Alignment

Provide evidence of alignment to the current Standards of Learning including a comparative chart of content standards developed by your company to VA content standards for each content area/grade level that your proposed assessment(s) addresses and numbers of items for each standard. If you are planning to develop assessments in response to the contract being awarded, provide the content standards that you will include in your assessment(s) and the number of items you will develop for each standard with a timeline.

Through a research project called "Common Standards on a Common Scale," Renaissance Learning's standards experts placed the education standards of all 50 states, as well as the Common Core State Standards (CCSS), on a common scale—the STAR scale. As a result of this research, Renaissance Learning™, Inc., is able to convey the difficulty level of the Virginia Standards of Learning as well as the CCSS standards on the STAR State Standards Report. Further, because the State Standards Report is available for both the Virginia SOL standards and the CCSS standards, Virginia educators can use these reports to gauge where the Virginia SOL standards are different from the CCSS standards—explicitly and specifically for their students. STAR's State Standards Report not only illustrates an individual student's proficiency in relation to each set of standards, it also indicates the difficulty level of the standards themselves.

The STAR Early Literacy Enterprise™ assessment utilizes a skills list that specifies the set of skills for the assessment and a grade level for each skill. The skills and the grade placement for them are research-based and align to the Core Progress™ Reading and Math learning progressions, the empirically validated continuums developed by Renaissance Learning. The comparative chart shown in table 1 summarizes the number of STAR Early Literacy Enterprise items for reading and mathematics for each specific Virginia SOL. The subsequent charts (tables 2–8) display the assessed skills at each grade level in reading and mathematics and the number of items for each skill for each specific Virginia SOL. For more information on the skills assessed by the STAR Early Literacy Enterprise assessment, please see the STAR Early Literacy Enterprise alignment report provided with our original submission.

Table 1—Summary of STAR Early Literacy Enterprise Assessed Skills and Item Counts

	Virginia, English, 2010, Standards of Learning				
Content Area, Reading, by grade	K	1	2	3	Total
Pre-K	27				27
K	491	311			802
1	55	1083		283	1421
2		14	116	131	261
3			30	30	60
Total	573	1408	146	444	2571
	Virginia, Math, 2009, Standards of Learning				
Content Area, Math, by grade	K	1	2	--	Total
Early Numeracy	68	27	8	--	168
Total	68	27	8	--	168

Table 2—STAR Early Literacy Enterprise: Kindergarten Reading Skills and Item Counts

	Virginia, English, 2010, Kindergarten, Standards of Learning									
Content Area, by standard/ grade	VA K.4.b	VA K.4.c	VA K.4.d	VA K.4.e	VA K.6.b	VA K.6.d	VA K.7.4	VA K.7.b	VA K.7.d	Total
1			4						51	55
R_5384			4							4
R_5399									51	51
K	47	50	19	132	39	29	73	64	38	491
R_5361							52			52
R_5362							21			21
R_5364								36		36
R_5368					39					39
R_5370	47									47
R_5371		15								15
R_5372		35								35
R_5373			19							19
R_5374				132						132
R_5375									10	10
R_5380								28	28	56
R_5382						29				29
K	27									27
R_5425	27									27
Total	74	50	23	132	39	29	73	64	89	573

Table 3—STAR Early Literacy Enterprise: Kindergarten Math Skills and Item Counts

	Virginia, Math, 2009, Kindergarten, Standards of Learning					
Content Area, by standard/ grade	VA K.1	VA K.16	VA K.3	VA K.4.a	VA K.6	Total
Early Numeracy	4	20	8	27	9	68
M_4905	4					4
M_4913		20				20
M_4935					5	5
M_4943					4	4
M_5427				27		27
M_5429			8			8
Total	4	20	8	27	9	68

Table 4—STAR Early Literacy Enterprise: Grade 1 Reading Skills and Item Counts

	Virginia, English, 2010, Grade 1, Standards of Learning																					
Content Area, by standard/ grade	VA 1.10.f	VA 1.11.a	VA 1.4.a	VA 1.4.b	VA 1.4.c	VA 1.4.d	VA 1.4.e	VA 1.5.b	VA 1.5.c	VA 1.6.a	VA 1.6.b	VA 1.6.c	VA 1.6.d	VA 1.6.e	VA 1.6.f	VA 1.6.g	VA 1.6.h	VA 1.7.a	VA 1.7.c	VA 1.8.b	VA 1.9.e	Total
1	43		92	9		13	97			47	51	76	51	70	23	81		129	129	129	43	1083
R_4330	43																				43	86
R_4771																		129	129	129		387
R_5384						4																4
R_5386				9		9								9								27
R_5387							97															97
R_5388													10									10
R_5389										17					17							34
R_5390													9									9
R_5392										14												14
R_5393										16												16
R_5397															4							4
R_5398															2							2
R_5399											51											51
R_5400												76										76
R_5401														61								61
R_5403													32									32
R_5404			92																			92
R_5408																81						81
2											14											14
R_5412											14											14
K		49			15		27	20	39					132			29					311
R_5363		49																				49
R_5367								20														20
R_5368									39													39
R_5371					15																	15
R_5374														132								132
R_5377							27															27
R_5382																	29					29
Total	43	49	92	9	15	13	124	20	39	47	65	76	51	202	23	81	29	129	129	129	43	1408

