letter Grade model but incorporated a 3-year pooled percent passing in addition to the 3-year pooled SGP that is used for all alternative schools.

Arizona's small schools can earn up to 200 points, composed of growth and composite points. Small schools can earn up to 9 additional points based on ELL reclassification rate, graduation

rate, and dropout rate (if serving grade 12). The metrics used to calculate median growth for all students, median SGP for the bottom 25%, percent passing AIMS & AIMS A, as well as the additional point components, are similar to those used for traditional schools. The key difference between the calculations for the traditional and small schools model is the use of pooled data.

Components of the Small School A-F Letter Grade Model

Pooled Data used in the Small School Model

The small number of students in a school presents problems for calculating reliable statistics, where a decreasing number of students in a school places greater weight on any given student in the school, meaning in the extreme case, a single student could skew the percentages, averages, and medians used to give a school their letter grade. Schools with less than 100 students enrolled on the first day of the Spring AIMS testing window were identified as small schools and had 3 years of pooled data used to calculate their growth and composite scores. The pooled data for extremely small schools, meaning those with less than 30 student test records (across reading and mathematics) in the current year, included 5-years of data. Schools not meeting the minimum n-count of 30 observations or more using the 5-year pooled data were not rated and given a public letter grade of 'NR'. For each school, only the student records that were collected within that school were used in pooling, meaning schools were only held accountable for the performance of their students and not previous year test records that were collected at another school.

After data was pooled, the overall values for a small school's composite and growth score were calculated using the same methods as was used for the traditional school model. A small school's percent passing represents the number of FAY students who passed the AIMS & AIMS A tests over the years pooled divided by the number of FAY students who completed the AIMS & AIMS A tests over the years pooled. The growth score for small schools is the average of the pooled median SGP for all students and the pooled median SGP for students identified in the bottom 25% in their school.

Pooling Data for Percent Passing

To create the pooled percent passing data used in the small school model, all students enrolled in a given school over the past 5 years were brought together. If the school had 30 or more student observation in the current year, their set of data was limited to only the current year and previous two years. Next, only students identified as FAY were retained in the multiple year dataset. Finally, the indicators of whether a student did or did not pass the AIMS & AIMS A tests test were averaged across subjects and years. This pooling method would include observations from students who were FAY and had valid test records in previous years, but were not necessarily FAY students in the current year.

scores (for a technical description of methods used to identify the bottom 25%, please see page 24). If a student was in the bottom 25% in the current year and was also identified in the bottom 25% in the same school any previous year, their SGP was brought into the pooled data.

Once data was pooled, the bottom 25% median SGP of the pooled data was identified separately by subject. The bottom 25% median SGP for each subject was then averaged to create the pooled median SGP for students identified in the bottom 25%.

Additional points

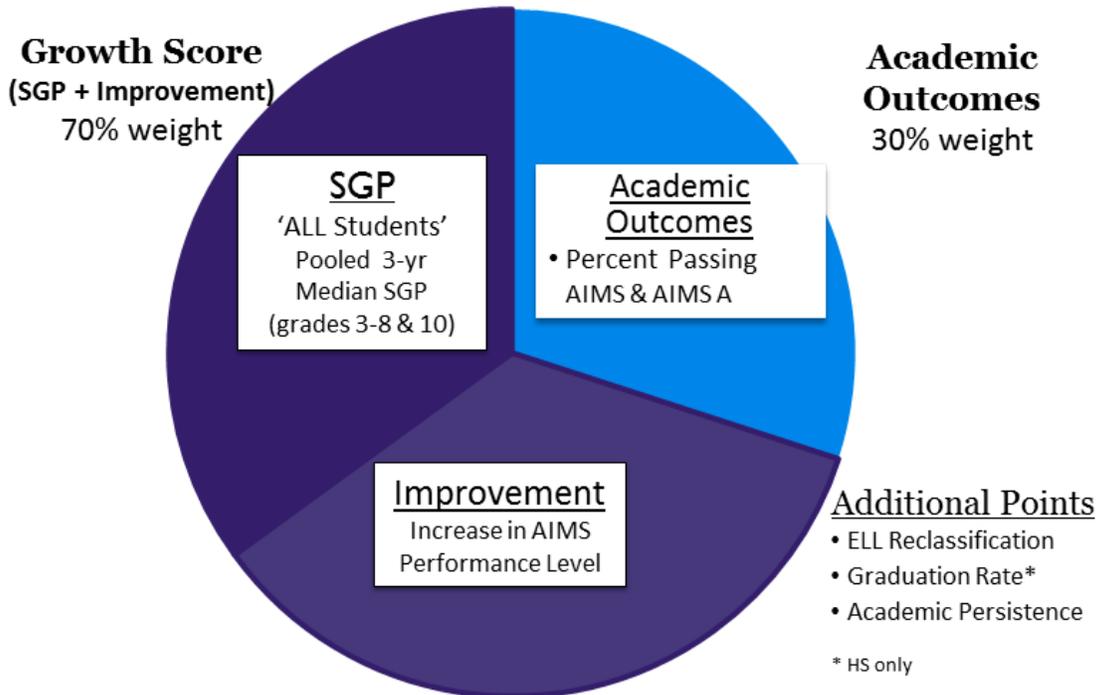
Like the traditional model, small schools are eligible for additional points through ELL reclassification as well as dropout and graduation rate points for high schools (See Traditional Model, section ii).

