Classworks®

Research Basis for the Classworks Tiered Instructional Model

August 2018

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Abstract/Overview

Classworks RTI Tiered Instructional Model is a robust solution with universal screening and supplemental K-8 instruction in reading/language arts and mathematics for tier one and proven interventions and progress monitoring for tiers two and three.

The model includes instruction, interventions, and assessment for each phase of the Response to Intervention (RtI) process. The Classworks model combines valid assessments with a rich curriculum that can be individualized to meet the needs of every student, integrated under a single teacher interface.

Technology and data management are the keys to empowering teachers to reach every student in the classroom. At each tier, students are engaged in meaningful instruction. Assessments measure growth and progress, while reporting provides formative data for next steps in instructional decision making. Teachers build capacity to manage diverse learning needs and leverage technology to save time spent on record keeping and test-taking, becoming true facilitators in the classroom. This means a teacher's time is focused on direct interaction with students and using data to make informed instructional decisions.

Components

Classworks RTI Solution includes each of the following essential components of the RtI process. At each level, students are engaged in meaningful learning, assessments are in place to measure growth and progress, and reporting provides formative annual growth data for informed decision-making. Teachers and academic support teams have the capacity to deliver the right instruction to make every student successful.

Components include:

- **High quality scientifically based classroom instruction.** K-8 Reading passages and math problem-solving activities are designed to support teachers with teaching grade-level standards.
- **Ongoing student assessment.** Universal Screeners and Progress Monitoring are used to provide data reflecting a student's achievement level and effectiveness of curriculum. Initial assessment is used to identify a student's need for intervention, while more frequent assessment is used to determine student instructional needs using multiple data points over time.
- **Tiered Instruction.** Classworks provides interventions with content in K-8. Individualized Learning allows every student to work on exactly what they need.
- **Parent Involvement.** Students access Classworks from school and home. Student results can be shared with parents through printed reports as well as a shared link to their student's My Scores page.

Tiers

What does this look like in a classroom?

Tier One - Classworks offers both screening and rich, standards-based instruction for all students, focused on college and career readiness. Classworks reading and math classroom instruction supports teachers with rigorous, differentiated lessons that integrate technology into daily learning. Classworks assessments are vertically scaled to track growth for all students and identify struggling students for possible intervention.

Assessment - Tier One

Tier One requires all students to be screened. Classworks monitors readiness and progress of all students and identifies at-risk students through the administration of an assessment two to three times a year. At Tier One, this assessment ensures readiness, tracks learning gains, monitors rate of learning among peers, and identifies students requiring additional intervention.

Classworks assessments measure growth on a vertical scale. The scale is then used to identify where a student is ready to learn. Measuring growth vertically serves a dual purpose – to track growth and learning gains for individual students and to determine whether learning must be accelerated to catch up a student who is behind.

"In the first month of the school year, students are screened to identify those "at-risk" for school failure. To identify at-risk students everyone is assessed using brief screening tools that demonstrate diagnostic utility for predicting performance on the reading and math state assessments (in the elementary grades) or on the local graduation requirements (at the secondary level)."

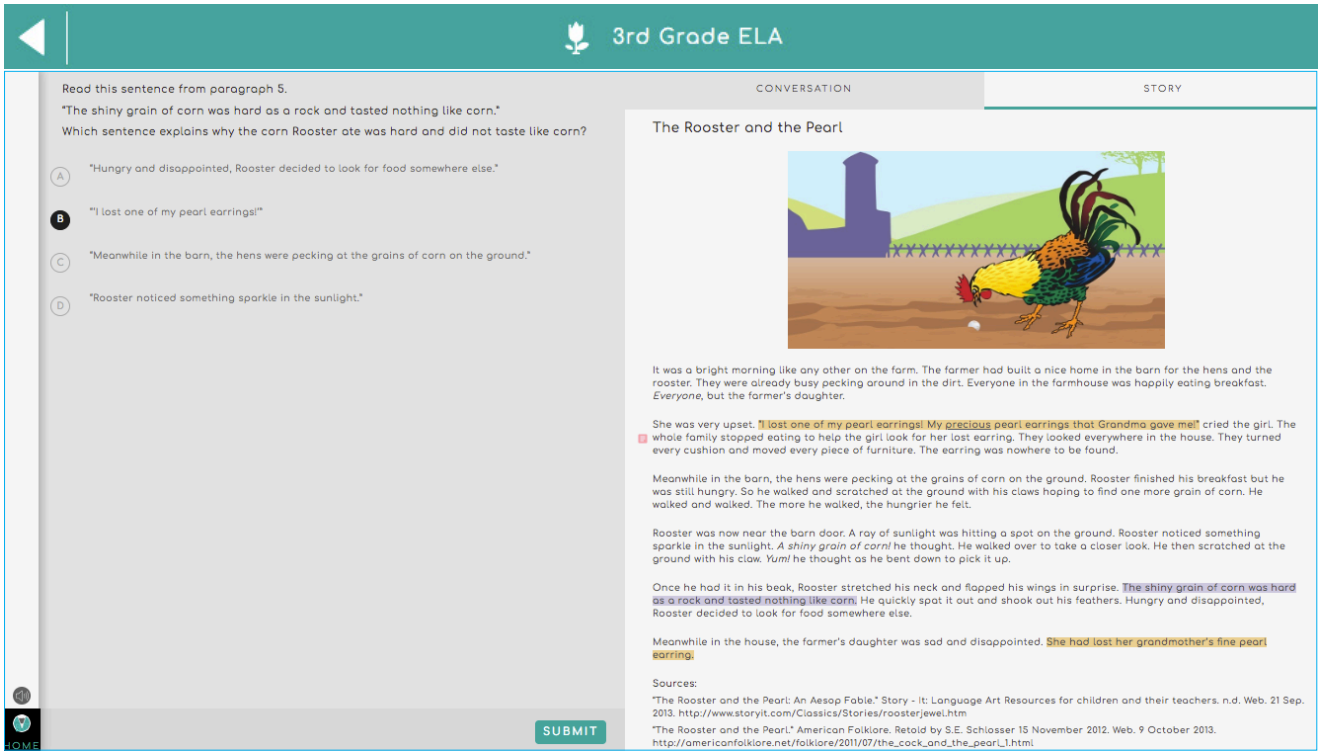
Fuchs, Douglas, and Fuchs, Lynn S., (2005). Responsiveness-To-Intervention: A Blueprint for Practitioners, Policymakers, and Parents, Teaching Exceptional Children, Sept/Oct 57-61.