Table 5—STAR Early Literacy Enterprise: Grade 1 Math Skills and Item Counts

	Virginia, Math, 2009, Grade 1, Standards of Learning	
Content Area, by standard/ grade	VA 1.1.a	Total
Early Numeracy	27	27
M_5427	27	27
Total	27	27

Table 6—STAR Early Literacy Enterprise: Grade 2 Reading Skills and Item Counts

	Virginia, English, 2010, Grade 2, Standards of Learning													
Content Area, by standard/ grade	VA 2.4.a	VA 2.4.b	VA 2.4.c	VA 2.4.d	VA 2.4.e	VA 2.5.a	VA 2.5.b	VA 2.5.c	VA 2.7.b	VA 2.7.c	VA 2.8.c	VA 2.8.d	VA 2.9.f	Total
1	13	4	13	97		76	37				43			283
R_4330											43			43
R_5384	4	4	4											12
R_5386	9		9											18
R_5387				97										97
R_5394							13							13
R_5395							24							24
R_5400						76								76
2						16	32		6	29				131
R_4127									6					6
R_4151										15				15
R_4206												24	24	48
R_5411							16							16
R_5412						14								14
R_5413						2								2
R_5416							13							13
R_5417							3							3
R_5418										14				14
3					15			15						30
R_5420					15			15						30
Total	13	4	13	97	15	92	69	15	6	29	43	24	24	444

Table 7—STAR Early Literacy Enterprise: Grade 2 Math Skills and Item Counts

	Virginia, Math, 2009, Grade 2, Standards of Learning	
Content Area, by standard/ grade	VA 2.2.a	Total
Early Numeracy	8	8
M_5429	8	8
Total	8	8

Table 8—STAR Early Literacy Enterprise: Grade 3 Reading Skills and Item Counts

	Virginia, English, 2010, Grade 3, Standards of Learning						
Content Area, by standard/ grade	VA 3.3.a	VA 3.3.b	VA 3.4.b	VA 3.4.c	VA 3.5.j	VA 3.6.h	Total
2	33		14	21	24	24	116
R_4128				21			21
R_4206					24	24	48
R_5411	16						16
R_5414	14						14
R_5417	3						3
R_5418			14				14
3		15		15			30
R_5420		15		15			30
Total	33	15	14	36	24	24	146

Student Growth

Provide the rationale for the measure of student growth methodology included in Requirement 3.2. Also provide the procedures used to validate the measures of growth including statistical processes.

When it comes to measuring student growth over time and conveying the results to educators in ways that are actionable and instructionally relevant, STAR Enterprise™ assessments lead the way. The STAR Early Literacy Enterprise assessment offers multiple growth measures that are both reliable and valid and that help educators answer a number of instructional and accountability questions. STAR offers multiple approaches to characterizing student growth because there is no single approach that sufficiently meets all needs. STAR offers three ways to measure student growth: **student growth percentiles, weekly growth rates,** and **pre- to posttest change in scores**. Below, we describe the rationale for each of these growth measures, as well as the procedures used to validate them.

Student Growth Percentile

Rationale

Student growth percentile (SGP) is a widely accepted growth measure that is being implemented by 19 states (including Virginia) for instructional and/or accountability purposes. SGPs provide an intuitive measure of student growth; the normative description of student growth from one assessment to the next is easily interpreted by a broad array of stakeholders.

SGP is a norm-referenced growth score that compares a student's growth to that of his or her academic peers nationwide. It is calculated using quantile regression techniques (Koenker, 2005) to measure student growth from one STAR assessment to the next. Quantile regression characterizes the bivariate distribution of students' initial scores and ending scores. Students are grouped by grade and subject, and then quantile regression is used to associate every possible initial score and ending score combination with a percentile corresponding to the conditional distribution of end score given the initial score. Loosely translated, the quantile regression approach can be viewed as a type of smoothing in which information from neighboring score values (initial and ending) can be used to inform percentiles for hypothetical score combinations not yet observed. Dr. Damian Betebenner (2009), a leading expert in this field, has full details of the quantile regression methods employed when computing SGPs.

Because a student's growth is compared to his or her peers, SGPs can help educators determine whether a student's growth is more or less than can be expected. For example, a teacher would not know whether a scaled score increase of 100 represented average, above-average, or below-average growth. This is because students of differing achievement levels in different grades grow at different rates. For example, a high-achieving second-grader grows at a different rate than a low-achieving second-grader. Similarly, a high-achieving second-grader grows at a different rate than a high-achieving eighth-grader.

The use of SGPs allows students scoring at every point along the STAR score scale to be evaluated fairly—growth among students beginning the school year with very low scores is compared only against students with similarly low starting scores, and is not evaluated relative to growth among very high-scoring students.

Individual students' SGPs can be aggregated to the class, grade, school, or district level, allowing for summarization of student growth across groups. Because SGPs function like percentiles, the median SGP should be used when reporting growth for a group of students. Regardless of whether SGPs are aggregated to the class, grade, school, or district level, interpretation remains consistent. For example, if a class has a median SGP of 60, then most students in the class showed more academic growth than their peers.