Alternative School Model

The formula used to calculate the A-F Letter Grade for alternative schools was based on a point system that weights academic growth at a greater value than academic outcomes. The final score of 200 points possible was weighted with 70% for growth plus improvement on AIMS and 30% for the composite score. This was comprised of a summary of a 3-year pooled student growth percentile and a measure of improvement on AIMS performance across test administrations for a growth measure and percent passing AIMS for academic outcomes. Additional points were added for academic persistence, ELL reclassification, and graduation rate. A letter grade was then assigned to each alternative school based on the number of points earned.

Figure 5: Components of the Traditional School A-F Letter Grade Profile

2012 A-F Letter Grades - Alternative Schools



Growth Score + Composite Score = A-F Letter Grade
(140 points possible) + (60 + 3 + 3 + 3* points possible) = 200+ points possible

Definition of an Alternative School

The following is the definition of an alternative school as approved by the Arizona State Board of Education in 2002:

A school operated by a school district must have adopted a mission statement that clearly identifies its purpose and intent to serve a specific student population (please see criterion three) that will benefit from an alternative school setting. A charter school must be expressly chartered to serve a specific student population that will benefit from an alternative school setting. The educational program and related student services of the school must match the mission or charter of the school.

The school must intend to serve students exclusively in one or more of the following categories:

1. Students with behavioral issues (documented history of disruptive behavior)
2. Students identified as dropouts
3. Students in poor academic standing who are either severely behind on academic credits (more than one year) or have demonstrated a pattern of failing grades
4. Pregnant and/or parenting students
5. Adjudicated youth
6. Any school offering secondary instruction for academic credit used to fulfill Arizona State Board of Education graduation requirements (in part or in full) must offer a diploma of high school graduation.

Alternative school status is granted by application to the ADE. ARS §15-241 makes an allowance for a "parallel" evaluation method for alternative schools. In 2012, there were 164 alternative schools. The alternative schools list for 2012 can be found [here](#).

Components of the Alternative School A-F Letter Grade Model

Alternative School Academic Outcomes

The academic outcomes included in the alternative school A-F Letter Grade model are the percent of students passing the AIMS and AIMS A tests, meaning reaching the "Meets" or "Exceeds" performance level, on the AIMS and AIMS A tests in mathematics and reading. When calculating percent passing for an alternative school, the number of students who completed the AIMS and AIMS A reading and mathematics tests are used as the denominator and the number of students passing the AIMS and AIMS A reading and mathematics tests are used as the numerator.

For alternative schools with a combined number of AIMS and AIMS A test records less than 30, a 3-year pooled average was created to increase the number of students being included in the percent pass calculation. For schools that meet the small alternative school criteria, students

who were enrolled in the given school and were FAY students in 2012, 2011, and 2010 were combined to create a single percent passing calculation.