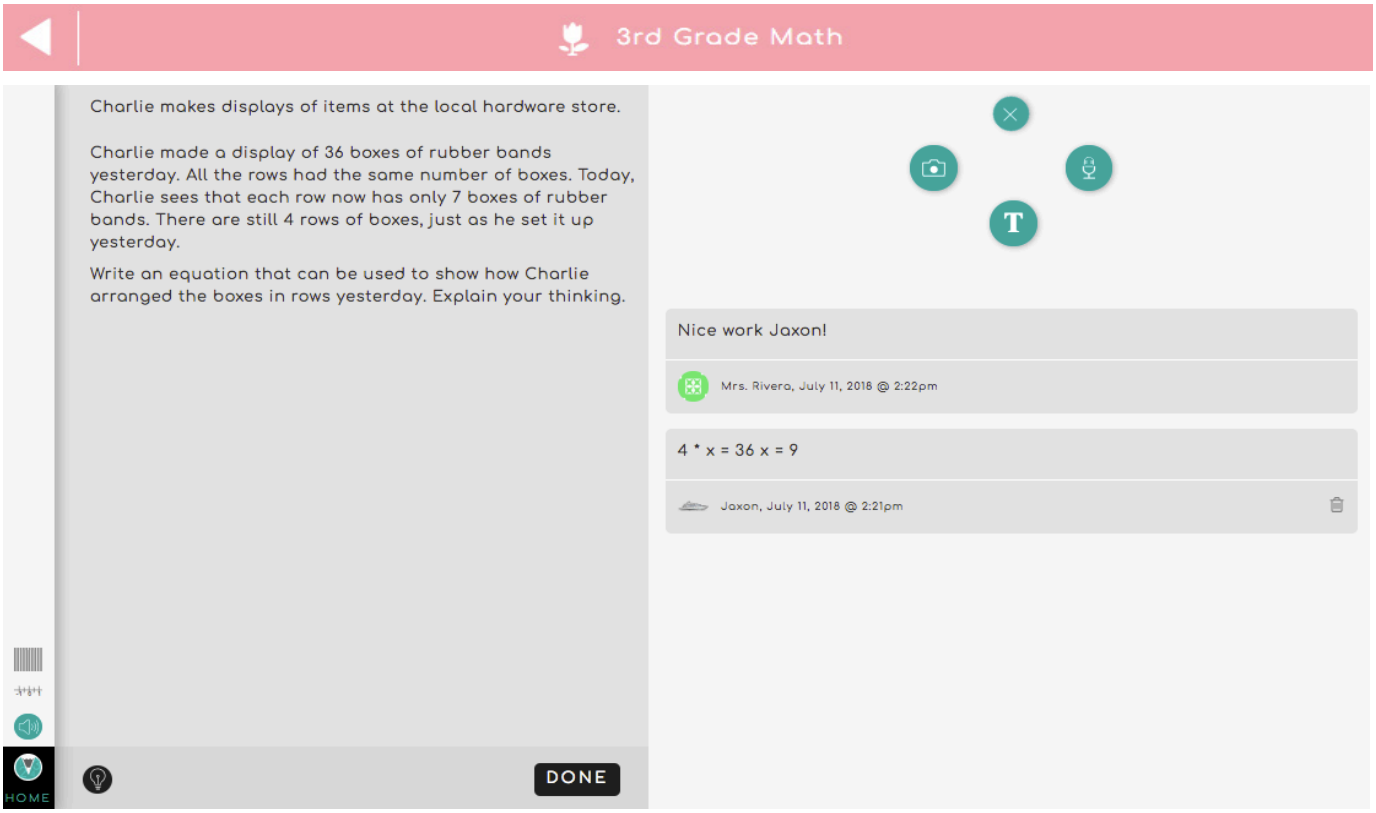
Universal Screener Targets

Grade	Math Beginning of Year	Math Middle of Year	Math End of Year	Reading Beginning of Year	Reading Middle of Year	Reading End of Year
K	210	230	250	210	235	260
1	250	270	290	260	275	290
2	290	310	330	290	310	330
3	330	355	380	330	360	390
4	380	400	420	390	410	430
5	420	440	460	430	455	480
6	460	480	500	480	505	530
7	500	520	540	530	555	580
8	540	565	590	580	600	620
9	590	610	630	620	640	660
10	630	655	680	660	685	710

Instruction - Tier One

At Tier One, Classworks provides rich and varied research-based instruction in math and reading for grades K-8. Classworks classroom reading and math instruction was built to Common Core and college and career ready standards. Activities are rigorous. They are designed to promote deep comprehension, build conceptual understanding, and help students reach high levels of reading and math achievement. Lessons are differentiated, presenting grade level standards at various levels of difficulty. Powerful teacher resources support teachers with lesson planning, including: talking points, a standards grid, common misconceptions, and suggested manipulatives.





"High-quality scientifically-based classroom instruction requires that all students receive the best possible instruction in the general education classroom. One of the cornerstones of an RTI model is that scientific, evidence-based Tier 1 instruction effectively eliminates inappropriate instruction as a reason for inadequate progress.Crucial to this cornerstone of RTI is that Tier 1 instruction must be based on scientifically based research."

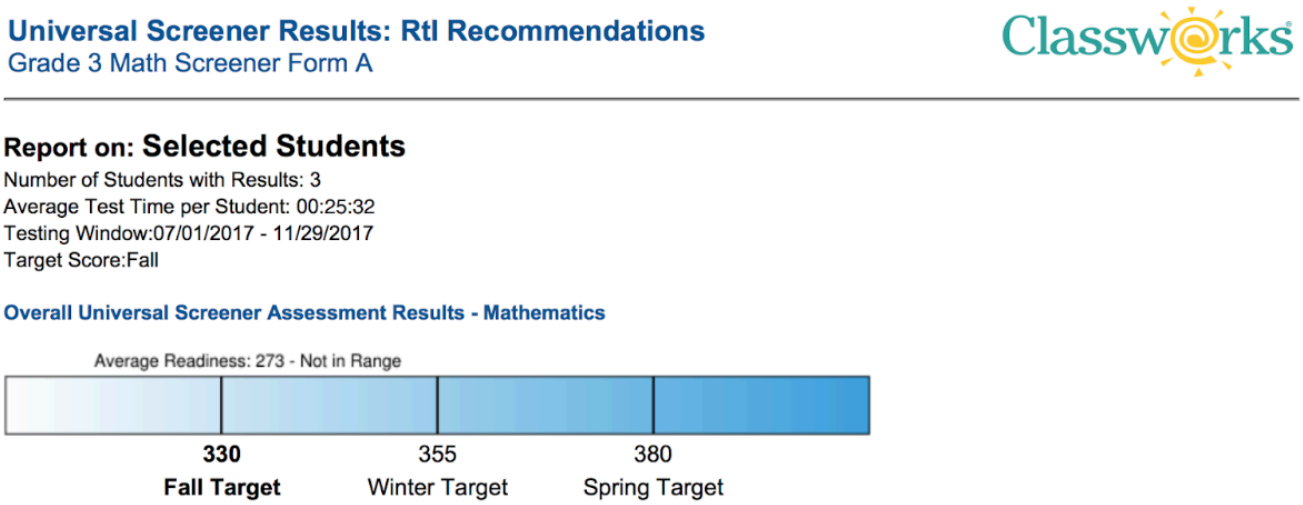
Selecting a Scientifically-based Core Curriculum for Tier I, RTI Action Network.