Validation Procedures

In addition to being well published by Dr. Betebenner and colleagues and vetted by several state departments of education, the student growth percentile approach has recently been included in an extensive evaluation of growth models commissioned by the Council of Chief State School Officers (CCSSO). Conducted by Goldschmidt, Choi, and Beaudoin (2012), the study utilized data from four state-level assessments and a number of popular growth models, including gain models (both simple gain and fixed effects), a measurement model (random effects), a covariate adjustment model (fixed and random effects), a layered model (mixed effects), a growth standard model, and student growth percentiles. Goldschmidt et al. concluded that differences in the models do not create drastically different inferences about student growth; there is a reasonable amount of consistency across school classification using the different models. Models such as SGP that include information about students' prior performance were shown to be superior in attributing student growth to schools. Additionally, the results suggest that the SGP approach was considerably more stable than many other models.

SGP was initially developed for use in state summative assessments (Betebenner, 2010). The STAR assessments are believed to be the first non-state assessments and the first interim tests to incorporate SGP. In applying the SGP approach to STAR data, Renaissance Learning has worked closely with the lead developer of SGP, Dr. Damian Betebenner, of the Center for Assessment, as well as technical advisor Dr. Daniel Bolt, an expert in quantitative methods and educational measurement from the University of Wisconsin–Madison.

Applying the SGP approach to interim assessment data involved a number of technical challenges, primarily the differences regarding how STAR and state tests are administered. State summative tests are typically administered once a year, at approximately the same time, to all students. On the other hand, STAR is much more flexible, and may be administered to students as often as weekly. Decisions on when to administer and which students will participate are left to local educators. Most commonly, schools use STAR as a screening and benchmarking test for all or nearly all students two to four times per year. Students requiring more frequent progress monitoring may take STAR on a more frequent basis to inform instructional decisions, such as whether the student is responding adequately to an intervention.

Because of this flexibility, all students do not necessarily take STAR tests at the same time; the number and dates of administration vary from one student to the next. However, the majority of students test within at least two of the following time periods: fall (August 1–September 30 or September 1–October 31), winter (December 1–January 31 or January 1–February 28), and/or spring (April 1–May 31 or May 1–June 30). These date ranges were used when defining the data sets that would be used to determine student growth percentiles. Therefore, we can provide student growth percentiles for achievement that takes place between fall and winter STAR testing, winter and spring STAR testing, and/or fall and spring STAR testing, as defined above.

To calculate student growth percentiles, Renaissance Learning collected student data from the five most recent school years (2007–08, 2008–09, 2009–10, 2010–11, and 2011–12). The sample size was approximately 700,000 students for STAR Early Literacy™.

Every year, as SGPs are refreshed with current data, Renaissance Learning takes further steps to ensure they are valid. For instance, an investigation of growth at the tails (students with very high or low pretest scores and very high or low rates of growth) led to a decision, supported by our expert advisers Drs. Betebenner and Bolt, to not report SGPs for certain scores. Specifically, in spite of the very large sample, students with extremely high or low scores at pretest lacked a sufficient reference group of academic peers, and their patterns of growth appeared unusual in comparison to other students. Suspecting that many of these extreme low/high test scores may not be valid, we decided to establish cut points near the very bottom and top of the STAR scale, outside of which SGPs would not be reported. The cut scores impact less than one percent of all students but give us confidence that overall, the STAR SGP score is a valid representation of growth.

Weekly Growth Rates

Rationale

A key tenet of evidence-based practices such as Response to Intervention (RTI) is the setting of appropriate goals for each student. STAR Early Literacy Enterprise gives educators access to a research-based method for setting goals that are appropriate, achievable, and based on a large national database of student growth.

Weekly growth norms were first developed for STAR in 2008 to allow for making norm-referenced comparisons of student absolute growth. Most tests only provide norm-referenced information with respect to a student's performance at a particular point in time, which is similar to the STAR assessment's percentile rank (PR) and grade equivalent (GE) scores that are reported with each STAR test. But STAR goes a step beyond: weekly growth norms provide a method of comparing a student's observed growth over a period of time to growth made by students of a similar grade and starting achievement level.

While student growth percentile scores can be used for goal setting and longer-term progress monitoring, in many cases educators following RTI principles will need to set goals and make instructional decisions in time spans that are shorter than the fall, winter, and spring windows for SGP. For instance, a teacher may want to know after just six weeks whether a student is profiting from an intervention. In that short amount of time, an SGP score could not be generated. But STAR weekly growth norms can be used in that timeframe to set goals, monitor progress, and inform instructional next steps.

Educators can set and manage goals via an interface called the STAR Goal-Setting Wizard. The Goal-Setting Wizard uses weekly growth norms to offer short-cycle goal-setting and progress-monitoring recommendations called "moderate" and "ambitious" goals. A moderate goal displays the growth rate achieved by 50 percent of students with a similar starting score as the student for whom the educator is setting the goal. An ambitious goal is based on a rate of growth that only 25 percent of students in the same performance decile are likely to achieve. With the Goal-Setting Wizard, professional judgment can be informed by research, eliminating the need to guess how much growth constitutes good growth.

