

SREB

Literacy Design Collaborative
and Mathematics Design Collaborative

Changing How Students Learn and Teachers Teach

Southern
Regional
Education
Board

SREB.org

*Teachers reflect on using college- and career-readiness tools
to help students reach higher standards.*

The Southern Regional Education Board's
Literacy Design Collaborative and Mathematics Design Collaborative
implementation efforts are led by Senior Vice President Gene Bottoms,
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The Southern Regional Education Board works with member states
to help leaders in education and government advance education and
improve the social and economic life of the region. Based in Atlanta,
SREB was created in 1948 by Southern governors and legislatures.

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Powerful Teaching Tools, Innovative Professional Development

This publication presents teachers' reflections on their early experiences using Literacy Design Collaborative and Mathematics Design Collaborative tools in their classrooms. In these vignettes they share doubts, challenges and revelations about their teaching styles — and amazement at how much their students learn when they are challenged with complex assignments to reach the depth of the Common Core State Standards.

The Southern Regional Education Board (SREB) is intently focused on statewide policy and practices that will improve reading, writing and math skills so students graduate from high school ready to succeed in college and careers. One SREB effort is employing a new approach to professional development that is bringing powerful teaching and learning tools into classrooms statewide.

These tools, Literacy Design Collaborative (LDC) and Mathematics Design Collaborative (MDC), help students reach the deep learning necessary to master the Common Core and other rigorous statewide standards for college- and career-readiness. They give teachers frameworks to build lessons, in all disciplines, that engage students to read and interact with challenging texts. Students express their understanding in writing, struggle productively and learn more — in essence shifting teaching so students take ownership of learning and achieve at higher levels.

Groups of teachers and education experts developed the LDC and MDC frameworks, with initial funding from the Bill & Melinda Gates Foundation. The educator groups are now expanding into wider networks of teachers, schools and districts working together to develop and share assignments and modules.

Scaling Powerful Tools Statewide

The Southern Regional Education Board, with funding from the Gates Foundation, is using innovative professional development to help states, districts and schools implement the Literacy Design Collaborative and the Mathematics Design Collaborative tools more widely. Since fall 2011, SREB and the Arkansas Department of Education have partnered to pilot a model to scale these strategies statewide. During the 2013-2014 school year, SREB plans to work with at least two additional states on similar statewide rollout plans.

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In Arkansas, SREB has worked intensively in 48 high schools — and laid the foundation for adoption in more than 300 high schools by preparing certified trainer-coaches (more than 30 for LDC and 25 for MDC) at the regional and state levels. During 2013-2014, more than 90 additional Arkansas schools will join the effort. SREB has also worked with 150 schools in 18 other states — in total providing training, coaching and in-school support to 1,500 educators in 19 states over 18 months. These lead teachers then introduced the tools to several thousand teachers in their home schools and districts, building capacity for in-school professional development through professional learning communities.

SREB's intentional process for professional development builds capacity for continuous, ongoing professional development into the school day. First, principals select outstanding teachers as lead facilitators for their discipline — language arts, science, social studies, career/tech and math. SREB trainers provide them with eight days of intensive, off-site training over several months. Then, as the teachers work through their first assignments with LDC or MDC tools, coaches provide in-school, hands-on support, feedback on instructional strategies, and advice on literacy modules, for example, or the appropriate place in a math curriculum for formative assessment lessons.

Once lead teacher-facilitators have mastered the tools, a school's principal establishes professional learning communities for each discipline, and the lead facilitator introduces other teachers in the department to the framework. The lead recruits buddy teachers from those most interested in bringing LDC or MDC into their classrooms and works closely with them as they learn. SREB provides ongoing webinar support for principals and teacher teams. The process engages school principals throughout so they can support teachers in a schoolwide adoption.

Summer Conferences for Deep Dives

The LDC and MDC frameworks were a focus of introductory and deep-dive sessions at SREB's 2012 High Schools That Work Staff Development Conference, which was attended by 5,000 educators from around the country. In 2013, SREB organized the Common Core State Standards Networking Conference, in partnership with the Gates Foundation, for teachers and school leaders to learn from experts on these literacy and math tools and from one another so they can help students reach college- and career-readiness.

Vignettes as Early Evidence

In these interviews, conducted by SREB trainers and consultants between September 2012 and January 2013, teachers and school leaders reflect on changes in their own behavior and in students' motivation and engagement. As data begin to emerge, SREB shares this early evidence that, with LDC and MDC, students are learning more and performing better on classroom and state exams.

Frequently Used Terms

Common Core State Standards (CCSS)

The Common Core State Standards provide a clear understanding of what students are expected to learn and be able to do in grades K-12. They are designed to be relevant to the real world and to reflect the knowledge and skills students need to succeed in college and careers. The standards resulted from a state-led effort coordinated by the National Governors Association and the Council of Chief State School Officers.

Lead Teacher-Facilitator

The principal and district select 1) a teacher whom other teachers tend to follow; 2) a teacher who has demonstrated over the years that he or she can take ordinary students and help them achieve at higher levels; 3) a teacher who is open to change and wants to try new approaches in the classroom; and 4) a teacher willing to make the effort to learn new approaches and share those approaches with others.

Professional Learning Community (PLC) and Buddy Teachers

A group of teachers in a school meets periodically in a Professional Learning Community to continuously seek and share information and strategies to enhance their teaching effectiveness. Lead teacher-facilitators share the tools of LDC and MDC with members of their professional learning communities, recruit buddy teachers from those most interested, and then support them as they introduce the frameworks in their own classrooms. Eventually, with support of the school principal, lead and buddy teachers assist all teachers in adopting these tools to help students learn more deeply and master the Common Core State Standards.

Literacy Design Collaborative (LDC)

An approach for incorporating rigorous literacy standards into middle grades and high school content areas, LDC provides a system for developing reading, writing and thinking skills within a variety of academic disciplines, not just in English/language arts courses. LDC tools are designed to help students reach the new Common Core State Standards in literacy.

LDC Template Tasks

LDC contains dozens of template tasks. Template tasks are fill-in-the-blank shells that give teachers the flexibility to insert the texts to be read, content to be addressed and writing to be produced. The result is high-quality assignments to teach students the literacy skills they need to succeed in education and careers.

LDC Template Module

Template modules add instruction to a single template task. A module is designed for approximately two to three weeks of instruction. An instructional ladder details what literacy skills will be addressed, what student products will be expected, how the products will be scored, and what instructional strategies will be used.

LDC Module Creator

Module Creator is an online platform teachers may use for designing instructional units. Module Creator supports teacher collaboration and provides easy access to relevant texts with a range of complex features.

Mathematics Design Collaborative (MDC)

MDC is a framework to balance instruction so that students develop understanding of basic math concepts, fluency with math procedures, and the reasoning to know how and when to apply math knowledge and skills to solve problems. MDC helps teachers understand and implement — by design and not by chance — the Common Core or other rigorous state standards. Formative assessment lessons, a hybrid of assessment and instruction, are a key MDC tool.

Formative Assessment Lessons (FALs)

A major innovation in teaching and learning mathematics, these lessons show teachers what students understand and allow them to adjust teaching so students learn to reason with math and apply concepts to multi-step problems. FALs focus on student understanding of mathematical concepts; allow students to have a productive struggle; help teachers determine what to change in content and instructional strategies so students can master the standards; and assess how students think with mathematics.

Vignettes: Literacy Design Collaborative

*“My students read with a purpose ...
My standardized test scores have improved greatly.”*
— social studies teacher

“We learn by reading.”
— chemistry student

*“Students are learning how to think
and not just brush the surface of the material.”*
— chemistry teacher

*“Writing is the best way for students
to retain knowledge.”*
— language arts teacher

*“They are working and their minds are going
a hundred miles an hour.”*
— assistant principal

*“I know that I will always use this way of learning.
It has already helped me in other classes. It will
help me get through college. It will help me in life.”*
— chemistry student

Students Read With a Purpose, Teaching Is More Efficient

Maria Osakwe

Social Studies Teacher

Kendrick High School, Columbus, Georgia

“With the transition from Georgia Performance Standards to Common Core State Standards, we are now required to concentrate more on reading informational texts, interdisciplinary/disciplinary-specific writing, and using Literacy Design Collaborative tasks at the end of each unit. I complete one LDC module each semester. This has enabled my students to think critically and discuss texts we study. Usually, the task appears daunting because it is not what students are used to. This creates more work for me, but the results in the end are immeasurable. I facilitate their learning by guiding and prodding them to reflect on and connect with their personal experiences.

*“My students read with a purpose...
My standardized test scores have improved greatly.”*

“A list of open-ended questions to spark discussions was a key strategy to get students thinking to address the prompt. Graphic organizers were useful when the students had to plan Socratic seminars or argument-based discussions. The students then developed their paragraphs addressing each section of the LDC writing prompt. The detailed rubrics were useful for a checklist so students could self-assess and provide peer feedback before final revisions.” Throughout the semester, students were given time to compare their work in a previous LDC task with the current unit. They wrote reflective paragraphs on the changes in their thinking process as they completed each assignment. Most of their feedback has been increasingly positive — though, at first, the students felt the process was too laborious.