Classworks supports higher order thinking skills through instruction and practice. This requires students to think at all levels, from simple knowledge of a skill or concept to a more complex understanding.

Bloom's Revised Taxonomy – a classification system of the cognitive domain originally developed in 1956 and revised in 2000 to reflect a more outcomes-oriented cognitive process. The six levels – remember, understand, apply, analyze, evaluate, create – represent "knowing" about something in different and complex ways.

With Classworks, teachers view student work in real time. They provide instant feedback to students using built in tools. This allows students to take action on feedback more quickly, making it meaningful for guiding student learning.

Data and Reporting - Tier One Focus: Student Identification
Universal Screener RtI Recommendations Report -Vertical scaling includes fall, winter, and spring learning targets. The scale shows the average proficiency of the group assessed, and the targets indicate whether the group is on an appropriate learning trajectory. In this case, students overall scored below the fall readiness target, so the teacher will review specific strands and students whose results might cause concern.



Tier Two - At Tier Two, students receive additional time for their intervention. Classworks Assessment results identify areas of need and focus instruction by assigning individualized learning assignments. This evidence-based instruction allows students to practice concepts and gain proficiency to get back on track with their peers. Progress Monitoring is often conducted to closely measure and follow progress.

Universal Screener Results: RtI Recommendations
Grade 3 Math Screener Form A

Classworks

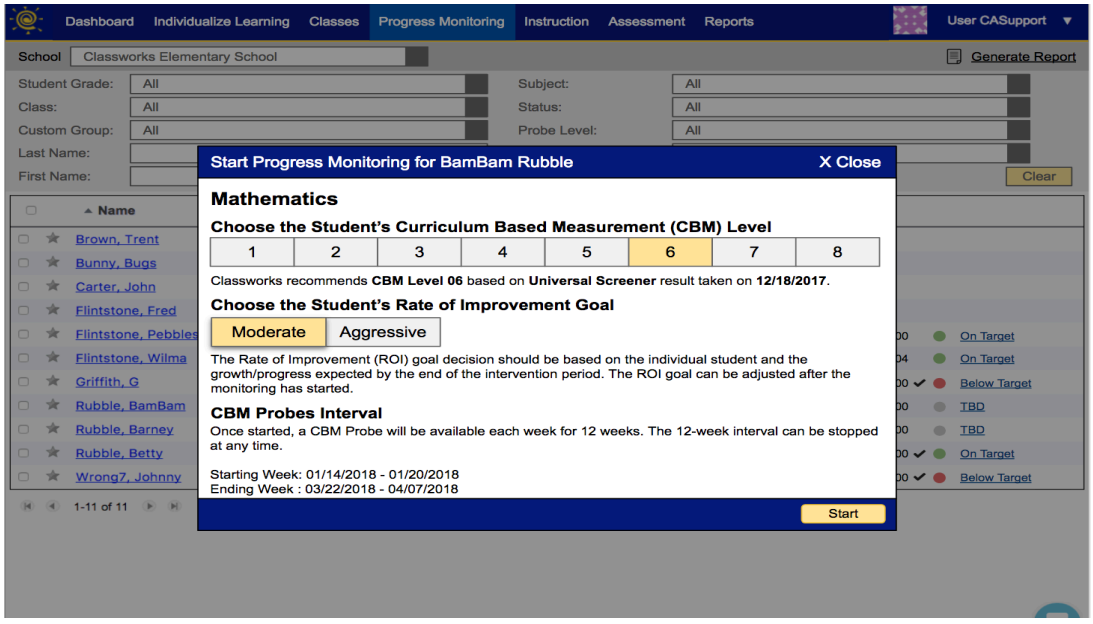
Report on: **Selected Students**
Target Score:Fall

Student	1	2	3	Overall Readiness	Scaled Score	CBM Level	Date	Time
Harrington, Jonathan	⛔	⛔	⛔	⛔	260	1	8/03/2017	00:22:46
Parker, Amanda	🟢	🟢	🟢	🟢	360	3	8/08/2017	00:25:12
Brenner, Dustin	⛔	⛔	⛔	⛔	200		8/03/2017	00:30:58

Assessment - Tier Two

A starting point for learning is established so that specific assessments and interventions can be utilized. At the same time, formal progress monitoring is introduced through a battery of Curriculum- Based Measurement (CBM) probes. The probes monitor student growth or can ultimately serve as documentation for referral to special education.

These probes have multiple equated forms measuring the same skills at the same level of difficulty. Educators track progress and retention of gains with successive test administrations. They are brief assessments for grades 1-8, given online for immediate and automatic scoring and reporting. Administered weekly or bi-weekly, probes monitor progress throughout the intervention period and indicate rate of learning toward academic goals.



Instruction - Tier Two

Through assessment, Classworks identifies skill-specific learning deficits and creates individualized assignments for students. This independent instruction allows students to work on targeted skills. Extra instructional time for intervention is an important factor in achieving learning goals. Student performance toward mastery of skills is tracked in real time.

- Initial screening identifies skills requiring additional support.
- Identified skill deficits determine intervention.
- This intervention is a learning path created for each student. This ensures the targeted learning is both a quality curriculum and specific to the student's needs.
- Formative Classworks assessments are embedded throughout a student's learning path assignment to monitor mastery of those skills.