Once goals are set, and after a student has taken an initial STAR assessment, a goal line appears on the STAR Student Progress Monitoring Report. The goal line depicts the rate of growth the student must attain to meet the selected goal. Following subsequent STAR tests, a trend line showing the student's actual growth rate is automatically drawn on the report. By comparing the goal and trend lines, educators can determine whether a student's growth trajectory is steep enough for the student to reach his or her goal. Educators can then use this information to make the best instructional decisions for individual students.

The breadth and depth of our database allows us to identify the growth norms of nearly any student. Educators who use the STAR assessments have this valuable information at their fingertips, enabling them to gain a more precise understanding of how their students grow and set appropriate goals to help students reach their full potential.

Validation Procedures

Growth norms in the STAR assessments were developed for each grade by following students across the entire academic year, ranging from August to June (depending on the specific schedule for each school). Students were tested both at the beginning and end of the school year (during the fall and spring semesters, respectively), allowing the student growth estimates to be computed across the academic year. To normalize differences in time between the initial test and the final test at the end of the school year, the measure of growth (change in score from fall to spring testing) was divided by the number of weeks between the assessment occasions to obtain an estimate of typical growth per week for all students.

To account for differences in student growth, both across grades and within grades during an academic year, growth norms were developed by using information about grade and level of performance to construct homogeneous student groupings for comparison. The within-grade groupings were created by partitioning students into decile groups based on their initial percentile rank scores within a school year; STAR percentile ranks are based on the nationally representative samples used to generate the norms,. The reason that the growth norms are conditional on both grade and decile of student initial performance is that it has been well confirmed that student rates of achievement vary tremendously by grade and prior achievement. For instance, it is not reasonable to expect a low-achieving seventh grader to grow at the same rate as an average-performing third grader.

To create the norms, data was retrieved from the hosted customer database (Renaissance Place Real Time™). Growth norms are updated annually so they continually reflect the effects of changes in educational practices that can have differential effects on student learning, and also ensure students' observed growth is being referenced against a current student group.

STAR growth rates have been evaluated with cross-validation samples to study their robustness. We examined the accuracy of the rates for predicting later scores. The differences between the observed and predicted scores were small, and differences for only 0 to 10 percent of cases were statistically significant. In those cases where the observed score differed statistically from the predicted score, the actual magnitude of the difference was relatively small.

Pre- to Posttest growth

Rationale

One of the simplest methods for evaluating changes in scores, especially in an intervention setting, is the pretest-posttest paradigm, in which students are assessed twice—once prior to intervention, and once again at its completion. Subtracting the pretest score from the posttest score results in a simple change score. This method was born out of the experimental methodologies of science in an effort to quantify changes in an outcome variable by isolating the independent variables in a given system. For example, if an educator would like to know whether a specific intervention increases multiplication skills or phonemic segmentation, one would isolate a sample of students, randomly assign half of the students to a no-intervention group and the other half to intervention, and assess all of them before and after the intervention. Then the educator would look for differences in outcomes between the two groups, assuming the intervention is the only systematic difference between the groups, and make a claim about whether or not the students in the intervention group did better when compared to the students who did not receive the intervention (the no-intervention model).

Educators wishing to compute simple pre- to post change in STAR scores can do so with confidence because the STAR assessments were constructed to provide a vertical scale that can be used to follow student growth both within an academic year and across contiguous academic years. The STAR scale was designed specifically to allow educators to follow students' growth over time. The construction of STAR ensures that students get psychometrically parallel versions of the test at different administrations. Thus, student growth can be directly measured without any confounding problems related to having seen items at the previous time of measurement.

Validation Procedures

Extensive information about the development of the scales and the normative and criterion-referenced scores can be found in the STAR technical manuals provided with our original submission to the RFP. In addition, a number of independent technical reviewers have given STAR very high marks for reliability, validity, and accuracy. For example, the STAR assessments are rated highly by the National Center on Response to Intervention and the National Center for Intensive Intervention. (For more information on these reviews, see the References list provided below.) Given the reliability and validity of the scores, educators can use simple change scores with confidence.

References

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U.S. Department of Education: National Center on Response to Intervention. (2011). *Review of screening tools* [Review of STAR Reading]. Washington, DC: Author. Available online from http://www.rti4success.org/ScreeningTools.