For Osakwe, the modules present a tested and proven, ready-made writing task and lesson plan strategy. It is time saving and structured for easy implementation. Its effectiveness cannot be overemphasized. With each task, she said, students consistently cite evidence from the text and their research as supporting details for their opinions. “The LDC writing tasks have changed the way my students read. They read with a purpose. Rather than me having to ask questions to check for understanding, my students often come up with the why and how questions for what we are reading. They question the author’s motive and style and have very strong opinions about what they read.

*It is time saving and structured for easy implementation.
Its effectiveness cannot be overemphasized.*

“My standardized test scores have improved greatly. In the spring semester of 2012, I had 91 percent pass the end-of-course exam, compared to 72 percent in fall 2011 when we completed only one LDC task. LDC works for me and my students.”

LDC Fosters Teacher Collaboration, Boosts Student Achievement in Social Studies

Timothy Morrow

Social Studies Teacher

Randolph-Clay High School, Cuthbert, Georgia

“My name is Tim Morrow. I teach economics, citizenship and world history at Randolph-Clay High School in Cuthbert, Georgia. I (along with the other two teachers in my department) feel the Literacy Design Collaborative has made a positive impact in our school. It has helped with our planning. It has increased the rigor in our classroom, and it has improved student literacy skills and student writing. As far as the students are concerned, I feel that incorporating LDC has increased students’ knowledge because it exposes them to additional sources of information; it gives them more opportunities to write; and it increases student achievement.

*“LDC exposes students to additional sources of information;
it gives them more opportunities to write;
and it increases student achievement.”*

“Another major benefit is that [Char-Shenda] Covington [an SREB trainer/coach] requires us to use the *Good to Go* tool with a colleague in our middle grades school before we implement, submit or complete our module. This highlights not only our strengths and weaknesses but also those of our colleagues. The plan was well thought out, because we are collaborating with those in our building and have even gotten our administrators to give us time to plan with our colleagues at both the middle grades and high school levels.”

*“The plan was well thought out ... We are collaborating,
and administrators gave us time to plan with colleagues
at the middle and high schools.”*

Teachers Learn to Let Students Own Their Learning

Carol Parker

Social Studies Teacher

Randolph-Clay High School, Cuthbert, Georgia

“I teach U.S. history and world geography. I feel that LDC has had a positive impact on our social studies department. It has helped increase the rigor in my classroom as well as my ability to facilitate instruction as opposed to simply giving in when the students struggle. Our High Schools That Work consultant provides specific feedback for every module. She models use of strategies that address our concerns, individually and collectively. She is always optimistic even if we miss the mark.

*“My coach has taught me to stop hand-feeding my students
and allow them to take ownership in the learning process.
I see the changes in my teaching.”*

“LDC has been successful because of our ongoing observations with immediate feedback, modeling sessions and individualized professional development. Lastly, I cannot express my gratitude in having a content specialist available. I see the changes in my teaching, and I am learning how to incorporate more texts, while requiring students to produce sustained writing. My coach has taught me to stop hand-feeding my subjects to my students and allow them to take ownership in the learning process.”

LDC Helps Schools See Best Practices, Improve Planning

Leigh Williams

Social Studies Teacher

Randolph-Clay High School, Cuthbert, Georgia

“LDC has had a tremendous impact on both teaching and learning in the Randolph-Clay High School social studies department. It has allowed me to choose the best practices and instructional strategies to use with my students to increase mastery of standards. It has helped to increase literacy skills and has added rigor to the curriculum. With each unit and task, I have seen students move to another level of independent learning and a change of their attitude about writing. Designing modules is not only an exceptional planning tool, but it also allows for reflections to improve upon future work. It gives teachers an opportunity to figure out what is and is not working for students. It is a continuous work in progress and, although tedious initially, it has been a rewarding experience.

“Designing modules is not only an exceptional planning tool, but it also allows for reflections to improve upon future work.”

“Additionally, since I am department chair, implementation of LDC changed my role tremendously. I am now responsible for data collection, walkthroughs, etc. Not only did [Char-Shenda] Covington [an SREB trainer/coach] expose us to LDC — we also have common assessments reflective of DOK [depth of knowledge] level two through three questions, a standardized syllabus and departmental norms (for all social studies classes six-12), curriculum guides and an assessment calendar.”

Chemistry Students Learn by Reading

Doug Owensby

Chemistry Teacher

Springdale High School, Springdale, Arkansas

Entering Doug Owensby's chemistry class, we know right away that this class is different from most others we have seen. At first glance, it seems chaotic. Students entering class are each personally greeted by Owensby and begin retrieving file folders, going to a board that is covered with materials to discuss with their writing partners, and going to their desks to begin the warm-up. Owensby seems to be everywhere. He answers questions from individual students. He reads samples of work that other students have done, and he encourages those who are slow to start work.

Owensby is part of a group of three teachers at Springdale High School who began working with the Literacy Design Collaborative in the summer. The teachers learned how to create modules and how to transform their teaching through literacy. Owensby is an exceptional teacher who has changed his methods to help his students succeed. He cares about each of his students and will do "whatever it takes," he says, to ensure their success.

"We learn by reading."

"We not only get the textbook version — we read things that are more current, with the latest information."

Despite the apparent controlled chaos, this is a class where learning happens, where every student is valued as an individual, and where respect flows both ways between student and teacher. The assignment of the day is to complete the culminating writing product of the module the students have been working on for the last three weeks. Students ask questions about the many text examples on the board. They move to work with their writing partners to help each other with this draft. Student conversations around the class are about chemistry and writing. They are writing about the importance and negative aspects of plastics. They go to the side board to write the chemical formulas they need to write their papers. They work together to decide on the chemistry and discuss as scientists what would happen if changes were made. They direct their own learning at this point. Owensby is there as support, working with teams, working with individuals, asking probing questions, pushing his students and demanding more.

Owensby's classes are full of students at all levels. Many are second-language learners who speak about chemistry in both English and Spanish. One team of two students with English-language difficulty spoke about how they were able to learn chemistry. "We learn by reading. We read stuff we don't get in our books," one girl said.

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Owensby uses the textbook as a starting place for his lessons. Then he finds current scientific articles that make the learning relevant and interesting to students. “I was worried at first about getting everything done,” he said. “But then I realized I could teach so much more through these modules, and my students learned so much more. Look at their writing,” he said. “You don’t see that kind of writing and insight in other classes.”

“Students are learning how to think and not just brush the surface of material.”

His students agree. “We research, learn important things, think about what we read and base our ideas on our reading,” said Hallie, a student just finishing her writing assignment. “We not only get the textbook version — we read things that are more current, with the latest information. I know that I will always use this way of learning. It has already helped me in other classes. It will help me get through college. It will help me in life,” she added.

The LDC work at Springdale High School could not occur without the support of Principal Pete Joenks. Joenks fully supports his teachers and is always looking for ways to help his students succeed. He believes in the work teachers are doing through LDC. “Students are learning how to think and not just brush the surface of material,” he said.

“I know that I will always use this way of learning. It has already helped me in other classes. It will help me get through college. It will help me in life.”

Students in All Subjects Benefit from Literacy Assignments

Christopher Jackson

English/Language Arts Teacher

Eddy Middle School, Columbus, Georgia

“I am very thrilled to be a part of the Literacy Design Collaborative. This method of instruction allows me to plan lessons that guide my students to write their understanding of text they read. I have always used writing as a tool to show depth of knowledge of a passage or short story. The data I obtain from weekly writing are critical to the success of my students. I can see the gaps to be filled from week to week. I address those with differentiated writing assignments for each individual student.

“Writing is the best way for students to retain knowledge.”

“Writing the task gives the student a guide on what is expected for each lesson. Writing is the best way for students to retain knowledge because this allows them to use vocabulary words from the standard and specialized terminology from that particular subject.”

Jackson said he is looking forward to this year’s state assessment results, because he believes using the strategies will make a difference. “As chair of the ELA department, I have a clear way to ensure that teachers are providing rigorous lessons reflecting increased student engagement through use of complex texts to produce sustained writing.”

*“I can see the gaps to be filled from week to week.
I address those with differentiated writing assignments.”*

Social Studies Teacher Sees Value of Literacy

Eric Mosley

Social Studies Teacher

Greenville High School, Greenville, Georgia

“I’m gaining a better understanding about my students’ strengths and weaknesses. The more the students are reading and writing, the more I am able to see the importance of literacy,” said Greenville High School social studies teacher Eric Mosley.

He noted that students are reading more outside of class and bringing in research materials that they find on their own. Their willingness to read outside the classroom has increased, along with their interest in reading informational, non-fiction texts as well as the fiction that young people usually prefer reading.

“Students are reading more closely. They see more connections between what they read, what they write, and what the test is asking of them.”

“Once I can identify the issue, I can address it. These issues have ranged from not clearly understanding specific vocabulary to questioning the facts presented in the reading. To see students questioning the validity of a source or the facts involved in a reading assignment is amazing. I know they are really retaining what they are reading.