Carroll (1963) developed "A Model of School Learning." Essentially, the model suggests that the degree of learning is a function of the time the student spends on the material, divided by the time needed. Bloom (1968) agreed with the basics of the model and suggested that the degree of learning required should be fixed at some "mastery" level and that all (or almost all) students achieve mastery. Mastery Testing should be employed to determine when mastery has occurred.

Ward, Annie, Stoker, Howard W., and Murray-Ward, Mildred, Educational Measurement: Theories and applications.

"With mastery measurement, teachers specify a hierarchy of instructional objectives constituting the annual curriculum and, for each objective in the sequence, devise a criterion- referenced test to assess mastery. When a student achieves the mastery criterion for an objective, the teacher simultaneously shifts instruction and assessment to the next skill in the hierarchy."

Fuchs, Lynn S., (2004), The Past, Present and Future of Curriculum-Based Measurement Research, School Psychology Review, Volume 33, No. 2, pp. 188-192.

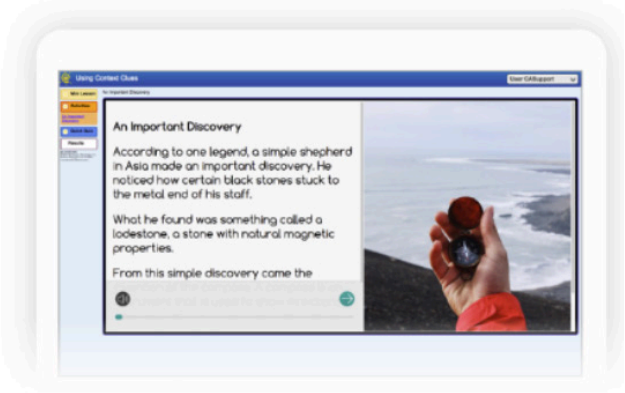
Classworks Unit Structure

Direct Instruction

Students receive 2-3 minute segments that introduce and explain concepts.

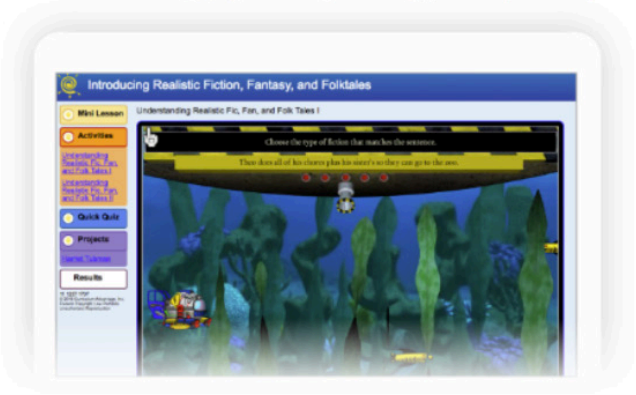
Activities to Apply Knowledge

Students engage in purposeful practice in a variety of instructional approaches.



Interactive Games

Activities include engaging, interactive games to apply what they're learning.



Formative Assessment

Confirm skill mastery with a quick formative check.

Classworks assignments are made up of units of K-8 instruction. The units of instruction are the heart of Classworks. Each student's Individualized Learning Path consists of multiple units of Classworks instruction. A Classworks instructional unit includes direct instruction, activities to apply learning, and a short formative check focused on strengthening a specific skill. The direct instruction introduces the subject matter with two-to-three minute segments that teachers can also use in classrooms. Extended learning and practice on the unit skills are introduced in the form of interactive games and activities that differentiate by instructional strategies. Next, a formative assessment confirms skill mastery with ten questions.

This structure ensures that when students master a Classworks unit, they master the concept. This translates into increased student achievement not only on state high-stakes tests but in cross-curricular experiences and real-life applications.

Skill practice focuses on concepts in direct response to students' demonstrated needs. Academic progress is monitored by teachers or the academic support team.

Classworks lessons reflect different pedagogies, keeping students motivated and engaged because of the variety encountered throughout the lesson. Students are presented with different instructional approaches, types of interactivity, and varying degrees of games vs. concrete instruction as they learn each skill. Activities use diverse rich-media technology including voice, text, video, graphics, photographs, and animation. This variety ensures students encounter multiple ways to learn and practice every skill. It's important to note that the interventions the student receive in tiers two and three are different in instruction and experience from what they receive in tier one.

"The inference that can be drawn is that no instructional strategy works equally well in all situations. The effectiveness of a strategy depends in part on the current achievement level of a student, in part on the skill and thoughtfulness with which a teacher applies the strategy, and in part on contextual factors such as grade level and class size. Instructional strategies are only tools."

Marzano, Robert J., Gaddy, Barbara B., Dean, Ceri, What Works in Classroom Instruction.

Data and Reporting - Tier Two Focus: Monitoring

Universal Screener Individualized Learning - From an assessment perspective, this report shows the level(s) of the Individualized Learning Paths (ILPs) assigned to students for key strands based on assessment results. The information can be used to help identify and group students performing at the same level.

Universal Screener Individualized Learning

Classworks

Testing Window:7/01/2017-11/27/2017
Target: Fall 420
Date:7/03/2018

Grade 5 Math Screener - Key Strand Data

Mathematical Processes 200-250

Barrington, Debbie	200
Dooley, Jerry	200
Duncan, Tracy	200

Mathematical Processes 331-380

Hammond, Shannon	380
beans, tom	340

Measurement 200-250

Dooley, Jerry	200
Duncan, Tracy	200

Measurement 331-380

Barrington, Debbie	380
Hammond, Shannon	380
beans, tom	340

Statistics and Probability 200-250

Dooley, Jerry	200

Statistics and Probability 291-330

beans, tom	330

Statistics and Probability 331-380

Barrington, Debbie	380
Hammond, Shannon	380

Statistics and Probability 381-420

Duncan, Tracy	400

Algebra 331-380

Dooley, Jerry	340
Duncan, Tracy	380

Algebra 331-380, cont.

Hammond, Shannon	380

Algebra 381-420

Barrington, Debbie	400

Geometry 291-330

Duncan, Tracy	330
beans, tom	320

Geometry 381-420

Barrington, Debbie	390
Dooley, Jerry	400
Hammond, Shannon	410

Standards Mastery - As students work through ILPs, teachers monitor skill mastery using the Individualized Learning Standards Mastery report. Mastery is indicated for each completed unit in the intervention. The state standards being addressed in the unit are also detailed, for reporting purposes.