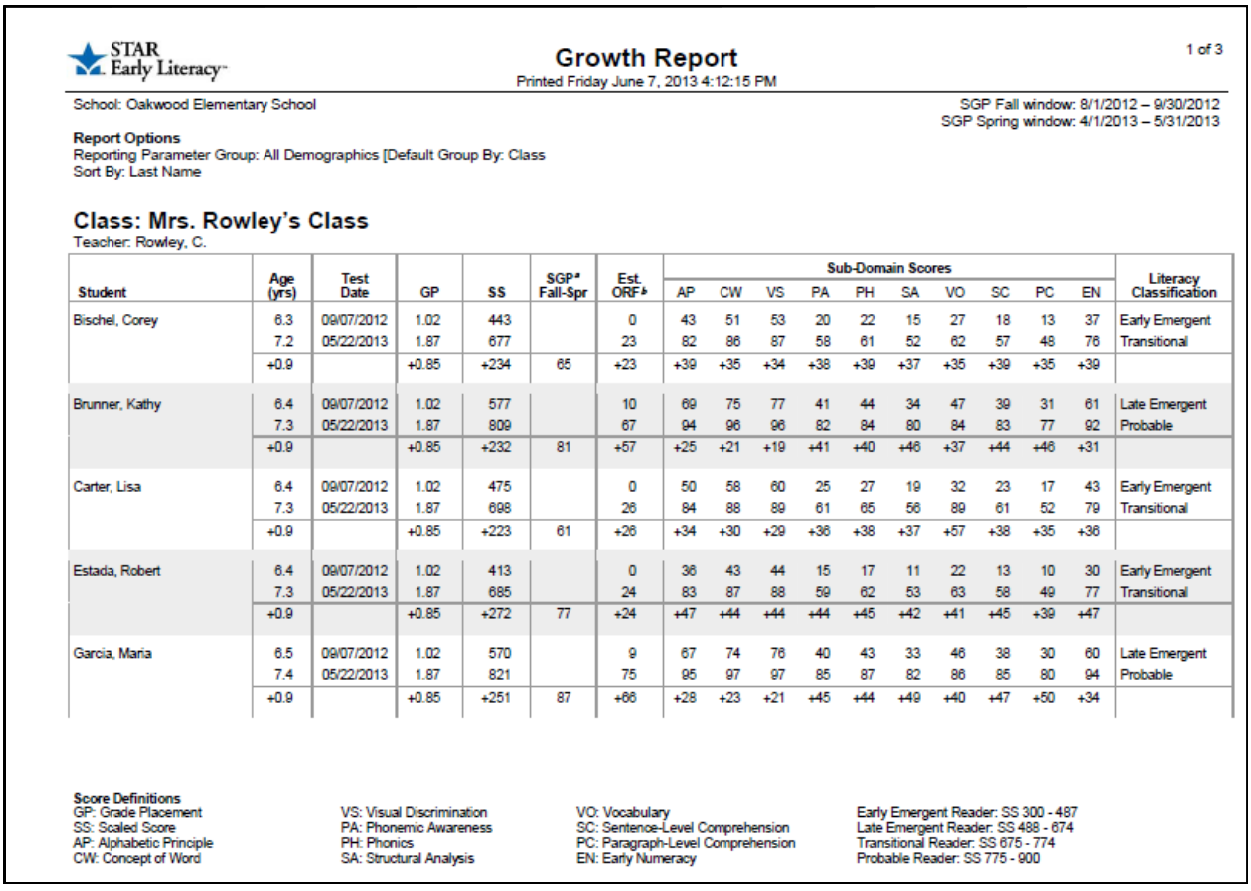
Reporting:

Provide your best example of a report derived from the assessment's results which illustrates an individual student's growth (not performance).

With STAR Early Literacy Enterprise, educators have immediate access to a variety of reports that indicate student performance and growth. Of particular note are the **Growth Report**, the **Growth Proficiency Chart**, and the **Student Progress Monitoring Report**.

The **Growth Report**, shown in figure 1, helps educators determine whether students are showing growth during a particular academic quarter or year. STAR software allows users to specify a predefined date range for this report so that when it is generated it shows students' test results for just that timeframe. **The Growth Report shows how much growth has taken place for students between tests and indicates which students may need additional help catching up with their peers. This report also now displays the new student growth percentile (**SGP), which compares a student's growth to his academic peers nationwide. With the addition of SGP to the Growth Report, teachers and administrators can consider performance and growth in relation to each other. This report can be run for a group, class, grade, school, or district. At the group and class levels, educators will see information for each individual student.

Figure 1—STAR Early Literacy Enterprise Growth Report



STAR Early Literacy™

Growth Report

Printed Friday June 7, 2013 4:12:15 PM

1 of 3

School: Oakwood Elementary School

SGP Fall window: 8/1/2012 – 9/30/2012
SGP Spring window: 4/1/2013 – 5/31/2013

Report Options
Reporting Parameter Group: All Demographics [Default Group By: Class
Sort By: Last Name

Class: Mrs. Rowley's Class

Teacher: Rowley, C.

Student	Age (yrs)	Test Date	GP	SS	SGP* Fall-Spr	Est. ORF*	Sub-Domain Scores										Literacy Classification
							AP	CW	VS	PA	PH	SA	VO	SC	PC	EN	
Bischel, Corey	6.3	09/07/2012	1.02	443		0	43	51	53	20	22	15	27	18	13	37	Early Emergent
	7.2	05/22/2013	1.87	677		23	82	86	87	58	61	52	62	57	48	76	Transitional
	+0.9		+0.85	+234	65	+23	+39	+35	+34	+38	+39	+37	+35	+39	+35	+39	
Brunner, Kathy	6.4	09/07/2012	1.02	577		10	69	75	77	41	44	34	47	39	31	61	Late Emergent
	7.3	05/22/2013	1.87	809		67	94	96	96	82	84	80	84	83	77	92	Probable
	+0.9		+0.85	+232	81	+57	+25	+21	+19	+41	+40	+46	+37	+44	+46	+31	
Carter, Lisa	6.4	09/07/2012	1.02	475		0	50	58	60	25	27	19	32	23	17	43	Early Emergent
	7.3	05/22/2013	1.87	698		26	84	88	89	61	65	56	89	61	52	79	Transitional
	+0.9		+0.85	+223	61	+26	+34	+30	+29	+36	+38	+37	+57	+38	+35	+36	
Estada, Robert	6.4	09/07/2012	1.02	413		0	36	43	44	15	17	11	22	13	10	30	Early Emergent
	7.3	05/22/2013	1.87	685		24	83	87	88	59	62	53	63	58	49	77	Transitional
	+0.9		+0.85	+272	77	+24	+47	+44	+44	+44	+45	+42	+41	+45	+39	+47	
Garcia, Maria	6.5	09/07/2012	1.02	570		9	67	74	76	40	43	33	46	38	30	60	Late Emergent
	7.4	05/22/2013	1.87	821		75	95	97	97	85	87	82	86	85	80	94	Probable
	+0.9		+0.85	+251	87	+66	+28	+23	+21	+45	+44	+49	+40	+47	+50	+34	