“I am really enjoying asking loftier questions and receiving the students’ responses, knowing they are thinking about things the first time, and that they are curious. I’m having more rewarding conversations with the students. They are making connections between big ideas that they have previously studied, and they are starting to question how major concepts influence other major concepts. Students are also asking more complex questions of each other and of me. Our classroom discussions are much richer and more complex.”

Mosley said his students also got a 94.9 percent overall passing score on the Georgia writing assessment. “This score can, at least in part, be attributed to the Literacy Design Collaborative work done in our classrooms,” he said. Students are more engaged in what they are writing because of the LDC tools that require students to apply what they are reading when they answer questions on tests.

“Students are reading more closely when we prepare for tests and assessments. I think LDC has been part of this, because through LDC, students see more connections between what they read, what they write, and what the test or assessment is asking of them.”

History Students Rise to the LDC Task as Teacher Begins Implementing Modules

Regina Cooper

Social Studies Teacher

Festus High School, Festus, Missouri

“There is greater understanding by students of what is expected on an assignment. They articulate any questions they have more clearly, and they are much more conscientious (taking their time, asking for work to be proofread, peer editing and correcting) about the quality of work they are submitting. They are also more receptive to redoing that work if it doesn’t meet the standard. There is somewhat less grumbling about having to read more difficult texts and having to write, as both are incorporated into every lesson.

“We should not look to the language arts teachers to teach those skills. We should be doing that.”

“In a two-day workshop, I was introduced to LDC at the Southern Regional Education Board Quality Teaching Conference in February 2012. I was unsure what to expect, but what was presented made so much sense. Teaching literacy should not stop at the language arts classroom door. Reading a novel involves a different skill set than reading a U.S. Supreme Court decision, or a chemistry problem or a technical manual. We should not look to the language arts teachers to teach those skills; we should be doing that. I decided after that workshop to see how I could implement at least some of the ideas into my classroom right away, and I have continued this year.

“I have been incorporating some of the LDC methods into my daily practice, as well as more varied reading strategies and differentiated assignments to accommodate all levels of learners. I have found the strategies less useful for Advanced Placement classes than for regular classes and lower-performing students.

“All of the assignments are developed as a way of building onto the content of future learning, and LDC methods have made this easier to accomplish. For instance, an informative essay on the printing revolution’s impact on the Protestant Reformation directly connects to the development of freedom of expression in American and European societies. Later on, an LDC argumentative essay on the influence of the enlightenment and Reformation on liberal political thought will complement the earlier essay. Assignments also reflect more real-world tasks; reports, letters, brochures, first-person accounts, summaries and essays have all been assigned this semester. These allow the student to work on inference, summarizing and interpreting data instead of simply memorizing facts.”

“I see myself slowly shifting from a ‘content-first’ teacher to a ‘skills-first’ teacher, where content is incorporated into the literacy skill, instead of the skill being thrown in with the content. This helps students understand that these skills are universal, are used in all subject areas, and will transition into the real world of the 21st-century workplace. It also helps to answer that age-old question, ‘What will I ever use history for?’

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*“I see myself shifting from ‘content-first’
to ‘skills-first’ teacher. Content is incorporated
into the literacy skill instead
of skill being thrown in with content.”*

“I brought back what I learned at the SREB Quality Teaching Conference in February to share with my literacy team members. Two of those members attended the half-day sessions at the High Schools That Work (HSTW) Summer Conference in July.

We were able to develop a 30-minute introduction of the initiative for high school faculty at the first professional development day in late August. There were lots of questions and concerns regarding how to implement this into what teachers already do. Our faculty has been asked to take on a lot during the past four years under HSTW and ‘one more thing’ was not really well received at first. The core area teachers were especially concerned with how to use LDC when they will have their own standards within a few years. The district has only recently begun stressing the Common Core State Standards, and that lack of communication, combined with the mixed reviews of CCSS in the media, are the biggest challenges regarding faculty buy-in to the initiative.

“We assured the faculty they would have plenty of training and assistance in implementing this initiative, and it should work seamlessly with their new standards. We have a commitment from our principal on training; one of her long-term goals is to focus on reading, and she is very excited about the possibilities of LDC. To facilitate this promise, the literacy focus team, which is made up of teachers from each core area plus career/tech, will receive further training to assist faculty in utilizing LDC, pending the availability of funding. We are also closely following our math department as it implements the Mathematics Design Collaborative.

“Our goal in implementing LDC is twofold. The initial focus is on reading skills. This spring the literacy team will encourage teachers to visit team members’ classrooms to see a reading strategy in action, and then observe those teachers as they use that strategy. At this point, we will revisit LDC and determine how best to implement it in conjunction with the increased use of reading strategies. We look toward proceeding with the full implementation of LDC in the fall of 2013.

“I think that once we have addressed reading skills with a comprehensive plan of improvement, the transition to using LDC will be smooth. Several teachers have already told me that after reading over the materials we made available, it made a lot of sense to them to teach specific literacy skills in each subject. I have high hopes for the successful implementation of LDC schoolwide, even district-wide in the next few years, using it to help with the transition to CCSS from K-12.”

LDC Enables More Rigorous Instruction

Hallie Booth

Science Teacher

Holmes Middle School, Covington, Kentucky

“I watched students who were struggling in my classroom to complete a writing assignment slowly gain the confidence to complete the writing task and do it with great pride and ease. This process showed the students that everything in the lesson that we take notes on and the activities we do in class are a direct link to the ‘final product,’ and if they follow the lessons, they would almost have the whole paper written by doing the mini-tasks and completing the work as we go. This was different from the past, as it gave me structure and needed activities to answer questions successfully.

“Their overall grades increased due to having to fully understand the material and not just spit it back on a test.”

“Working with the Literacy Design Collaborative has allowed me to take the level of questioning and writing that I was used to doing to a much higher level of rigor,” said science teacher Hallie Booth. “The process and prompts have allowed a non-language arts teacher the opportunity to better herself and walk through a writing process at a non-threatening pace.” It is not a “change in teaching,” Booth said. “It is a process that fits within the already mapped out curriculum. The mini-tasks become the activities within the lesson and can be from a 10-minute lesson to the entire class, depending on what is needed at the time. For each activity, we note how this will assist us in the completion of the task.”

In the beginning, the students did not feel they were adequate for the process and for successful completion of the task, Booth said. “Once they began to write, they experienced success. The students even helped each other and were more than excited to answer questions on-topic and be able to explain their answers. They went from, ‘Oh, we have to write what and how much?’ to ‘Isn’t this where this comment and point would go?’ They began to dread writing less since they saw their success and understood how to organize their thoughts to write a solid paper.

Each teacher in science must complete two LDC modules by the end of the year. All social studies teachers must have one finished LDC question.

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“Their overall grades increased due to them having to fully understand the material and not just ‘spit’ it back on a test. They found the test easier for them to take because of the level of understanding of the material.

“The school has embraced the idea by training the social studies and science teachers to implement LDC.” Each teacher in science must have two LDC modules completed by the end of the year. All social studies teachers must have one finished LDC question by the end of the year. Module Creator is a wonderful tool for teachers to create their own modules and see what tasks are needed to complete the tasks, pacing, articles and readings that are required, she said.

“Math is beginning the process with the Mathematics Design Collaborative (MDC) training this year and completing MDC tasks in the classrooms.” Booth said language arts teachers are working with Barbara Moore (an SREB consultant) on how to implement and “tweak” the springboard curriculum to allow implementation of LDC in all language arts classes.

Teachers Feel Liberated by Literacy Design

William Chesser

Biology Teacher

Har-Ber High School, Springdale, Arkansas

“For some reason, my teachers are asking better questions this year,” said Tyler, a 10th-grader in the team formed by Har-Ber High School. This year, four teachers in 10th grade and four teachers in 11th grade are teaming with a group of students from each. The students represent a mixture of demographics and ability levels that mirror the school’s demographics. The English, history, science and mathematics teachers do not just teach the same students; they have been given the gift of time. They have a planning period each day to talk about their work and their students.

“For some reason, my teachers are asking better questions this year.”

They are also going to loop with these students, so the 10th-grade English teacher will teach 11th-grade English next year, and the biology teacher will teach chemistry. This exciting concept was made possible by the administrative team led by Danny Brackett, principal of Har-Ber. Brackett and Assistant Principal Michael Shepherd keep in close contact with these teachers and visit their classes often to monitor their progress in this experiment. “We can see that students bring their learning from one class to another. These teachers are dedicated and want students to succeed and it shows,” said Shepherd.

To accomplish the move into the Common Core State Standards and to have a standard platform for learning, the teachers embraced the work of the Literacy Design Collaborative and the Mathematics Design Collaborative. The three non-math teachers design modules based on the teaching tasks they select to teach their content. The teachers struggled with their first modules but recently were able to see the results of their work.

Early on, he felt he was ‘failing LDC,’ but his teaching improved. Students were much more engaged, and the level of discussion was exceptional.

William Chesser, biology teacher, lamented early on that he felt as though he was “failing LDC, but my teaching is better.” He stated that his students struggled with the rigor of the work, but that they were much more engaged than in previous years and that the levels of discussion were exceptional.