Table Key 0-59% 60-74% 75-84% 85-100%

Mathematics

Standard	Unit	ToT	Score	Complete Date
Math.Content.2.MD.8	Amounts Greater Than One Dollar	00:09:37	50%	10/04/17
Math.Content.8.G.5	Angle Relationships	00:03:13	30%	10/04/17
Math.Content.3.MD.7.a, Math.Content.3.MD.8, Math.Content.4.MD.3	Area and Perimeter Relationship	00:10:20	80%	10/04/17
Math.Content.5.MD.1	Converting Customary Units of Length	00:09:22	80%	10/04/17
Math.Content.3.MD.1, Math.Content.4.MD.2	Elapsed Time	00:51:30	90%	10/04/17
Math.Content.4.MD.6, Math.Content.4.MD.7	Measuring Angles	00:03:28	90%	10/04/17
Math.Content.3.MD.5.a, Math.Content.3.MD.5.b, Math.Content.3.MD.6, Math.Content.3.MD.7.a, Math.Content.3.MD.7.c	More Finding Area	00:17:28	60%	10/04/17
Math.Content.3.MD.8, Math.Content.4.MD.3	More Finding Perimeter	01:19:01	90%	10/04/17

Progress Monitoring Results - This report provides formal progress monitoring through a battery of Curriculum-Based Measurement (CBM) Probes. In this example, the student made good progress through the first few weeks of intervention, but then showed some inconsistencies and erratic results. Based on this, the student support team would look at the intervention and other circumstances impacting the student and make modifications to the intervention. After the change, progress improves and the student is trending back at a pace to be successful.

Progress Monitoring Results

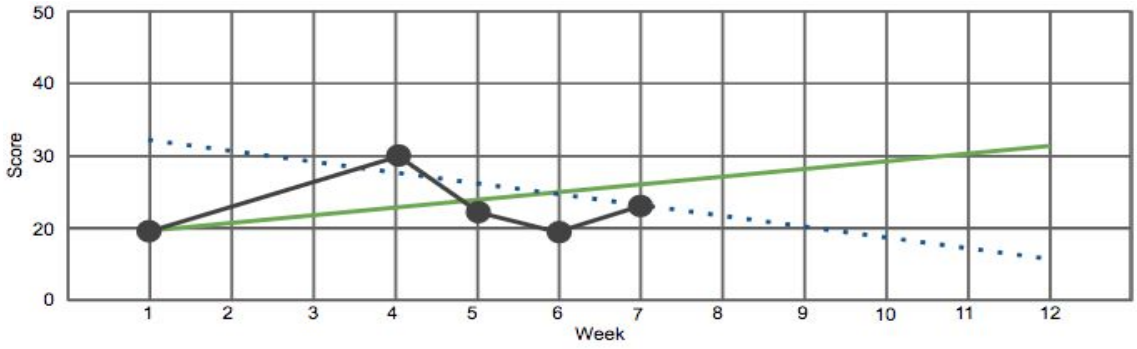
Report Name: Mrs. Smith Group Report
Date: 02/24/2018

Name: Brown, Trent
Grade: 7
Probe Level, Subject and Dates: Level 4, Mathematics, 12/23/17 - 03/03/18

Student Rate of Improvement	Target Rate of Improvement
Below Target	Moderate
-0.4000	0.2667

Dotted blue line indicates student's trend line.

Solid green line indicates Target Rate of Improvement.



Progress Monitoring Results

Week	Test Date	Time	Score	Notes
Week 1	12/11/2017	000:06:30	20	
Week 2	Skipped			Holiday Break
Week 3	Skipped			Over the holiday, I moved the desks in class and placed Trent in the 1st row. Hopefully this will help his behavior.
Week 4	01/03/2018	000:12:26	32	Great week!
Week 5	01/09/2018	000:07:45	28	
Week 6	01/15/2018	000:05:22	20	Trent was struggling last week. He was in an altercation with another student and was sent to in school suspension. I talked with Trent about expectations and goals for this week to get back on track.
Week 7	01/22/2018	000:08:05	23	This week was better but Trent is still having some trouble focusing.
Week 8				
Week 9				
Week 10				
Week 11				
Week 12				

Annual Growth - The Universal Screener Annual Growth report allows you to track and compare growth for individual students or classes over a single school year. This report also allows you to compare the scaled scores to the testing window targets to ensure they are being met. This data is crucial to monitoring growth at all tiers but has considerable significance starting at Tier Two. The screener is used to monitor student growth to determine tier flow. This report allows teachers to track student growth to make informed decisions regarding tier movement or changes in intervention.

Universal Screener Annual Growth

Report Name: Universal Screener: Annual Growth Report
Date: 03/04/17

Testing Windows
Fall: 08/01/16 – 10/31/16
Winter: 11/01/16 – 02/28/17
Spring: 03/01/17 – 07/01/17

Grade 5 Math Screener

Student Name	Grade Level	Fall Target: 420	TOT	Winter Target: 440	TOT	Spring Target: 460	TOT	Growth
Coleman, Sydney	5	400	00:15:12	410	00:12:10	420	00:20:42	+20 ▲
Diaz, Jasmine	5	–	–	450	00:22:33	460	00:28:12	+10 ▲
Fargo, James	5	250	00:05:13	440	00:32:51	200	00:01:21	-50 ▼

Tier Three - At Tier 3, students receive individualized instruction, customized by skill to maximize results. The combination of increased instructional time and skill building at lower levels accelerates learning. Curriculum-Based Measurement (CBM) probes offer weekly progress monitoring.