Alternative School Growth

Recognizing the importance of increasing the academic performance of alternative school students, growth comprises 70% of the total possible points in the alternative model. The 140 possible growth points in the alternative school model are based equally on the sum of a school's 3-year pooled median growth percentile and the school's percent improvement, meaning the percent of students in a school who increased at least one AIMS performance level across two consecutive test administrations. The summation of these measures is capped at 100 possible points, and then weighted to account for 70% of the 200 points possible in the alternative school model.

Pooled 3-Year SGP

In the alternative school model, the student growth percentile (SGP) was a pooled 3-year measure for all schools. To be included in the pooled measure, the SGP must have been associated to a student who was a FAY student in the current year. If a student was FAY in the current year and had SGP measures in the previous two years, regardless of whether the student was FAY in 2011 or 2010, those SGP values were included in the pooled measure. Only those SGP values that were associated with the current year school were included in the pooled measure, meaning a student who had an SGP calculated in the current and previous year but was enrolled in different schools in the current and previous year would only have the current year SGP included in the pooled data.

For each subject, the median SGP of all students who met the above inclusion criteria was calculated. The median for reading and mathematics were calculated separately and then averaged to create the "All Students" pooled 3-year median SGP.

Improvement Points

The alternative school improvement measure represents the percentage of students who increased in an AIMS performance level from one test administration to another. The AIMS performance level classifies AIMS scale scores as "Exceeds Standard", "Meets Standard", "Approaches Standard", and "Falls Far below Standard". To be eligible to be included in the calculation, a student must have had valid test records in the two most recent test administrations on the same subject. For high school students, this would have been from Spring 2011 to Fall 2012 or from Fall 2011 (school year 2012) to Spring 2012. For elementary and middle school students, consecutive test administrations would be from Spring 2011 to Spring 2012.

For each alternative school student with consecutive test administrations, it was determined if the performance level of the later test was greater than the performance level of the initial test. If this was the case then the school in which that student last tested was given a point identifying the student's improvement.

The process of identifying improvement points and aggregating to the school was done separately by subject. When calculating the subject specific percent improvement for each school, the denominator of the equation was calculated as the number of students eligible for improvement across the three possible consecutive test administrations, and the numerator was the summation of eligible students who actually improved across the three possible consecutive test administrations. The percent of eligible students improving in each subject was calculated by subject and then these percentages were averaged to create the school's overall percent improvement.

Equation 14: Alternative School Improvement Points

$$\text{Improvement Points} = 100 \left(\frac{\text{\# Students showing improvement}}{\text{\# Students eligible for improvement}} \right)$$

Additional Points

Alternative schools could earn up to 9 additional points that were added to the weighted sum of growth and academic outcomes. While ELL points and graduation rate are similarly offered to non-alternative schools, schools serving an alternative population (regardless of grade level) are also eligible for persistence points. Each source of additional points was worth three possible points

ELL Reclassification

ELL reclassification additional points were calculated using the same formula that was used for traditional schools (please see page 18).

Graduation Rate

The threshold used to identify whether an alternative school should receive additional points is calculated using the distribution of graduation rate from all alternative schools. Taking the average and standard deviation of alternative school graduation rate, the threshold of 48% was identified as being one half standard deviations above the alternative schools' statewide average graduation rate. For 2012, the baseline year used to calculate the 5-year graduation rate was either 2006 or the school's first year serving grade 12, whichever was latest.

Alternative high schools can earn the graduation rate additional points one of three ways. To earn graduation rate additional points, an alternative high school must have a 5-year graduation rate averaged across 3 years greater than or equal to 48%, have a current year 5-year graduation rate of 52% or greater and show at least a 1% increase in their graduation rate from previous to current year, or have a current 5-year graduation rate less than 52% and show at least a 2% increase in graduation rate from previous to current year.

Table 16: Criteria for Alternative School Graduation Rate Additional Points

Graduation Rates	In order to meet the Target	Points Earned
3-Year Average for 5-Yr Grad Rate	>= 48%	0 or 3
Current Year 5-Yr Grad Rate >= 52%	1% Increase	0 or 3
Current Year 5-Yr Grad Rate < 52%	2% Increase	0 or 3

Academic Persistence

Academic persistence points are included in the alternative school model to reward schools for keeping their students enrolled in school. An academically persistent student is one who was enrolled in an alternative school in school year 2011 and who returns to any public school the following school year. This measure includes retained students and excludes students who were grade 12 completers or graduates in the former school year.

