

## Best Practices Newsletter

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### LDC and MDC Strategies Help Schools Prepare Students for Careers, Advanced Training and Further Study



The Literacy Design Collaborative (LDC) and the Mathematics Design Collaborative (MDC) are strategies designed to improve how teachers teach and students learn. The designs encourage teacher collaboration and creativity and offer flexible frameworks for building lessons in all disciplines. Their purpose is to engage students to read challenging texts, express understanding in writing and solve problems. Both strategies embed state college- and career-readiness standards into content-area instruction.

LDC provides template tasks and fill-in-the-blank shells for teachers to tailor to students' needs for developing reading, writing and thinking skills within a variety of academic disciplines — not just English/language arts.

Teachers have flexibility to name the texts they want students to read, the content to be addressed and the writing to be produced. The LDC implementation plan consists of nine days of training for teachers and administrators plus four days of follow-up coaching.

MDC allows teachers to select topics and adapt assignments to their specific instructional plans for math learning. MDC helps teachers embed standards into instruction and engage students in assignments that address math understanding. MDC embeds standards-based formative assessment lessons (FALs) within math courses. These lessons engage students in tasks that require understanding of math concepts. The FALs represent a major innovation in teaching and learning math.

Many school leaders and teachers wanting to know how to improve student achievement through LDC and MDC attended the inaugural High Schools That Work (HSTW) networking conference in Charlotte, North Carolina, in July 2013. The event, which featured proven tools and strategies for implementing rigorous state standards through LDC and MDC, was sponsored by SREB in association with the Bill & Melinda Gates Foundation.

The following sessions from the networking conference are presented to assist all schools aiming to help students succeed. This includes schools seeking results-oriented strategies as well as those already using LDC/MDC to go schoolwide in engaging all students to read grade-level texts and express their understanding in a written paper.

## New Literacy and Math Standards: Implications for Teaching and Learning



SREB Senior Vice President **Gene Bottoms** kicked off the networking conference by defining college- and career- readiness standards:

- They are aligned with college and work expectations.
- They are focused and coherent.
- They include rigorous content and application of knowledge through higher-order skills.
- They build upon the strengths and lessons of past state standards.
- They are benchmarked so students are prepared to succeed in a global economy and society.
- They are based on evidence and research.

“*Focus, coherence and rigor* are the big ‘headlines’ of the new college- and career-readiness standards,” Bottoms said. “*Focus* means emphasizing the deep learning of concepts, devoting adequate time to a topic and learning it well.” In a 2009 ACT National Curriculum Survey, 89 percent of *high school* math instructors reported that their students were prepared for college-level work in math, while only 26 percent of *postsecondary* math instructors felt the same way about students.

“Many students in two-year and four-year colleges need remediation in math,” Bottoms said, “but remedial classes lower the odds that a student will finish a degree or program. We need to set the agenda in high school math to prepare more students for postsecondary education and training.”

Bottoms said *coherence* means articulated progressions of topics and performances that are developmental and connected to other progressions. *Coherence* should be both vertical and horizontal. The National Council of Teachers of Mathematics defines *coherence* as when instruction, assessment and curriculum are aligned.

*Rigor* exists when skills and concepts are clearly defined, Bottoms pointed out. The expectation is for students to be able to apply concepts and skills to new situations.

**Kenna Barger**, director of product and material development at SREB, listed the eight accepted standards of mathematical practice:

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with math.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

“Students must be engaged in these actions to develop true understanding of identified math content and to become proficient mathematicians,” Barger said.

“Math instruction and learning should occur through a balanced approach, focusing on factual, procedural and conceptual knowledge. The accepted standards for mathematical practice help ensure that students are taught the central concepts of school mathematics with this balance in mind.”

**Mary Lynn Huie**, a Literacy Design Collaborative (LDC) trainer in Georgia, noted that college- and career-readiness standards criteria comprise rigorous content, application of knowledge, evidence and research-based standards, consistency across states, clarity and relevance. The literacy standards differ from previous standards in four important ways:

- Less memorization and performing procedures
- More analysis and higher-order cognitive demand
- More demonstration of understanding and analysis of written material
- More writing processes, writing applications and oral communication

Literacy standards should focus on reading, writing, speaking and listening in all disciplines and value deep comprehension and high-level thinking skills. Quality literacy standards will require students to:

- evaluate various explanations and other points of view;
- demonstrate understanding of information or ideas;

- analyze in detail;
- select the most significant and relevant facts, quotations and examples;
- cite evidence;
- evaluate the hypothesis, data, analysis and conclusions;
- determine the meaning;
- assess the strengths and limitations of sources;
- gather relevant information from multiple authoritative sources; and
- synthesize the information.