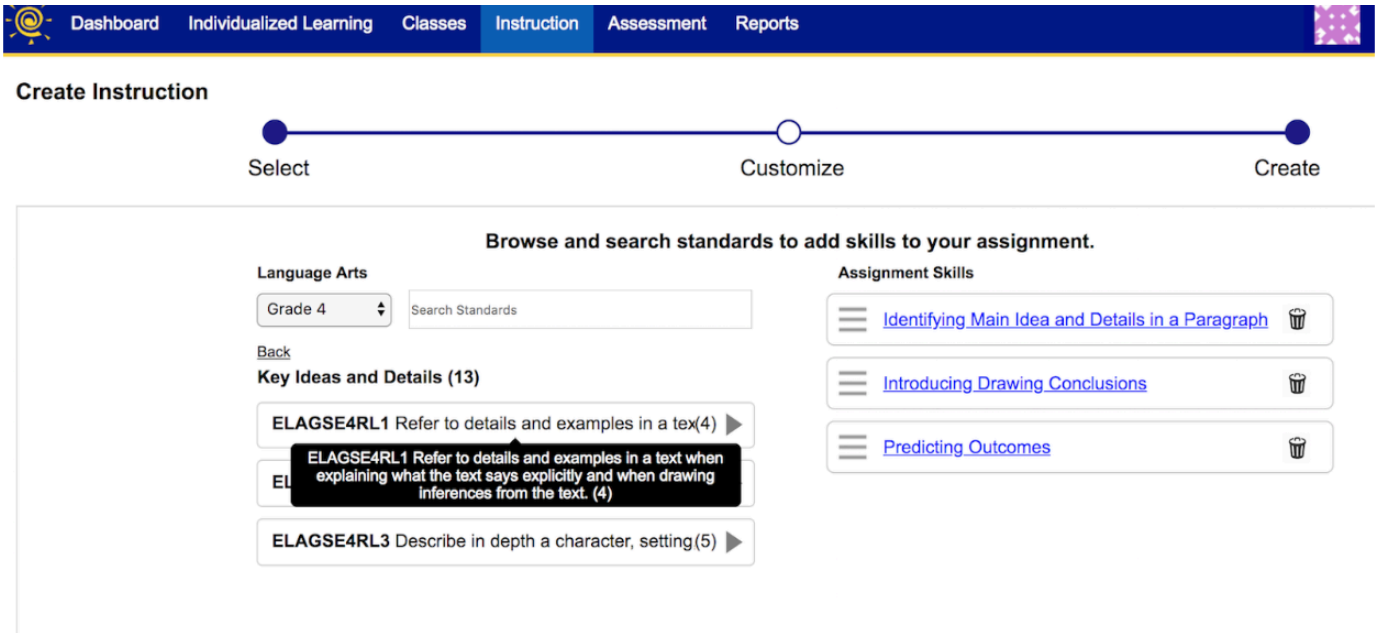
Assessment - Tier Three

Progress Monitoring using Classworks CBM Probes is essential to measuring success at Tier Three. While students may be working well below grade level, it is important to have an assessment in place which can measure the growth of the intervention no matter how many grade levels a student is behind. Teachers can determine if the student is responding to the intervention and make the necessary adjustments.

Instruction - Tier Three

Because the interventions and extra instructional time that were applied in Tier Two were not sufficient, the intensity of intervention is increased at Tier Three. Increasing the intensity of an intervention may include lengthening instructional time, increasing the frequency of instructional sessions, or adjusting the level of instruction. Each student's baseline learning level is identified through the vertically scaled score; interventions are assigned where learning can begin.

In addition to individualized learning paths and a baseline for instruction, the teacher or support team further modifies assignments for students in skills requiring focus. At this tier, teachers may create custom Classworks assignments to address specific student deficits. Instructional decisions are informed by reports indicating both mastery and progress.

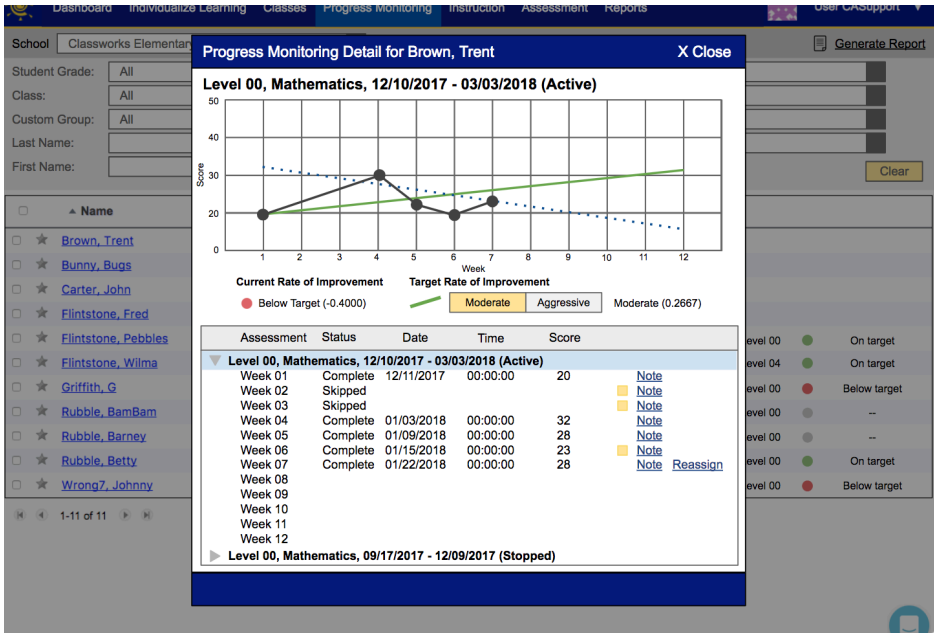


"Tertiary prevention, the third level of the RTI prevention framework, is the most intensive of the three levels and is individualized to target each student's area(s) of need. At the tertiary level, the teacher begins with a more intensive version of the intervention program used in secondary prevention (e.g., longer sessions, smaller group size, more frequent sessions). However, the teacher does not presume it will meet the student's needs. Instead, the teacher conducts frequent progress monitoring (i.e., at least weekly) with each student. These progress monitoring data quantify the effects of the intervention program by depicting the student's rate of improvement over time. When the progress monitoring data indicate the student's rate of progress is unlikely to achieve the established learning goal, the teacher engages in a problem-solving process. That is, the teacher modifies components of the intervention program and continues to employ frequent progress monitoring to evaluate which components enhance the rate of student learning. By continually monitoring and modifying (as needed) each student's program, the teacher is able to design an effective, individualized instructional program."

National Center for Response to Intervention, (April 2010) Essential Components of RTI – A Closer Look at Response to Intervention,National Center on Response to Intervention.

Data and Reporting - Tier 3 Focus: Target Skills and Progress Monitor

Progress Monitoring Results Dashboard - Viewing Progress Monitoring data live in Classworks provides a real time, detailed view of student progress and response. Action can be taken immediately, resulting in an acceleration of student learning.



Assignment Results Report - Targeted skill work may be necessary at Tier Three. Teachers identify a skill gap and create a custom instruction assignment. This intense skill practice allows students to focus intervention time on a needed skill and allows teachers close monitoring of that one skill to ensure gap closure.

The purpose of this report is to review. In this example, a detailed review of student performance indicates that learning is occurring. This documentation of skill mastery helps teachers evaluate if students have mastered the targeted skills at the student performance level, helping RTI teams to determine next steps.