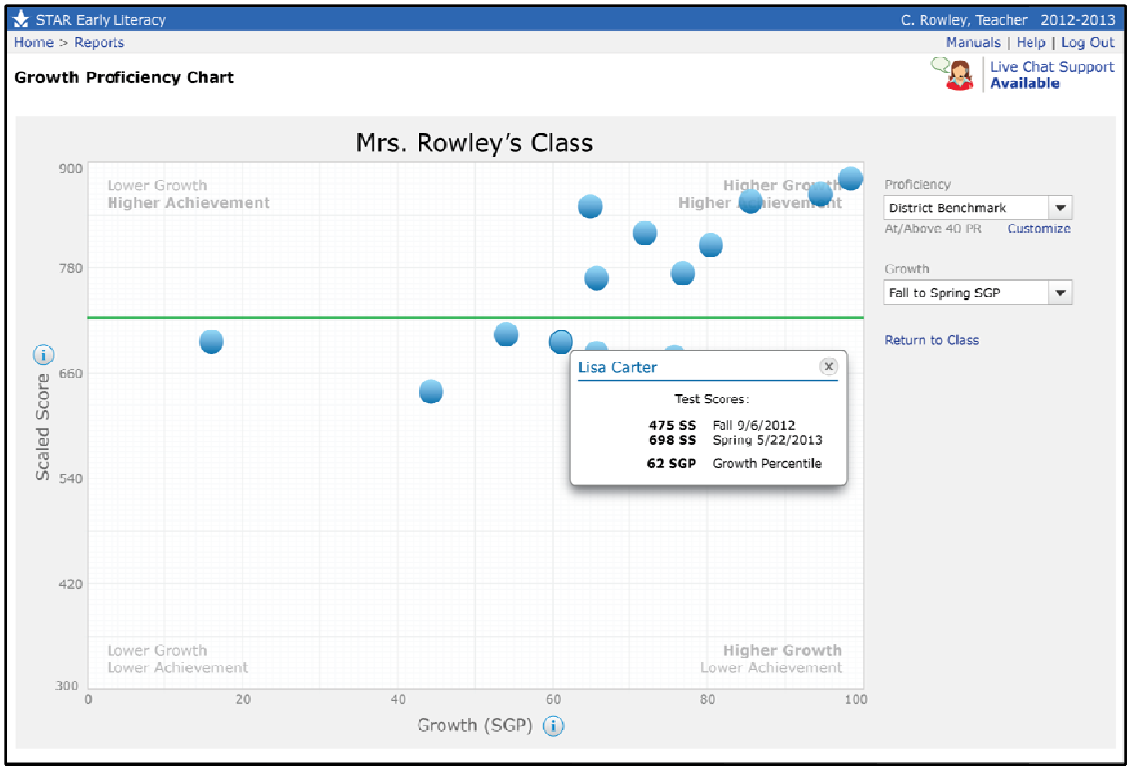
Score Definitions
GP: Grade Placement
SS: Scaled Score
AP: Alphabetic Principle
CW: Concept of Word
VS: Visual Discrimination
PA: Phonemic Awareness
PH: Phonics
SA: Structural Analysis
VO: Vocabulary
SC: Sentence-Level Comprehension
PC: Paragraph-Level Comprehension
EN: Early Numeracy

Early Emergent Reader: SS 300 - 487
Late Emergent Reader: SS 488 - 674
Transitional Reader: SS 675 - 774
Probable Reader: SS 775 - 900

The **Growth Proficiency Chart**, illustrated in figure 2, is an interactive, web-based reporting feature that helps educators consider performance and growth in relation to each other. This chart includes an interactive feature that allows viewers to expand the conversation from "Which students are proficient?" to "Are we creating an environment in which all students are learning?" and "Are each of my students reaching their maximum potential?" Users can drill down from district, school, grade, and class levels to see information for individual students. As shown in the class version of the chart below, each blue bubble represents an individual student. The x-axis displays each student's growth using the student growth percentile (SGP), a normed growth metric that compares students to their academic peers. The y-axis uses students' STAR scaled scores to show which students are performing proficiently or above in designated benchmark categories, simultaneously demonstrating the proficiency and growth of each student in the class. Virginia educators can select the district benchmark (as shown) or the standard RTI or school benchmark. With this chart, educators can start to use their student data to answer the following key questions to inform instruction:

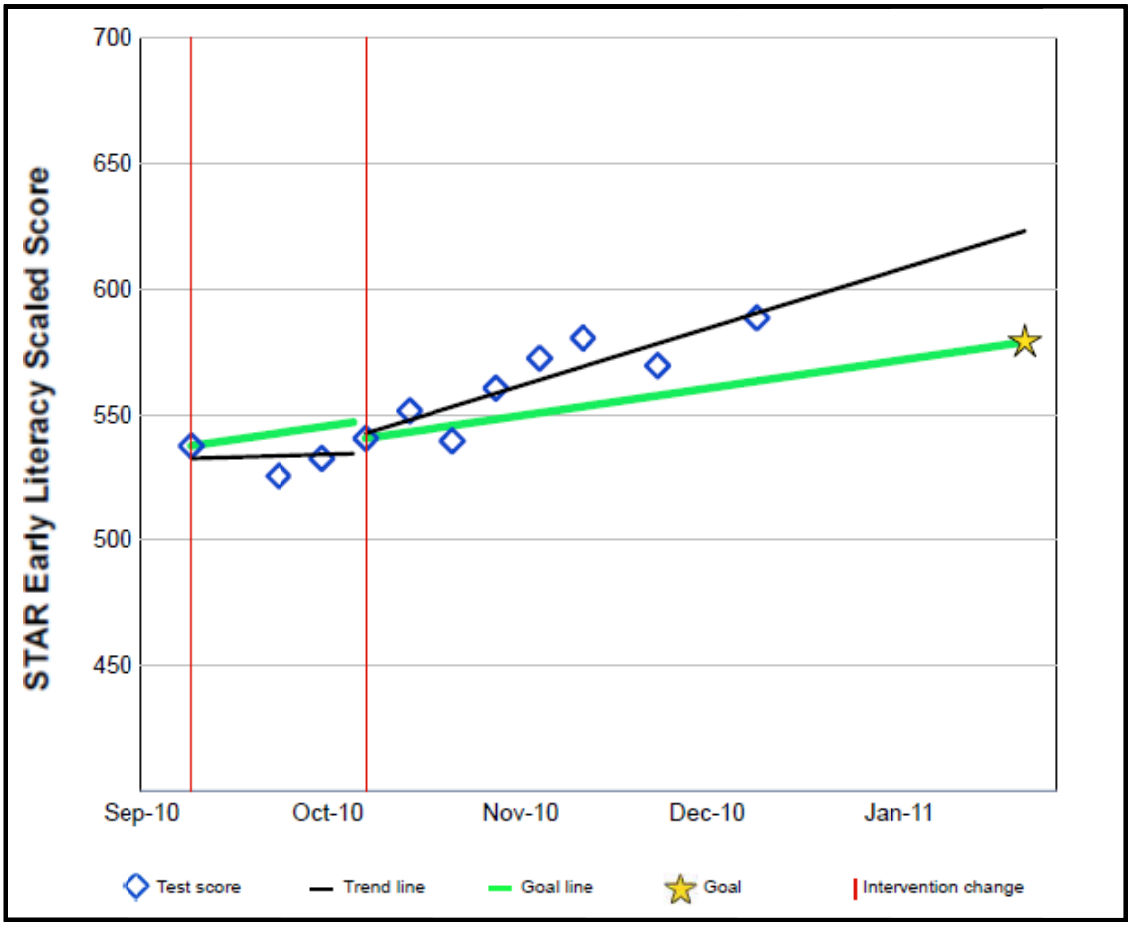
- How can we make sure all students, including high-achieving students, are challenged and growing every year?
- How can we help each student move forward, no matter what their starting point?
- How can we help students with low growth and low proficiency to get the services they need? Are these students responding to intervention? Is the intervention being implemented with fidelity? Are these students attending school?

Figure 2—STAR Early Literacy Enterprise Growth Proficiency Chart



The **Student Progress Monitoring Report** tracks a student's progress toward his or her reading goals. Because goals can be set for any time increment (e.g., monthly, quarterly, etc.), this report is especially useful in determining whether a student is responding to a particular intervention. To use this report, teachers first set goals and identify the beginning of an intervention using the STAR Goal-Setting Wizard. The Goal-Setting Wizard automatically graphs a student's progress toward goals on the Student Progress Monitoring Report. (See figure 3 below.) A yellow star, which indicates a goal set for a student, is plotted on this graph along with a red vertical line to indicate the start of an intervention. Students who are receiving intervention can be retested multiple times—even weekly—without the risk of item overexposure, so teachers can continue to monitor progress. After each test, a student's score, indicated by a blue diamond, appears on the graph. The graph also depicts a black trend line, which shows the teacher whether a student is likely to reach his or her intervention goal. This information can help teachers decide how to adjust instruction for each student. Teachers who decide to start a new intervention can simply designate the start date of another intervention using the Goal-Setting Wizard. When the Student Progress Monitoring Report is run again, the new intervention is indicated by a second red intervention line and the start of a new black trend line, as shown in the graph.