“The standards are vital because colleges and jobs in the 21st century require reading and writing skills; applied skills such as critical thinking, collaboration and verbal communication; and creativity,” Huie said. “Literacy Design Collaborative and Mathematics Design Collaborative training sessions have been designed to support teachers in developing these skills in their students.”

**Gene Bottoms:** [gene.bottoms@sreb.org](mailto:gene.bottoms@sreb.org)

**Kenna Barger:** [kenna.barger@sreb.org](mailto:kenna.barger@sreb.org)

**Mary Lynn Huie:** [mlhuie8@gmail.com](mailto:mlhuie8@gmail.com).

## **Capturing the Efforts and Successes of Using the LDC Framework: Examples From Schools in Three States**

Many teachers are becoming revitalized as they use the Literacy Design Collaborative (LDC) framework to engage students in deeper learning. They are discovering how to make literacy instruction engaging and purposeful without sacrificing students’ understanding of the content.

The husband and wife team of **Bill Hوجلund** and **Terri Hوجلund** of **Hope High School** in Hope, Arkansas, learned to use the LDC approach as members of an instructional team trained by the Arkansas Department of Education. Both Hوجلunds are National Board Certified teachers. **Social studies teacher Bill Hوجلund said, “I didn’t see myself as a literacy teacher, but I discovered that all teachers can do**

**something to help students improve reading and writing skills.”** A former “stand and deliver” lecturer whose Advanced Placement (AP) students were already performing well on the AP exam, Hوجلund is now developing literacy modules for all his classes.

Terri Hوجلund, who teaches orientation to teaching and business in career and technical education (CTE), said the problem-based nature of CTE units has facilitated a smooth transition to writing LDC modules. “I have an avenue to teach state college- and career readiness-standards through advancing students’ knowledge and skills,” she said.



Curriculum specialist **Lori Locklear** of **Red Springs High School** in Robeson County, North Carolina, sees the journey to embrace LDC as one the whole district will make. “The journey is like Dorothy’s adventures in *‘The Wizard of Oz,’*” Locklear said. “It requires courage, heart and the rigor of good instruction.” Robeson County introduced a literacy plan requiring 30 hours of training for every teacher. LDC was chosen as the model for training and implementation of the plan.

**Debbie Locklear**, curriculum specialist at **Fairgrove Middle School** in Robeson County, said LDC training and module development have impacted teachers positively. “The LDC approach has increased the rigor of overall tasks and daily assignments,” she said. “Teachers are excited about the higher level of thinking, the increased student engagement and the mounting student interest in daily instruction.”

Science teacher **Stephen Sayago** of **Richmond Hill High School** in Richmond Hill, New York, participated in summer team training on the LDC model. “The training prepared me to base all of my classes on scientific inquiry using the LDC framework,” he said. Sayago has found a close alignment between LDC, New York state science standards and the National Science Education Standards (NSES). “There is also a match between LDC and the curriculum objectives for Living Environment, a Regents course I teach primarily to students in grade 10,” Sayago said.

Using the LDC model, Sayago developed a unit planning framework on a chemistry of life module for his Living Environment students. The essential question posed to students is: *Does water aid or hinder digestive enzymes’ action? After reading sections from selected textbooks and articles on the effects of water on enzyme action, write an argumentative essay that addresses the question, and support your position with evidence from the text(s). Be sure to acknowledge competing views.*

**Sayago received national recognition from the Bill & Melinda Gates Foundation for his chemistry of life module, which was designated as an exemplar.**

“I see the planning and implementation of a module like moving on the continuum on the pH scale from 0 to 14,” Sayago said. “Students move from having little knowledge about a concept to the top of the scale as they progress through the module.”

## Teachers and Students Are Changing

*Teachers and students don’t just “feel good” about teaching and learning with LDC. They are seeing solid results.*

Teachers using the LDC method are changing how they plan and deliver instruction, and students are becoming more responsible for learning. The Robeson County curriculum specialists described how content teachers do the planning up front and then become facilitators for student learning. **Elarce Oxendine**, social studies teacher at **Fairmont High School** in Robeson County, said LDC makes it possible for students to “go deeper into the content.” Debbie Locklear agrees. “I can guarantee that students are tired at the end of the day,” she said. “They do the work and the teachers facilitate.”



**Sayago observed that in 16 years of teaching he had never found a process that took students from the beginning to the end of a unit as effectively as the LDC framework.** In one of his modules, science students were asked to develop a children’s story book to explain the structure and function of a plant or animal cell. One student said the assignment “helped me remember different parts of a cell. I found it interesting to create a book to help third-graders learn about cell structure and function.”

Bill Hoglund has a new attitude toward literacy in his social studies classes. “Everything should have a writing component so students can show what they are learning everyday,” he said.

## More Than a Good Feeling

Teachers and students don't just "feel good" about teaching and learning with LDC. They are seeing solid results.