Unit #	Instruction	Date	Score		Total Time	Score		Total Time
59	**Using the Direction Words Left and Right**	**10/18/17**			**00:02:14**			
	Mini-Lesson			–	00:02:14			
72	**Identifying the Beginning, Middle and End of a Story**	**10/20/17**		**89%**	**00:26:53**		**65%**	**01:13**
	Mini-Lesson	10/12/17		–	00:01:46			
	Ugly Duckling - Plot	10/12/17		85%	00:09:07			
	Peter Rabbit - Plot	10/18/17						
	- Attempt 1 (not in avg.)	*10/14/17*		*60%*	*00:05:33*			
	- Attempt 2 (in avg.)	*10/18/17*		*92%*	*00:10:27*			
	Quick Quiz	10/20/17					65%	01:13
	Introducing Capital Letters	**10/24/17**		**80%**	**00:13:37**		**53%**	**00:55**
55	Mini-Lesson	10/21/17		–	00:01:05			
	Capitalization is Fun	10/24/17		80%	00:12:32			
	Quick Quiz	10/24/17					53%	00:55
	Introducing Setting	**11/04/17**		**81%**	**00:58:45**		**48%**	**00:32**
34	Mini-Lesson	10/28/17		–	00:12:10			
	City Mouse and Country Mouse (Story)	10/31/17		85%	00:12:10			
	City Mouse and Country Mouse (Puzzle)	11/2/17		80%	00:07:13			
	Quick Quiz	11/2/17					48%	00:32
	R. Setting Review	11/3/17		78%	00:15:28			
	Overall Assignment Score			**83%**	**01:39:15**		**55%**	**00:02:40**
			70%			70%		

The Model

Classworks RtI Model incorporates research-based best practices at all tiers. It blends the two most commonly recognized models – Standard Protocol and Problem Solving – creating an ideal learning environment for all students. This model specifically accounts for students at all tiers and all grades. Blending the models allows Classworks to offer the best of both.

While individualization is a key strength of the Problem Solving model, the time to implement is not always practical. Many schools opt for Standard Protocol as a manageable option, which also ensures fidelity. Classworks combines the most effective aspects of each model, leveraging technology to minimize teacher time needed for individualization.

"In truth, the combining of a Standard Protocol and Problem Solving model, if possible to implement in a school, is likely to lead to the greatest responsiveness of students. The hybrid approach to RTI would offer the best of both worlds for students – clear and well designed standard protocols in which the large majority of students at some risk would respond and a more finely tuned, focused intervention built on the identified individual needs of students who are in need of more intensive instructional interventions."
Shapiro, Edward S., (2009) The Two Models of RtI: Standard Protocol and Problem Solving, Center for Promoting Research to Practice, Leigh University.

	Standard Protocol Model	Problem Solving Model	Classworks Model
Strengths	Pre-defined research-based program is ready to implement "off-the-shelf." Well-defined steps for implementation. Efficient use of personnel and resources.	Resources are selected for each student individually. Targets skill and sub-skill deficits. Higher rate of effectiveness for at risk students.	Combination of the strengths of both models. Students use research- proven instruction that is tailored to their individual skill and sub-skill deficits. Leverages technology to increase teacher capacity. Assessments identify detailed learning skill deficits. Research-based, ready-to-use software solution. Research-proven efficacy at all tiers. Structured implementation model and professional development.
Weaknesses	Targets broad groups of students in general focus areas. No in-depth analysis of deficit skills. Lacks individualized interventions.	Requires identification and management of individual resources for every student. Often serves only the students with severe learning deficits. Customization is subjective, relying on quality of resources and team's judgment about each student. Requires significant structured time for Academic Support Teams to collaborate.	

The desire for a practical combined model has been most keenly felt nationally in middle and high schools. Until Classworks, integrating the two has not been within reach for these schools.

"First, the means now exist to deliver tasks that can implement and streamline many of the capabilities that were cumbersome in the original formulations of programmed instruction, e.g., embedded and dynamic testing, immediate feedback, active participation during instruction, and instructional branching. All were recognized as important to increase learning, but their implementation was limited by the available technology of the time. Second and perhaps more important, advances in the science and technology of the assessment of student learning have enabled cost-effective embedded assessments supporting feedback, diagnosis, and selection and delivery of appropriate instructional parcels, a capability that promises to deliver the individualized instruction."

Gregory K. W. K. Chung, Girlie C. Delacruz, Gary B. Dionne, Eva L. Baker, John Lee, Ellen Osmundson, Towards Individualized Instruction with Technology-enabled Tools and Methods, National Center for Research on Evaluation, Standards, and Student Testing (CRESST).

There are real differences in the needs of middle and high school students and the way they respond to interventions. The structure of the Classworks model at middle and high school is tailored to the specific needs of these students and focused on transitions and dropout prevention.

"Consider implementation issues unique to high schools: When selecting an RTI approach, one must consider implementation issues related to program structure, how students will move through the process (with careful attention to the urgency for identifying real learning disabilities and the problem of inappropriate identification), sequencing of activities within tiers, timelines, balancing flexibility with consistency and cut scores for moving between tiers that will work best in a particular high school."

Duffy, Helen, Meeting the Needs of Significantly Struggling Learners in High School: A Look at Approaches to Tiered Intervention, American Institute for Research, National High School Center website.

There are a number of RTI frameworks, and while the Department of Education does not endorse a particular RTI framework, several core characteristics tend to be present in RTI. These characteristics are: (1) high-quality, evidence-based instruction in general education settings; (2) screening of all students for academic and behavioral problems; (3) two or more levels (sometimes referred to as "tiers") of instruction that are progressively more intense and based on the student's response to instruction; and (4) continuous monitoring of student performance.

Individualized Instruction

A key challenge to the Problem Solving model is identifying, assigning, managing, and monitoring individualized instruction for every student. Classworks includes unique technology that reads many assessment results, such as NWEA Map Growth, Renaissance Star, Scantron Ascensus Growth and ACT Aspire. Once read, Classworks generates and assigns a personalized set of lessons for each student, based on their specific results. This leverages technology to meet the challenge without taxing teachers with an impossible task.

"While the idea of individualized instruction has existed for some time what is remarkable are the striking similarities of desired goals and methods between current research in training and education and work beginning almost a century ago. What differs today, however, is the availability of technology to make practical many of the ideas central to individualizing instruction.