To identify whether an alternative school student was academically persistent, enrollment records for school years 2011 and 2012 were drawn together for each student. The school where the student was identified in 2011 was held responsible for the student's re-enrollment. Students with missing enrollment records in 2012 and were considered as graduated or completed in 2011 were not eligible to receive persistence points, as these students were not eligible to re-enroll. If a student was enrolled in a school in 2011 and was re-enrolled in any school in Arizona in 2012, the student was identified as persistent. To calculate an alternative school's persistence points, students identified as re-enrolling in 2012 were used as the numerator and the total number of students identified as eligible to re-enroll in school year 2012 was used as the denominator. Schools can receive the three additional persistence points if their persistence rate is greater than or equal to 70%. Schools with any persistence rate less than 70% cannot receive persistence points.

Equation 15: Alternative School Persistence Points

$$\text{Persistence Rate} = 100 \left(\frac{\text{\# Students re-enrolled}}{\text{\# Students eligible for re-enrollment}} \right)$$

Weighting

To account for the distinct needs of students attending alternative schools, the growth portion of the alternative school model is weighted to account for 70% of the total points possible in the model. To calculate the weighted growth and academic points for alternative schools, the 100 possible raw points for growth were multiplied by .7, then this product was doubled to put the points on a 200 point scale. Similarly, the 100 possible raw points on the academic outcomes portion of the model was multiplied by a factor of .3, which was then doubled. After weighting, the growth portion of the model was worth 140 possible points and the academic outcomes portion of the model was worth 60 possible points. The additional points were added to the sum

of the weighted growth points and weighted academic outcome points to create overall total points possible.

Equation 16: Alternative School Calculation of Weighted Total Points

Total Points = 2 (Raw Growth Points x .70) + 2(Raw Academic Outcomes Points x.60) + Additional Points

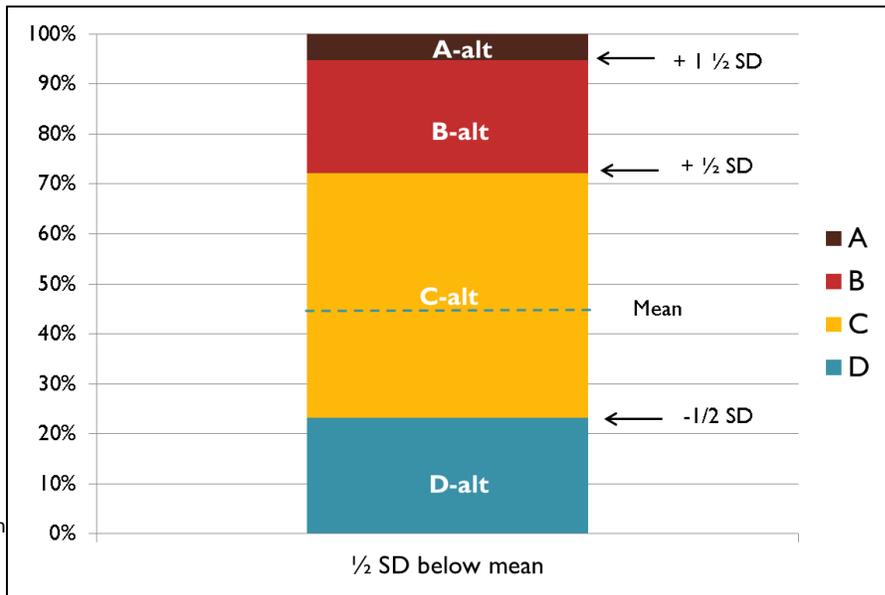
Distribution Based Letter Grade Scale

To create a letter grade scale that accounted for the unique measures included in the alternative school model, the distribution of total points for all alternative schools with non-missing growth and academic outcome values was used to identify letter grade thresholds. The use of the total point distribution to identify letter grade thresholds allowed the alternative school A-F Letter Grade scale to be relative only to other alternative schools. To acknowledge that the alternative school letter grades were unique to alternative schools and were not comparable to traditional and small school letter grades, alternative school letter grades are identified as "A-ALT", "B-ALT", "C-ALT", and "D-ALT".