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The teachers attended a training session where they learned how to use the LDC rubric as both a tool for improving writing and as an assessment tool. They brought the first student work resulting from their first taught module. Teachers were amazed with what their students had accomplished in their writing. “Oh, my gosh, this must be voodoo,” Chesser said. “I have never had writing of this caliber.” “The voodoo that you get in class is the result of what voodoo you do in class,” one of his colleagues quipped.

“It’s almost like I’ve been given permission to teach the way I always wanted to teach.”

Students seem to agree. Tyler talked readily about his teachers and his classes. “This new style of teaching really helps your learning. You’re more involved in your own learning, and it means something to you because you have done so much work that makes sense.” Tyler could see that the time spent reading complex texts, analyzing what they had read and writing arguments about their understandings was not only more interesting and engaging to him but that it mattered to him. The work, which centered on the teacher’s initial tasks, was well thought out, well planned, and allowed for individual differences in students. Students appreciate and respond to this work. “It really helps my learning,” said Tyler.

The LDC work continues at Har-Ber on this team and will be moved to the 11th-grade team as well. Teachers are excited and energized about this. Chesser summed up their feelings. “It’s almost like I’ve been given permission to teach the way I always wanted to teach.”

LDC Facilitates Real-World Learning in the Woods

Larisa McKinney

Science Teacher

Henry County Middle School, New Castle, Kentucky

Last Halloween in Henry County, shrieks from the woods were not from ghosts and goblins. Instead, eighth-graders from Henry County Middle School were reacting in noisy disgust to the pollutants found in their county's water supply. On that day, students conducted field research to determine water quality of the Little Kentucky River and then wrote articles about their findings for the county newspaper. Four students had their pieces published. The field trip was the culmination of a month-long study of watershed ecology taught by Larisa McKinney.

McKinney had taught the water unit for several years but expanded it this year as a result, in part, of training in the Literacy Design Collaborative curriculum and instructional planning methods. LDC pushed her to incorporate more research-based reading and writing into her assignments.

For this LDC module, students strove to answer the essential question, "How do the choices we make in our daily lives impact water quality locally and globally?" Students spent more than two weeks in class learning the science involved in answering the question, reading complex text describing water tests they would conduct during the field trip, and learning to read topographic maps. They continued in-class research with readings on the nitrogen cycle's role in soil fertilization and macro-invertebrates found in water.

LDC strategies help students write articles for the local newspaper about their research on the Little Kentucky River's water quality.

On the day of the field trip to the county waste water treatment plant, other HCMS eighth-grade faculty joined the students and staffed information stations related to the module's learning outcomes:

- Math teacher and Mathematics Design Collaborative team member Mary Esterle guided students to measure stream velocity.
- Math teacher and MDC team member Ricky Drawbaugh coached students in charting slope gradient.
- Social studies teacher Amy Treece conducted a discussion and written reflection on the Clean Water Act.
- Language arts teacher Jessica Crenshaw worked with students to select and begin reading and annotating research articles on ecological, political and cultural factors that impact local and global water quality.
- A water treatment plant staff member toured students through the plant's lagoon, while another helped students compare their water test findings with expert findings from the Beckmar Lab.
- Every student belonged to a group, and each group conducted nine different water quality tests and analyzed results.

continued...

Students spent the week after the field research trip reading more relevant research and writing informative articles for the local newspaper on the causes of poor water quality and the effects of land- and water-use decisions. During the writing process, the editor of the local newspaper came to McKinney's class and provided feedback on students' drafts. Along with the published student work, the editor wrote a companion editorial.

Extensions of the module include plans to conduct water quality tests for local farm water supplies, and then provide the farmers with written reports of test results.

Collaboration and Teamwork Help Students Succeed

Robin Beam

English Teacher

King Middle School, Mercer County, Kentucky

After completing a beginning activity on passive voice, Robin Beam's eighth-grade language arts class continued with their work on the module "Is Homework Harmful or Helpful?" Students would write a speech to present to the site-based council. Beam previously had incorporated a laying the foundations (LTF) activity to help students paraphrase quotations, and another activity on supporting claims. Today, students were examining famous quotations and analyzing how language is used to make the quotations powerful (e.g., parallel structure, contrast, figurative language and diction).

Students read the article "Homework Hubbub" aloud in class, underlining supporting statements for both sides of the argument with color-coded highlighters. After modeling and some guidance, students were able to find several examples of support in the article. Next, students read other articles independently to gather more support for their claims and an understanding of counter-claims.

Beam demonstrated how strategies from other programs like LTF can be incorporated into the instructional ladder of LDC.

Beam demonstrated how strategies from other programs like LTF can be incorporated into the instructional ladder of LDC. The class transitioned from reading to writing during a discussion of the resource readings for their module. Beam's colleague, Ellen Ingram, is implementing the same LDC module, and they are preparing their module to be juried nationally. Students set up note-taking sheets to begin research on the articles they will read.

With LDC, Students Become Teachers

Arnoldo Villalon

History Teacher

Mirabeau B. Lamar Middle School, Laredo, Texas

“One of the things I’ve noticed in using the Literacy Design Collaborative process is that my kids are now teaching me the content. Before LDC, the mentality was you [the teacher] know your subject matter. You’re teaching it, and you kind of already have an idea — you kind of expect what kind of answers you’re going to get from the students. With the LDC model, I have seen students give me responses, and they are going beyond what I have taught them. They are giving me their own interpretation of the information, and I’m learning also.

“I’m discovering facts and seeing things in a different light — in a different perspective based on their version — in what they are able to narrate back to me. I’ve enjoyed that, and I’ve seen that the LDC model does promote and does encourage learning and growth for everyone.”

*“I have seen students going beyond what I have taught them.
They are giving me their own interpretation of the information,
and I’m learning also.”*

LDC Is Changing How Teachers Teach

Sam Sanchez

Assistant Principal

Mirabeau B. Lamar Middle School, Laredo, Texas

*“That’s incredible! They are working,
and their minds are going a hundred miles an hour.”*

“In observing teaching and learning based on the Literacy Design Collaborative model, I’ve noticed that the students are working. They are the ones who are doing the work, and the teachers are the facilitators. I can see where all the planning went in — and all the hard, hard work that was done [by the teacher] prior to teaching the lesson. But during the lesson, the teacher is basically allowing the student to do the work. That’s incredible! They are working, and their minds are going a hundred miles an hour. That’s good to see.”

LDC and Project-Based Learning Go Together

Karen Harris

Literacy Instructional Facilitator

Fouke High School, Fouke Arkansas

In her role as “teacher of teachers” at Fouke High School, Karen Harris is an integral part of every Literacy Design Collaborative module developed at Fouke. Her understanding of the process makes it possible for her to assist each LDC-team teacher facilitators as modules are developed. She meets with them often and individually and encourages them as she makes the process more clear.

When LDC was ready to grow to include buddy teachers, Harris knew exactly which teachers were ready for the team. She had conferenced with teacher facilitators, and she had talked with other teachers in the building. When teachers expressed interest, she gave them information and added them to her list of potential LDC implementers.

Following the principal’s leadership, Fouke High is moving toward implementing performance-based learning (PBL) schoolwide. The principal felt that PBL and LDC might prove too much for the faculty and students. Harris explained the connection between the two in a way that prevented the principal from dropping LDC and implementing PBL only. Harris told her principal, “PBL works well with LDC. LDC provides a framework for PBL.” She highlighted specific alignment that could exist if both were implemented. She also inspired the state trainer assigned to Fouke to find a workshop that links PBL and LDC so the trainer can be better informed and more able to assist.

*Harris explained the formative nature of the LDC rubrics
and linked it to teachers’ understanding
of the Arkansas writing rubric.*

When the teachers were struggling to understand the difference between the LDC rubrics and teacher-made rubrics that yield grades for the grade book, Harris was able to explain the formative nature of the LDC rubrics and link teachers’ understanding of the Arkansas state writing rubric to help them effectively use LDC rubrics to score a final writing product. “Begin by looking at the ‘meets expectations’ column of the rubric, like you have been state-trained to do,” she told them. That approach gave them a comfort level that allayed the fears of a completely new rubric.

When Harris was not included in the first round of names submitted to Module Creator, she said, “I need Module Creator. I am already writing a module, and I know I can help my teachers better if I can work with them through Module Creator.” When she was added to Module Creator, she told teachers to add her as an author, giving her access to their modules so that she can better assist them.

Harris now wants to be a certified LDC trainer. She is hungry to do the kind of job that has an impact on students by helping teachers.

Accomplished Teacher Gets Better, Students Lead Learning

Bill Hoglund

U.S. History Teacher

Hope High School, Hope, Arkansas

Bill Hoglund is an accomplished teacher and athletic director at Hope High School. Even though he is National Board Certified and has a record of strong teaching with the success of his past students to verify his effectiveness, Literacy Design Collaborative is strengthening his teaching still further. In the past, he favored lecturing, and has strong Advanced Placement scores to support this approach. Even so, he was eager to implement LDC in the hope that students would perform even better with the opportunity to be engaged in the learning.