Gregory K. W. K. Chung, Girlie C. Delacruz, Gary B. Dionne, Eva L. Baker, John Lee, Ellen Osmundson, Towards Individualized Instruction with Technology-enabled Tools and Methods, National Center for Research on Evaluation, Standards, and Student Testing (CRESST).

CBM Research

CBM is the gold-standard accepted methodology for progress monitoring. There are two types of CBM – Robust Indicators and Curriculum Sampling. Both are indicators of student progress on the general curriculum and overall effectiveness of the intervention. In order to best accommodate all grades, the Classworks model uses Curriculum Sampling.

Curriculum Sampling uses items related to the grade-level curriculum and is appropriate for measuring content, concepts, and problem-solving skills – areas beyond basic fluency and critical for older students. A common challenge with the Robust Indicator methodology is that the measures of fluency appropriate for primary grades are not relevant or effective for intermediate, middle, or high school students.

"Practitioners can use the graphed CBM performance indicator data base in at least three ways to monitor and develop educational programs: (a) to determine the appropriateness of goals and revise them as necessary (Fuchs, Fuchs, & Hamlett,1989a); (b) to judge the adequacy of student growth and modify instruction, when warranted, to enhance student growth (Fuchs, Fuchs, & Hamlett, 1989b); and (c) to compare the efficacy of different interventions and to develop more effective components and eliminate less effective dimensions (see Casey, Deno, Marston, & Skiba, 1988)."

Lynn S. Fuchs , Douglas Fuchs , Carol L. Hamlett , Rose M. Allinder, (1991), The contribution of skills analysis to Curriculum- Based Measurement in spelling.

"CBM measures include those developed using a curriculum-sampling approach or a robust indicator approach (Fuchs, 2004). Both types of measures have been examined in the literature. Curriculum sampling measures incorporate content that should represent the curriculum expectations for the student across the year. For example, if a teacher monitors a student who is at the third grade level, CBM mathematics computation probes might include single-digit multiplication, double-digit multiplication,and addition and subtraction with regrouping problems randomly placed on each probe."

"The measures are not necessarily created to align with district curricula, or to match state standards, as the probes are meant to be used with any student in any state.

While it is essential that schools are documenting progress towards success in curricula or on standards, CBM mathematics measures do not provide specific information on whether particular standards are being met. Rather, CBM measures provide information on whether students are on track to meet performance goals,whether instruction is effective for students, and whether instructional modifications are necessary."

Lembke, Erica S. and Stecker, Pamela M., (2007), Curriculum-Based Measurement in Mathematics: An Evidence-Based Formative Assessment Procedure.

The Rate of Improvement is calculated for each student. This target line is used to monitor the progress of the intervention. The student's trend line is a prediction of how a student will progress during the intervention period, based on their CBM results. This is initially calculated after three probes have been completed. Classworks calculates the trend line, also known as the rate of improvement or slope, using an ordinary least squares regression equation. In essence, it comes down to the number of points the student is expected to improve each week.

About SEG

Classworks assessments were developed by SEG Assessment. SEG provides advanced assessment solutions for K-12, Higher Education, Credentialing, and Employment. SEG is a full-service organization offering a range of design, development, psychometric, and implementation services. For the past 30 years, SEG has delivered more than 100 million assessments to tens of thousands of K-12 schools, colleges, and credential candidates in all 50 states and internationally.

Dr. Scott Elliot manages the daily operations at SEG and also provides technical leadership for assessment and research projects. He has more than 30 years of experience in assessment and research. Before founding SEG, he held senior management positions at several educational assessment and technology organizations. He has developed and implemented large-scale assessment programs used both nationally and in more than 30 states in both K-12 and higher education. Dr. Elliot is a recognized expert in educational assessment and research. He is a frequent contributor to the educational literature and a frequent presenter at educational conferences; he has more than 75 publications and conference presentations to his credit.

Universal Design for Learning (UDL)

"RTI and UDL both reflect the understanding that a curriculum that is effective for one student may not be effective for another student. With RTI, this is most readily apparent with the individualized approach to intervention that is part of the problem-solving method. With UDL, the curriculum is designed to incorporate a wide variety of options in its goals, materials, methods, and assessment so that the curriculum in its entirety is flexible and accommodating of individual student needs."

"RTI and UDL treat assessment as something that should inform instruction and intervention and consider once-a-year test scores insufficient to determine student ability. In RTI, students' responsiveness is commonly monitored over time and with respect to multiple interventions; while in UDL, multiple, ongoing assessments are administered.The use of curriculum-based measurement as a means to inform teachers about the effectiveness of instruction and guide decision-making regarding appropriate instruction and intervention is a key point of convergence of RTI and UDL."
Strangeman, Nicole, Hitchcock, Chuck, Hall, Tracey, and Meo, Grade, (2006), Response to Instruction and Universal Design for Learning: How Might They Intersect in the General Education Classroom?

The varied instructional approaches of Classworks activities and teacher directed projects conform to the Universal Design for Learning (UDL) Guidelines which include:

- Multiple and flexible methods of representation to give students with diverse learning styles various ways of acquiring information and knowledge
- Multiple and flexible means of expression to provide diverse students with alternatives for demonstrating what they have learned
- Multiple and flexible means of engagement to tap into diverse learners' interests, challenge them appropriately, and motivate them to learn

This approach, combined with the essential elements of RtI, offers rigorous curriculum for all students with varied methodologies and flexibility to meet the needs of each.

Conclusion

Classworks Tiered Instructional Model is a comprehensive program encompassing instruction, instructional intervention, and assessment for each phase of a Response to Intervention or Instruction (RtI) process.

The Classworks model incorporates critical components at every tier that have proven successful and utilize research-based best practices. It blends the two most commonly recognized models – Standard Protocol and Problem Solving – creating an ideal learning environment for all students.

At each level of the Classworks model, students are engaged in meaningful instruction, assessments measure growth and progress, and reporting provides formative data for informed decision-making. Teachers and academic support teams have the capacity to deliver the right instruction to make every student successful.

About Curriculum Advantage, Inc.

Curriculum Advantage, Inc. provides online instructional solutions proven to help students become critical thinkers and independent learners. Since 1993, millions of students have benefited from using our programs. Classworks® offers K-8 individualized learning paths driven by students' assessment results for remediation and enrichment. Classbloom® offers on-grade level, K-8, standards-based reading and math classroom instructiion, standards tracking and real time-feedback. Our evidence-based educational solutions are built upon strong instructional pedagogy and technological innovation.