Figure 3—STAR Early Literacy Enterprise Student Progress Monitoring Report



Technology:

For online testing, can portable devices (tablets, iPads, netbooks) be used with the same fidelity as CPUs/laptops?

Renaissance Learning is currently conducting a nationwide field study to test the newly developed student application for the STAR assessments on the iPad. The field study will ensure, prior to the scheduled April 2013 release, that STAR testing on the iPad will offer the same fidelity as STAR testing on CPUs and laptops.

Can reports be accessed with fidelity from portable devices 24 hours a day, 7 days a week?

Teacher and administrators can log in to Renaissance Place to access reports 24/7 through the web browsers on portable devices the same way they would on a desktop PC or laptop. Minimum and recommended browser requirements and operating systems are detailed in the Renaissance Place Real Time Technical Recommendations document, which can be accessed at http://doc.renlearn.com/KMNet/R004312127GJB43D.pdf. Users need a valid user name and password to access the system, and Adobe Reader is required to generate STAR reports.

Expand on the technology information provided in Requirement 4.x to include specific requirements about technology infrastructure related to bandwidth, caching capabilities, numbers of concurrent testers, redundancy of data storage as well as fail-safe protocols during testing windows.

The STAR Enterprise assessments are run the Renaissance Place Real Time platform. The technology infrastructure of this platform is described below.

Recommended Bandwidth

A typical Renaissance Place event (e.g., generating a report, administering a STAR Assessment or student quiz, printing a math assignment) uses, on average, between one and two kilobits per second (kbps) of bandwidth for the life of that event (from less than one minute to up to ten minutes per event). For example, a school administering 50 STAR Enterprise assessments in one hour could expect to average 100 kbps during that hour.

Caching Capabilities

We do not recommend any server-level caching for the Renaissance Place platform for two reasons. First, most pages in Renaissance Place are not static html. Second, the STAR Enterprise assessments are computer adaptive, and the assessment's adaptive-branching mechanism individually tailors each student's test to specific items based on his or her previous responses.

Concurrent Users and Failsafe Testing Protocols

Renaissance Place™ network architecture is designed to not only maximize Internet connectivity but to minimize system bottlenecks—points in the system at which data travels slowly—due to a high number of concurrent users. On a typical day between 7:00 a.m. and 4:00 p.m., central time, the Renaissance Place platform processes over 2,000,000 student events or approximately 4,000 events per minute, including assessments, quizzes, and daily practice activities. A typical student event lasts ten minutes, which

means over 40,000 students may be using the system concurrently. At the same time, the system supports other users such as teachers and administrators. We are confident, however, that customers will not experience system bottlenecks or concurrency issues as a result of Renaissance Place Real Time architecture.

Volume Capabilities and Scalability

Renaissance Place currently supports approximately 35,000 schools. The system stores longitudinal data for students currently enrolled in the Renaissance Place database, and because Renaissance Place is a hosted system, storage capacity is never an issue for customers. As a result, Renaissance Learning has been successfully supporting large district implementations over multi-year periods. In addition to storing a large volume of data, Renaissance Learning may also purge data upon request.

The Renaissance Place architecture heavily utilizes virtualization with services running in Network Load Balanced clusters to scale for load, and Renaissance Learning's dedicated support staff monitors our hosted system and response times Monday through Friday between 6:00 a.m. and 6:30 p.m., central time. Detailed information is visually displayed in our hosted services area, which provides our staff—on call 24/7—with up-to-the-minute information on current system performance. This information allows us to make adjustments before bottlenecks occur.

Redundancy of Data Storage

All data is stored on Storage Area Network units. In addition, Renaissance Learning has a robust backup process for customer data. This process includes the following:

- Full backups two nights per week.
- Differential backups five nights a week (on the nights where full backups are not taken).
- Transaction log backups 24/7 (every 20 minutes).

Full and differential backups are transmitted nightly to a secure Renaissance Learning facility not housing the Real Time Data Center. Backups are also transmitted nightly to Renaissance Learning's Disaster Recovery site. Monthly archives are stored in a bank deposit and held for three months.

During online testing, will remote, "live-time" diagnostic assistance be provided? If so, describe this assistance.

Teachers and administrators have full access to live chat, toll-free phone support, and e-mail support anytime from 7:30 a.m. to 8:00 p.m. (Eastern time), including during online testing periods. Teachers and administrators also have 24/7 access to an online help menu, teacher resources, software and technical manuals, the online Renaissance Learning Knowledge Base, and the Renaissance Training Center™, an online repository of resources and training materials designed to assist educators with the technical aspects of the implementation. Students do not have access to technical support.

What level of local IT support should the division expect in each school/classroom in order to appropriately support successful testing?

Local IT staff should focus on ensuring that the local systems being used to run the STAR Enterprise assessments meet Renaissance Learning's minimum system requirements for the Renaissance Place Real Time™ platform. Minimum and recommended technical requirements are explained here: http://doc.renlearn.com/KMNet/R004312127GJB43D.pdf. Local IT staff should be available to correct any issues with local computers or Internet connectivity.

Availability:

For those assessments that are being developed, when will assessments be available for operational use?

Not applicable. The STAR Enterprise assessments are already developed and in use, this is not applicable.