*“Coach Hoglund answers our questions with more questions.
He won’t tell us the answers.”*

After attending the LDC training, Hoglund wrote his first module. He was already a believer in starting with the end in mind, and LDC provided an instructional ladder to take him there with steps that logically lead students from preparing for the task through reading and writing and culminate with the final written product. He is quick to say he is not an English teacher; however, his instruction is embedded with literacy strategies slanted to reflect a historian’s perspective.

Change is occurring in Hoglund’s classroom. His podium is no longer front and center, and he has increased the use of technology. His Smart Board displays the LDC skills cluster being addressed that day. He is gradually releasing the learning to the students. One student said, “Coach Hoglund answers our questions with more questions. He won’t tell us the answers.” Students said they enjoy the opportunity to talk to each other as they learn. They also noted that the writing is not easy, but the teacher leads them step by step as they read and write. One said she liked knowing the final assignment from the first day and made notes that came to mind as she heard ideas each day.

Hoglund said one success between the first and second module was that “the students didn’t ask me how long the written assignment needed to be.” He plans to use the LDC rubric as his “report card.” He will use scoring rubrics with each module and look at student progress over the year. If the scores stay the same, he will know “we had a great time this year, but we didn’t learn anything.”

Hope High was not initially chosen to participate in LDC training, but when Hoglund became aware of a last-minute opening, he convinced his principal. As the school moved through training, teachers saw that Hoglund exemplifies the “collaborative” in LDC, happy to help with Module Creator and ideas for their modules. Because of his leadership, the first teacher facilitator group wrote and launched two modules. Each of them chose a buddy teacher and will be expanding the work.

Students Think for Themselves, Improve Scores

Toby Craver

Agriculture Sciences Teacher

Oden High School, Oden, Arkansas

Toby Craver, a 15-year veteran in education, is an agriculture teacher at Oden High in Arkansas. Keeping student learning as his major focus, being open-minded to change, and willing to learn himself, he started the 2012-2013 school year with a new approach to instruction in his classroom: the Literacy Design Collaborative. Nervously, he put aside his tried-and-true method of instruction and wholeheartedly began a new instructional journey.

*Students are sharing their knowledge with each other,
which pushes them to do better.*

“I am proud to report that six out of the seven students I had in class made 90 percent or above on EOC [the end-of-course exam]. I credit the higher grades to the change in the environment LDC has made.”

He also said his students are excited about being allowed and encouraged to think for themselves. They are more engaged, have a better understanding about what they are learning and can apply this knowledge to real-world situations. He said that one of the best aspects of LDC is that students are sharing their knowledge with each other, which pushes them to do better. For him personally, LDC has made teaching fun again and has allowed him to pull from his own tool box of instructional knowledge and expertise.

Craver is tweaking his LDC module titled “Genetics: Purebred versus Crossbred.” He is ready and willing to collaborate with other teachers across the nation and can be contacted at tcraver@orsd.k12.ar.us.

“LDC has made teaching fun again.”

Vignettes: Mathematics Design Collaborative

“If we are going to do Common Core State Standards math correctly, then this is the way we have to do it.”

— algebra teacher

“This makes learning real for us. It gives us concrete whys for doing the math.”

— math student

“I realized that my students were capable of a much higher level of thinking than I was giving them credit for. They were reasoning in ways that I had never imagined. I had been robbing them of that opportunity.”

— geometry teacher

“Our principal is 100 percent behind the project. He comes into my class to observe, and he sees my students are learning.”

— algebra teacher

“I finally understand math.”

— geometry student

Florida Teacher: MDC Students Have ‘Aha’ Moments

Rachel Schrimsher

Seventh- and Eighth-Grade Math Teacher

Windy Ridge Middle School, Orlando, Florida

Rachel Schrimsher is one of two teachers working with the Mathematics Design Collaborative at Windy Ridge Middle School in Orlando, trying to implement practices on a regular basis to assist with the transition to Common Core State Standards. They work together to plan lessons, meet with other teachers during professional learning community time to discuss the data and model lessons for others in the department. They plan to have every teacher involved by the end of the school year.

Schrimsher explained that her biggest weakness area is “GPS-ing” [giving students predetermined steps to find an answer]. “I see that when I use MDC effectively, it has a positive effect on my students. They love the activities and being able to work together. I have done three formative assessment lessons (FALs) — linear equations, T-shirts and quadratic expressions. My students enjoyed the linear equation FAL. They had an ‘aha’ moment and really understood the concept. I believe my students experienced the most growth completing this lesson.”

“One of my students was struggling with a concept, and the consultant kept asking questions about what the student knew until she said, ‘I got it!’ It really had a profound impact on me.”

Schrimsher is collecting data in the form of basic test grades and daily pre- and post-assessments. She reported that students’ attitudes have gotten better, participation has increased, and her students are more excited about mathematics. She said her two biggest challenges with MDC are a lack of resources and understanding the curriculum well enough to know the proper placement of FALs. “During a lesson, I have a difficult time not ‘GPS-ing’ and letting students have productive struggle. My students all know how good I am at giving them the answers.”

“I really learned a lot when the SREB consultant was in the room” for classroom observations, Schrimsher said. “One of my students was struggling with a concept, and the consultant refused to GPS the student. He kept asking questions about what the student knew until she said, ‘I got it!’ Schrimsher said. “It really had a profound impact on me. You realize the student really knows the concept now, because she had to think through the problem and was not given the answer.”

They plan to have every teacher involved by the end of the school year.

Students Persevere to Solve Problems, Raise Test Scores

Leona Martin

Algebra and Geometry Teacher

Wickes High School, Wickes, Arkansas

“The Mathematics Design Collaborative has enabled me to improve my questioning strategies, and it has created persevering problem-solvers,” said Arkansas math teacher Leona Martin. “It has also helped my students become more attentive to detail and be more precise.”

Martin said that initially her students were reluctant to even attempt a problem if it wasn’t identical to one they had completed before. “They now do not even question problems before diving in. That does not mean they always come up with the correct answer, but persevering in solving problems is a major improvement. They are also able to discuss problems and debate reasoning.

“I also learned about grouping students homogeneously, which has allowed for differentiation in my classroom that I was never able to accomplish prior to MDC,” said Martin.

“When I first started implementing FALs, my students wouldn’t even attempt to complete a pre-lesson assessment,” Martin said. “They were so scared of getting the wrong answer that they would not even try to get the right one. After completing several FALs, my students started taking more initiative, not just during MDC activities, but during our regular class work. They started working harder to find answers instead of giving up. They began participating in class more. They now have regular discussions over problems every day. They attempt to defend their own reasoning and debate the reasoning of others.”

The proof may be in the exam scores. Martin provided the following data.

	Geometry EOC 2011	Geometry EOC 2012
Advanced	9.5%	15.2%
Proficient	64	63
Basic	24	21.7
Below Basic	2.4	0
Advanced and Proficient	73.5	78

In Algebra I, the percentage of students testing Proficient or Advanced was lower than the previous years, but there were remarkable gains: 48.5 percent of students had at least a 10 percent increase in raw scores over the previous year. The average percentage increase for all students was right at 9 percent.

MDC Challenges Alabama Teacher to Move Out of Comfort Zone

Joseph Miller

Algebra Teacher

Carver Magnet, Dothan City Schools, Dothan, Alabama

Joseph Miller, a teacher at Carver Magnet School in Dothan, Alabama, has completed two formative assessment lessons (FALs). Miller said the biggest challenge for students is “getting them accustomed to not depending upon the teacher for answers.” The Mathematics Design Collaborative is a mind-set change, and it involves direct instruction. It requires students to think on their own and work together, he said.

*“I have to fight myself to not teach the way I was taught.
The hurdle is getting out of your comfort zone
and making changes in instruction.”*

“Initially I thought this [MDC] training was going to be a two-day waste of my time, but I came out of it loving it. Students really enjoy the movement and collaboration. My feeling toward the process is that it is beneficial, and I would like to do one [FAL] every week. I really have to prepare, and I cannot wing it. I have to fight myself to not teach the way that I was taught. The most significant hurdle is getting out of your comfort zone and making changes in instruction.”

Miller is the lead teacher facilitator at Carver Magnet. He models lessons for four math teachers at his school, and he works with other schools within the district to analyze pacing guides, provide feedback on lessons and share lessons learned while implementing MDC in his class. He wants to develop a full scope and sequence for Algebra I and then begin working with a local high school to bring on more teachers in the county.

*He wants to develop a full scope and sequence
for Algebra I and then work with a local high school
to bring on more teachers in the county.*

MDC Takes Learning to a Deeper Level

Linda Barnes

Algebra Teacher

Oden High School, Oden, Arkansas

Linda Barnes teaches algebra at a small rural school in southwest Arkansas where two math teachers serve students in seventh to 12th grade. Barnes completed 13 Math Design Collaborative high school formative assessment lessons (FALs). She is co-teaching as the other math teacher begins to use FALs, and together they have completed eight FALs in seventh- and eighth-grade classes.

“If we are going to do Common Core State Standards math correctly, then this is the way we have to do it.”

“I love MDC,” Barnes said. “I am all about it! I think it takes learning a lot deeper. I have always wanted to teach this way, but we have not had the vehicle to do it until now. It was difficult at first, but the more you do it, the easier it is. If we are going to do Common Core State Standards math correctly, then this is the way we have to do it. We have to encourage our students to think for themselves, and using FALs does that in an organized manner for the teacher.”