To identify the thresholds for the alternative school A-F Letter Grades, the total points earned by each school with non-missing growth and academic outcome point values was averaged across schools, and this average anchored the middle of the C-ALT letter grade range. The standard deviation of total points earned by each school with non-missing growth and academic outcome points was used to set the thresholds around the average.

Using the average of total points for all alternative schools as the middle point of the C-ALT letter grade, the standard deviation of total points was used to identify the letter grade thresholds. Schools receiving a "C-ALT" letter grade had a total point value falling between ½ standard deviation above and below the mean. "D-ALT" schools had a total point value greater than ½ standard deviation below the mean. "B-ALT" schools had a total point value between ½ standard deviation and 1½ standard deviations above the mean and "A-ALT" schools had a total point value 1½ standard deviations above the mean or greater.

Figure 6: Alternative School Distribution Based Letter Grade Scale



A-F Letter Grade Appeals Process

The Appeals Application on the Common Logon was meant only for substantive appeals for preliminary A-F Letter Grades or preliminary Annual Measureable Achievement Objectives (AMAOs). Substantive reasons for an appeal involved those circumstances outside of an entity's control that adversely affected student performance on AIMS and AZELLA. Entities were not permitted to appeal the A-F Letter Grade formulae. The appeals must have clearly indicated whether it is related to the A-F Letter Grade or the AMAO. Substantive appeals submitted via email were not accepted and were not to be included in the appeals process.

Statistical appeals *are no longer accepted via the Appeals Application*. Instead, the ADE provides a *Data Corrections Window* (please refer to the dates provided below) for SAIS corrections to AZELLA, all ELL-related data and for AIMS SAIS ID corrections. All data corrections must have been completed via SAIS file upload, SAIS Online, or the SAIS ID corrections application, and did not require notification sent to ADE. The deadline for data corrections was 5:00 p.m. MST, June 30, 2012.

Appendix A: Technical Information on Student Growth Percentiles

Student Growth Percentile Estimation

See Betebenner, 2011.

Data Used in Growth Percentile Calculation

To have their SGPs calculated, students must have a minimum of two scale scores from consecutive years and occurring in consecutive grades (e.g., grade 4 in 2011 and grade 5 in 2012). Only scale scores from consecutive grades and consecutive years are used to estimate the SGP for a student. Students repeating or skipping grades associated with the latest score (i.e., the dependent variable) are not included in the analyses at this time. SGPs are not reported for students in grade 9 and are, therefore, excluded from the calculations of the growth scores of their schools.

- Using data from as early as 2006, AIMS Mathematics and Reading scale scores and Grade 2 Stanford 10 Mathematics and Reading scale scores were used to calculate the SGPs for students in grades 4-8 from the years 2008 through 2012.
- SGPs for students in grade 3 were calculated using Grade 2 Stanford 10 Mathematics and Reading scale scores.
- SGPs for Grade 10 students were calculated using Grade 9 Stanford 10 Mathematics and Reading scale scores and their AIMS scores from as late as 2006.
- Students are allowed to re-take the grade 10 AIMS test in grades 11 and 12, but test scores from these grades are not included in the calculation of student growth percentiles.

The SGP calculation is able to accommodate the different scaling of the AIMS and Stanford 10 assessments. With the necessity of having at least two consecutive years of test scores to be included in the SGP calculation, grade 3 is the first grade in which students receive a growth percentile. Though the estimation of growth percentiles for grade 10 students is conditioned on grade 9 Stanford 10 scores, SGP was not calculated for grade 9 students.

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Betebenner, D. W. (2008). Toward a normative understanding of student growth. In K. E. Ryan & L. A. Shepard (Eds.), *The future of test-based educational accountability* (pp. 155-170). New York: Taylor & Francis.

Betebenner, D. W. (2011). A technical overview of the student growth percentile methodology: Student growth percentiles and percentile growth projections/Trajectories. Retrieved from http://www.nj.gov/education/njsmart/performance/SGP_Technical_Overview.pdf