“I can see my students, particularly those who are low-end, retaining information a lot better,” she said. “My students who typically earn an F are now getting one or two grades higher. I generally have to reteach, and now I can go deeper and do not need to reteach nearly as much. The post-test does not always reflect how much the students have learned, but the unit tests are showing a lot of improvement. Students are so bored with stand-and-deliver teaching, but the FALs make class instruction less boring, because the students enjoy the movement and collaboration.”

*“This makes learning real for us.
It gives us concrete whys for doing the math.”*

Her students are committed to learning concepts. “They have said, ‘Why weren’t we taught this way in the past? This makes learning real for us. It gives us concrete whys for doing the math.’”

“Our principal is 100 percent behind the project,” said Barnes. “He comes into my class to observe, and he sees my students are learning. He loves the student engagement and the idea that there is no down time. It is exactly the way math should be taught, and I would recommend it to anyone.”

*“Our principal is 100 percent behind the project.
He comes into my class to observe,
and he sees my students are learning.”*

MDC Helps Students Discover Their Potential

Amanda Cook

Algebra and Geometry Teacher

Monticello High School, Monticello, Arkansas

Amanda Cook teaches high school mathematics in the small town of Monticello, Arkansas, which has a population of about 10,000 people. Cook started using formative assessment lessons (FALs) in her classroom in fall 2011. “We were told right before school started that we would be piloting a new project carried out with the Southern Regional Education Board. We had no idea what would be involved. I was chosen to be the geometry representative from our school.”

“I realized that my students were capable of a much higher level of thinking than I was giving them credit for. They were reasoning in ways that I had never imagined. I had been robbing them of that opportunity.”

At the training in Little Rock, she immediately saw the potential of FALs. “As a matter of fact, I used the FAL trainers demonstrated that day in my classrooms the next week,” she said. “Well, I learned a bit of a lesson from that. FALs do not work well if you have no idea how to use them. It is like having a tool and having no idea how to operate it. I realized that I had some things to work on.”

More training helped her do just that. “I realized that my students were capable of a much higher level of thinking than I was giving them credit for,” she said. “Students were reasoning in ways that I had never imagined, and I turned into more of a facilitator in the classroom. Students were taking ownership of their own learning. I realized that I had been robbing them of that opportunity. I also realized that it is hard to let students struggle with a problem instead of telling them what to do.”

It was not long before every member of her math department was implementing FALs in their own classroom.

Cook went back to her school and began talking to other math teachers about how excited her students were about the FALs and the conversations the lessons generated about math. It was not long before every member of her math department was implementing FALs in their own classroom. Jeannette Lougee, an SREB coach, said she believed students started showing a deeper understanding of the targeted learning as Cook used the FALs. Cook said,

continued...

“They could write more, describe more and explain more than they did before I started using the Mathematics Design Collaborative work.

I always wanted to make this happen, but I did not seem to have the tools to properly get to the meat of the learning. The FALs, if used properly, make this happen.” Cook said she has collected data from the FALs and has seen growth on the pre- and post-lessons’ assessments. “I know that they may not show 100 percent mastery, but if they improve and get stronger, that is what is important and is celebrated.

“They could write more, describe more and explain more than before I started using the Mathematics Design Collaborative. I always wanted to make this happen, but I did not seem to have the tools.”

“The most important thing I learned through this process was how to use the five strategies of assessment for learning.”

The Five Strategies of Assessment for Learning

Clarify and share learning intentions and criteria for success.

Engage effective discussion, questions, activities and tasks that elicit evidence of learning.

Provide feedback that moves students forward.

Activate students as instructional resources for one another.

Activate students as owners of their own learning.

“It is very easy to use the five strategies while doing an FAL because the projects seem to be centered on the strategies. The hard part is making sure that I am using the strategies the rest of the time,” Cook said. “Slowly I began changing the way I teach all of the time and making sure I give students the opportunity to discover mathematics. Now that I have learned how to use the five strategies, I feel much more prepared to teach the Common Core State Standards, and I am excited to have the FALs as tools to use in my classroom.”

“Slowly I began changing the way I teach all of the time and making sure I give students the opportunity to discover mathematics.”

Class Visits from Principal, Trainers Help Math Teacher Stay on Track with FALs

Marsha Eggburn

Algebra and Geometry Teacher

Sheridan Freshman Academy, Sheridan, Arkansas

Marsha Eggburn has done at least eight formative assessment lessons (FALs) so far, and her goal is to do a total of 15 this school year, spread between her algebra and geometry classes. “I like the Mathematics Design Collaborative. It encourages students to think differently, and it helps take the fear and anxiety out of taking a chance.”

Eggburn likes the homogeneous pairings that group students according to their abilities. It allows the high group to move on, and if the low group does not, it is not as intimidating. “In the beginning, I thought the FALs would be too hard for my students. It is encouraging to realize they know a lot more than what I gave them credit for,” she said. “We do more ‘thinking’ activities in the classroom, and I do not just give them the answers.”

“It is good that the principal comes into the classroom to watch the FALs, because it makes me do it.”

Eggburn said she thinks it is good that the principal comes into the classroom to watch the FALs “because it makes me do it.” “There were times I would go to professional development sessions, and then go back to school and do things exactly the way I have always done them because no one ever followed up,” said Eggburn. Now teachers must be accountable, because the SREB and Arkansas Department of Education trainers conduct follow-up classroom visits. “I wish I had more time to fit more FALs into the curriculum. I believe an outline and syllabus would be helpful with planning,” she said.

“My students like MDC, and they love the activities, because they can see how the math works,” she said. After completing the parallel and perpendicular lines lesson, one of her students said, “I finally understand math.” Eggburn gives both pre- and post-assessments back to her students so that they can visualize their growth and success.

Eggburn has brought on one buddy teacher so far, and that teacher has already implemented two formative assessment lessons.

“I finally understand math.”

‘MDC is Making Me a Better Math Teacher’

Carla Golden

Math Teacher

Umpire High School, Umpire, Arkansas

This is Carla Golden’s first year back in the classroom after retiring as a math teacher and principal. She is the only math teacher at Umpire High School, with a population of just 59 students.

Golden is excited about formative assessment lessons (FALs) and has successfully adapted them to the appropriate grade level. Golden said, “I have completed seven FALs, and I have had to change my old ways of high-stakes-test teaching. I believe the greatest benefit is that teachers get so much bang for the buck with an FAL. You get multiple coverage and multiple standards. My students love it, and they have been extremely excited.”

“I have felt inspired to teach again because seeing the ‘light bulb’ come on is so exciting,” said the ex-administrator. Golden said teachers have completed FALs in distance/time/graph, sense of scale, parallel and perpendicular lines, steps to solving equations and expressions, and positive and negative numbers. They were preparing to do irrational numbers.

*“Teachers get so much bang for the buck with an FAL.
You get multiple coverage and multiple standards.”*

One challenge in her district is getting the FALs in the proper place in the curriculum. However, Golden believes that teachers are the bigger challenge. She shared her experience with another teacher, who said, “I am not doing this. I have been teaching for 30 years, and I know how to teach.” Golden worked with the teacher and showed her the success students were having, and the teacher reluctantly tried one of the lessons. She immediately began to see the same things in her own class, and now she enjoys working with the project as well.

Golden said she has had special education students in her class who historically have not done well. After using FALs, they are now doing much better and showing more confidence. She is collecting data by giving her students the pre- and post-assessments back and letting them see their progress for themselves.

“MDC is something that helps kids get it. It gets your classroom much more engaged and retrains teachers on the best practices of teaching mathematics. MDC is making me a better math teacher,” she said, and making students think.

FALs Give Arkansas Teachers a Way to Improve Learning

Rhonda Leichliter

Algebra Teacher

Rogers High School, Rogers, Arkansas

In 2011, while working with the Mathematics Design Collaborative, Rhonda Leichliter said, “I had 35 students in my two algebra block classes take the end-of-course (EOC) exam, and 80 percent were Proficient or Advanced, compared to 55 percent the previous year.” She said 44 students took the EOC exam in her two regular Algebra I classes, and 100 percent were Proficient or Advanced.

*“... focusing on the individual needs of the students
and clearing up those misconceptions and difficulties
they had with different math problems.”*

“I think my scores in the algebra block increased by 25 percent, and I had 100 percent proficiency in my regular Algebra I class due to a few changes. I think the most significant was focusing on the individual needs of the students and clearing up those misconceptions and difficulties they had with different math problems.” Formative assessment lessons helped her do this, she noted.

“I am now more specific in my objective, the lesson and the assessment. Writing and reasoning about math on the posters, doing activities, teaching students to persevere through problems, teaching them to use different strategies, and letting them know that it is okay to be wrong — I think this part of the FAL helped to improve open response scores. Teaching students to learn from their mistakes increases their chances of being successful and confident problem-solvers.”

Leichliter said she is more confident as a teacher and her assessments are more specific. She rethinks, reflects, re-teaches and does whatever is necessary for all students to succeed. “I think the positive feedback and encouragement have done wonders for my teaching and confidence. I have become more of a leader in my department instead of a follower. There are still some teachers who resist the change, but that is natural. I think our administration and principal are leading our school in the right direction, and the SREB team and the FAL lessons have definitely given us a way to improve learning in the classroom.”

*“I think our administration is leading our school
in the right direction. The SREB team and FAL lessons
have given us a way to improve learning.”*

MDC Influences ‘Old-School’ Teacher to Change ‘Stand-and-Deliver’ Style

Harry Collins

Math Teacher

Arlie Boggs Elementary, Eolia, Kentucky

Harry Collins teaches math at Arlie Boggs Elementary School, a small school in Eolia, Kentucky, that serves grades pre-K through eight. His school is involved with development and delivery of formative assessment lessons (FALs), and his entire department has jumped on board. Collins has completed three FALs — on temperature change, expressions and solving equations — and he plans to complete a total of six this year. Collins has been able to implement the FALs in his classes in grades five, six, seven and eight. He said, “In all three FALs, it was very clear and amazing to see student growth from pre- to post-assessment, especially in the problem areas. Growth is almost automatic when doing an FAL.

“It is hard being from the ‘old school’ and trying to break the bad habit of ‘GPS-ing’ [giving students predetermined steps to find an answer] that comes from years of stand-and-deliver teaching. I am retooling and changing by using student-directed questioning, and I find it far more powerful than what I was doing before, because questioning and providing feedback allow the kids to think about the process.

*“I am retooling, and I find it far more powerful,
because questioning and providing feedback
allow the kids to think about the process.”*

“My questioning skills have improved dramatically. In the past when a student went into productive struggle, I bailed them out. Now I do not bail them out and put the monkey on my back. I allow the student to own the process. I see a total difference in how I approach student learning. It is no longer about me. I am trying to let students do the driving, and questioning has been my biggest area of growth. I am amazed at the ‘aha’ moments that I get. It brings out learning that shocks me. I have seen students who I thought would not be successful become successful; the ones I thought would be successful are struggling, and it is because of the different delivery of materials,” Collins added.

“In the beginning, the first FAL was misplaced, but now we have analyzed the FALs and our curriculum and properly placed them,” he said of the challenges. “Also, the prep time is a big challenge due to the amount of work.”

MDC Changes Classroom Learning Environment

Jami Welch and Vijay Gangadharan

Math Teachers

Stewart County High School, Lumpkin, Georgia

“Formative assessment lessons (FALs) have changed the way we teach, the way our students learn and the way our classroom looks each day,” said Jami Welch of Stewart County High School.

“In the last two years, we have implemented the five FAL strategies from the Mathematics Design Collaborative. We have also implemented the FALs in alignment with the Common Core Georgia Performance Standards (CCGPS) and some Georgia Performance Standards (GPS) classes,” said Welch. “Throughout the implementation process, we have had to learn how to provide effective feedback, allow students to have a productive struggle, and change the learning environment of our classrooms.”

The Five Strategies of Assessment for Learning

Clarify and share learning intentions and criteria for success.

Engineer effective discussion, questions, activities and tasks that elicit evidence of learning.

Provide feedback that moves students forward.

Activate students as instructional resources for one another.

Activate students as owners of their own learning.

Teachers use FALs to adjust instruction daily. Using them consistently allows teachers to provide timely interventions for students who do not meet the standard. Teachers use feedback from formative assessment lessons to create flexible groups that help meet the needs of individual students. “This helps us close the learning gap in our classrooms,” Welch noted.

“We are in a continuous process of gathering evidence of learning.”

“We have changed the way we answer students’ questions. Rather than simply answering them, we ask students questions to help *them* produce the answer. This is engaging our students in a productive struggle. Through our study of the MDC, we have had to learn how to allow students to struggle through a task without telling them answers,” she said.

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“We had many days where our students shared our frustrations as we practiced not GPS-ing them but instead asked them guiding questions,” Gangadharan added.

Welch said FALs also have changed the learning environment of the classrooms. “The way we assess students’ knowledge of the standard has changed. Students have become owners of their learning by keeping track of what standards they have met through formative assessment. Students are able to identify their weak areas and study accordingly. We now encourage our students to use each other as resources during the work session,” she said.

“Collaboratively planning instruction from the perspective of formative assessment with the use of the FALS has changed our thought process as teachers,” Welch said. “We are in a continuous process of gathering evidence of learning. As we continually modify instruction using formative assessment, we see greater achievement in students. Using formative assessment, we are able to meet the needs of individual students and provide timely interventions.”

“Students become owners of their learning by keeping track of what standards they have met. They identify their weak areas and study accordingly. We now encourage students to use each other as resources during the work session.”

Students Make Teacher So Proud 'I Could Have Done Cartwheels'

Susan Rigby

Algebra Teacher

Pine Forest High School, Pensacola, Florida

Susan Rigby is no longer a Florida math teacher who says, “You try one, and I will fix it.” She no longer walks by and tells her students what to do. She now asks students, “Tell me what you think is the first thing you should do.” She has committed to breaking the bad habit of giving the answers. Rigby said, “I could have won an award in GPS-ing [giving predetermined steps to find an answer].” She is moving away from outdated teaching methods and embracing a new style.

Rigby said it was not until after attending the initial training session for the Mathematics Design Collaborative with SREB consultant Deborah Lemon that she realized the difference the Common Core State Standards made in student achievement. She took the lessons learned from that training and began questioning, analyzing and asking her students to think more. “I like it [MDC], and I am excited about it,” she said.

“I know my students are getting it, because when I observe their daily work compared to even six weeks ago, there is a change,” she said. “They are excited to use their whiteboards, and it has become unacceptable to hold up a blank board.” When Rigby first started, one-third of her students would leave their boards blank; now everyone tries to at least get the first step. In the beginning some students would only write a few words; now they write up to six sentences explaining their thinking.

“Some of my students used to put their heads down and act defeated. Not now. I no longer feel my students are shutting down. Until now, I never had students walk in and say they loved to do anything. They are feeling more confident.

“Every day things are adaptable to my students who are functioning on the fifth-grade level,” she noted. The classroom is a double-block math, low-level students. Rigby said none of her students came in functioning on grade level. It was an uphill battle. Forty-six percent of her students are inclusion-special education. “Homogeneous pairing is working great. I have seen my special education students make tremendous growth, and I have seen students writing sentences on their scratch paper, eliminating choices. I could have done cartwheels,” she said.

Rigby has completed four formative assessment lessons (FALs), and her students have all shown growth. The classroom has shown a 56 percent to 60 percent increase in improvement on pre- to post-lesson assessments. She has been designing questions in her class assessments that require students to explain why they make the choices they have made, and they are figuring it out. Rigby expects her exam district scores will be much higher, and she is proud of the changes she has seen in her students at Pine Forest High School.

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Subject Area Exam Score Comparison 2011 – 2012, First Semester Rigby

Year	Level 1 Students	ESE Students
2011	60%	24%
2012	100	46

One hundred percent of her Level I students were proficient in 2012, and her proficient exceptional student education (ESE) students increased from 24 percent to 46 percent in one year. Rigby directly attributes this to the work that she is doing to make sure students learn to think in her classroom and not just sit and be on the receiving end of a lecture.

Teachers Amazed at Student Growth with Math Design

Katie Floyd

Math Teacher

Fairmont High School, Fairmont, North Carolina

The teachers at Fairmont High School in North Carolina received their first training on the Mathematics Design Collaborative in late September 2012. They were very eager to implement the MDC strategies in their classrooms. “I really need to change the way I have been teaching. I have been stuck doing the same things and need to get out of my comfort zone,” one teacher wrote on the training survey. Another teacher wrote, “This training has increased my love for teaching students of multiple ability levels. It has shown me new ways to differentiate my lessons.”

Amanda Merritt, an SREB mathematics consultant, visited Fairmont High School in mid-October. The Math I teachers had implemented the “interpreting algebraic expressions” formative assessment lesson (FAL) prior to this visit. She asked them to reflect on how the lesson went in their classrooms. The teachers all had very positive opinions about the FAL. “I really appreciated one teacher’s honesty about this particular lesson,” Merritt said. The teacher said she loved the FAL even though it shined a light on a concept she felt she needed to work on herself — using area models.”

*“This training has increased my love
for teaching students of multiple ability levels.
It has shown me new ways to differentiate my lessons.”*

The teachers said students worked together to solve problems and match the cards. “The students really enjoyed the hands-on activity and the chance to work with other students on their level academically,” one teacher said. Another teacher said, “They thought they were so smart! They want to do more matching.” A special education teacher said his students enjoyed the FAL even though they thought it was hard.

Teachers followed the structure of the FAL and analyzed the students’ pre- and post-lesson assessments for growth. They said students were able to answer more questions correctly on the post-lesson assessment. Students who struggled on the pre-lesson assessment were able to see how the words determined what the expression said. One teacher noted, “Many of the students showed a great amount of growth. I was honestly amazed at their growth and progress.”

MDC Shows Special Ed Teacher Where Students Struggle

Kelly Conley

Special Education Mathematics Teacher

Kendrick High School, Columbus, Georgia

Kelly Conley is a special education math teacher at Kendrick High School in Columbus, Georgia. He started focusing on formative assessment lessons (FALs) in the 2011-2012 school year, but he was not sure this type of learning would be appropriate for the level of students in his class. “I started out kind of shaky on how special education students could learn this way,” said Conley. He had to learn to question himself and the students so that he could use the FAL technique to get students to figure out the answers themselves.

“It helps a lot to work the task out myself before giving it to the students, because this helps me determine what may cause the students to struggle.”

Jeanette Lougee, an SREB math coach, introduced the five strategies of learning, and students have been trying to focus on these strategies to make the FALs as useful as possible. “I think I have been successful with FALs because I take the time to ask myself questions, and then I ask myself would these questions be beneficial to the students,” Conley said. “It helps me a lot to work the task out myself before giving it to the students, because this helps me to determine what may cause the students to struggle. I think the FALs are really helping the students at Kendrick High School, because they are teaching students to use prior knowledge in order to lead to deep levels of thinking. The FALs are helping me learn the different ways students think, and they are also helping me learn not to lead students to the answer but to help them lead themselves to the answer.”

Lougee has observed Conley in his classroom. “His implementation was one of the best I have seen,” said Lougee. “This was his first time teaching the FAL by himself. He really studied the FAL and showed me his work on every part — the pre-lesson assessment and the collaborative activity. He had several pages of work to share with me. Many parts were highlighted. He also had a page of notes and questions to ask.”

This process helped him understand the content and be prepared to help students where they might struggle. He followed the script, allowed for productive struggle, and homogeneously grouped the students. All students were very engaged and their attitude was happy and positive, Lougee added.

Conley shared his implementation of this FAL with fourth-period planning teachers. He noted that he saw growth in most students. Scores had begun to increase greatly on the end-of-course test, including for special education students. Both special education and regular students met their goal in Georgia Performance Standards Algebra during last year’s end-of-course test.

Rural Science Students Raise Scores with LDC

Frances Patterson

Fifth-Grade Science Teacher

Red Springs Middle School, Robeson County, North Carolina

Robeson County is a large rural district with more than 20 secondary schools. Most schools have a lead teacher or curriculum specialist charged with supporting teachers to deliver improved instruction. Two certified SREB Literacy Design Collaborative trainers provided intense training and guidance in developing LDC modules around required content to the curriculum specialists and one buddy teacher they identified to work with during the learning. An emphasis was placed on strategies to help the high percentage of struggling readers to read and comprehend grade-level texts and to support increased response to the reading through structured writing experiences.

*“Students learned on their own and in groups.
The learning was inquiry-based.”*

Frances Patterson is a buddy teacher who worked with a curriculum coach at Red Springs Middle School. “This is my first time using the LDC module. I’ve taught two units and now I’m on the third one,” said Patterson. She had completed units on landforms and force in motion and was working on a genetics unit.

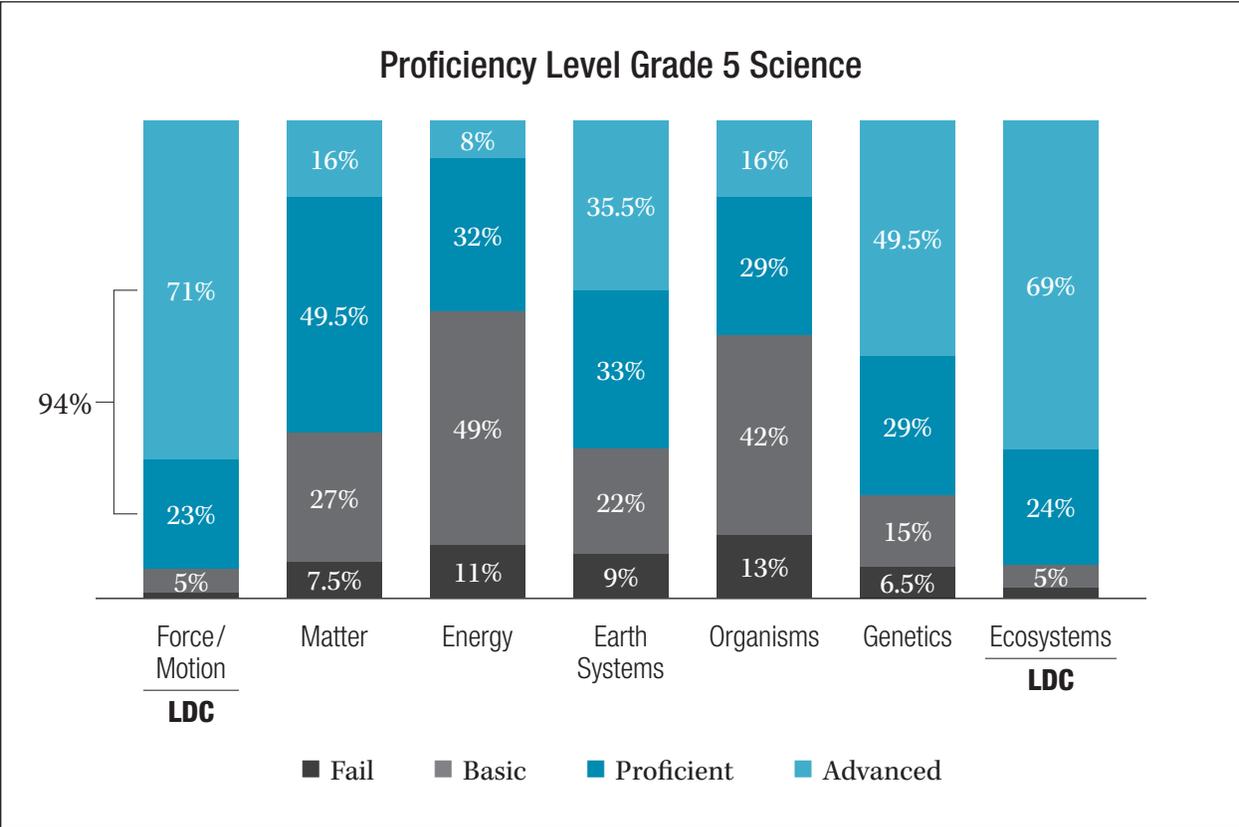
Force in motion is about Newton’s Law of Motion, Patterson said. “Students designed a car. They raced the car in order to see how the weight affected the motion and distance the car would travel over time,” she said. They also had to write an informational paper and cite their work. “The students enjoyed the module,” Patterson reported. They did not complain, but since this was their first time writing an essay, they had plenty of questions about how to write and structure the paper. “I enjoyed it because students learned on their own and in groups. The learning was inquiry-based,” she said.

*Student achievement in the units taught with MDC
far outpaced gains in the other units.*

The district contracts with an external assessment vendor who develops and scores benchmark assessments using the state curriculum frameworks. All schools reported significant differences in student achievement on the December 2012 benchmarks for units taught using the LDC approach and those taught without LDC. The results at Red Springs Middle are representative.

Student achievement in the units taught with MDC (force in motion and ecosystems) far outpaced gains in the four other units. In the LDC units, only one or two students failed to meet standards; 94 percent scored at the proficient and advanced level; and 70 percent achieved at the advanced level in both units. (See table on page 45.)

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Note: Totals may not equal sum of entries due to rounding.
 Red Springs Middle School, Robeson County, North Carolina
 December 2012

Teachers Learn It's OK for Students to Struggle to Learn

Toni Canizaro

Algebra and Geometry Teacher

Raymond Freshman Academy, Raymond, Mississippi

Toni Canizaro is an Algebra I and geometry teacher at Raymond Freshman Academy in Mississippi. She was recently elected school and district teacher of the year.

Canizaro has completed 10 formative assessment lessons (FALs) and plans a total of 15 this year. "I have been doing my very best to implement FALs, and I have found them beneficial and enriching," she said. "The lessons take students to the next level. I love the fact that students are forced into a productive struggle. I would say the Mathematics Design Collaborative is a very good tool for a teacher to have in his or her toolbox. MDC teaches teachers to back off, and it allows students the opportunity to struggle and lets them know it is okay to struggle. I think that the FALs have shown that persistence pays off. My students are exhibiting more confidence, and they are better able to think through problems. I also have a fantastic amount of support from my principal."

*Canizaro reported the highest scores in her district,
with over 90 percent of her students passing.*

One challenge Canizaro faces is getting students started. "I have a tendency to guide students instead of letting them begin on their own." However, she says a big benefit for her is the effective questioning. "It has helped me become a better teacher, and it gives a little spark to my teaching. I cannot wait to see more FALs come out in the future."

Canizaro reported that she had the highest scores in her district, with over 90 percent of her students passing the SATP (Subject Area Testing Program, administered by the Mississippi Department of Education). "I look for significant improvement, and many times I get comments like, 'I don't know how to do this,' so I came up with a rubric on my own to gauge the growth of my students from pre- to post-assessment. I generally have pretty good scores, and I use the FALs to assess what I need to reteach."

*"MDC teaches teachers to back off.
It allows students the opportunity to struggle
and lets them know it is okay to struggle."*

“I know that I will always use this way of learning. It has already helped me in other classes. It will help me get through college. It will help me in life.”