The Robeson County school district uses the Discovery Education Assessment to benchmark testing. Questions on this assessment match the rigor expected in the required state assessment. Roberson County high school students are assessed three times per semester, while middle grades students are assessed quarterly.

**From the initial assessment to the final assessment in English/language arts in 2012-13, students in grade seven at Fairgrove Middle School showed a decline in Level 1 performance (the lowest level, considered not Proficient) and increases in Levels 3 and 4 (considered Proficient and Advanced).**

Level 1 performance decreased from 34 percent to 24 percent. Level 3 performance rose from 25 percent to 29 percent, while Level 4 performance increased from 18 percent to 23 percent. Level 2 performance remained steady from the first to the second assessment.

Lori Locklear reported success with students at Red Springs High School. After the LDC Personal Influences module was taught, English 2 students in grade 10 took the countywide Discovery Education benchmark assessment in English 2. The scores increased across all strands (skill sets). The skill sets included informational texts, writing, language and literature. The results showed a decline in students performing at Level 1. More students moved from Level 1 to Level 2 in the strands of writing, language and literature.

**"Before the LDC module was taught, we did not have any students who scored at a Level 4," Locklear said. "After experiencing the module, there were students who scored at Levels 3 and 4." The results showed a positive impact on learning for all students, including those with special needs, Locklear noted.**

**Sayago's students retaking the Regents Exam improved their scores and received Regents credit in June 2013.** "Living Environment is a two-semester course. I am confident to say that the knowledge in biology and reading and writing skills from LDC that my students learned from me during the first semester contributed to passing the Living Environment Regents exam," Sayago said.

Bill Hoglund is confident that the AP results for his students in U.S. history, government and politics will reflect the higher level of performance of students who have given more effort to assigned reading and writing tasks.

## Lessons for Others Wanting to Experience the LDC Model

Leaders and teachers are eager to give advice to teachers beginning to use the LDC model. Teachers remember the "pain" they felt as they developed and taught the first module, but they are grateful for the learning experience and want to improve their work through collaboration and additional support.

Bill Hoglund admitted, **"My first module was terrible, but it is necessary to go through the process. What you learn from writing your first module is important. Does your essential question cover the full length of the unit? Ask for help and find time to collaborate to perfect your work."** Collaboration can be among students as well as teachers. Hoglund brainstormed with his AP students on the most important elements of a unit on Prohibition and then developed a module for the class.



Robeson County instructional leaders recommend that teachers work in pairs or small groups. The entire science department at Richmond Hill High School has adopted LDC as the framework for writing lab reports. Same-subject teachers meet to write modules aligned to state standards and then incorporate the modules into the curriculum.

The way teachers view students' work is also changing. Hoglund developed a writer's notebook, consisting of a set of tasks and activities for students.

## Buddy Up!

### **Teachers are spreading the word about the success of LDC by encouraging schools to support the practice of inviting “buddy teachers” to learn and implement LDC in their classes.**

The buddy teacher concept helps build a support network for teachers to learn from each other by planning and sharing their work. In Robeson County, the buddy process began with the curriculum specialists. “We learned the LDC framework, walked through each step and taught the buddy teachers,” Lori Locklear said. “Having a buddy helped alleviate the fear of trying something new. The scary feeling turned into renewed passion for teaching.” The buddies at Hope High School critique

each other’s work. “We bring in a buddy, evaluate what went well and decide what we can do better,” Terri Hoglund said.

**Bill Hoglund:** [bill.hoglund@hpsdistrict.org](mailto:bill.hoglund@hpsdistrict.org)

**Terri Hoglund:** [terri.hoglund@hpsdistrict.org](mailto:terri.hoglund@hpsdistrict.org)

**Steve Sayago:** [ssayago@schools.nyc.gov](mailto:ssayago@schools.nyc.gov)

**Lori Locklear:**

[lori.locklear2@robeson.k12.nc.us](mailto:lori.locklear2@robeson.k12.nc.us)

**Debbie Locklear:**

[debbie.locklear2@robeson.k12.nc.us](mailto:debbie.locklear2@robeson.k12.nc.us)

**Elarce Oxendine:**

[elarce.oxendine@robeson.k12.nc.us](mailto:elarce.oxendine@robeson.k12.nc.us)

### **Florida Teachers to Showcase Their LDC Modules**

As part of the Florida Academic Literacy Network (FALN), teachers from five districts and one consortium presented their LDC modules at the Literacy Design Collaborative Showcase in Tampa, Florida, Dec. 4-5, 2013. The Cohort 1 districts are Brevard, Hillsborough, Lake, Pasco and Wakulla; the consortium is the North East Florida Educational Consortium (NEFEC).

The LDC teachers shared student work that provides evidence of vastly improved student achievement as a result of LDC module implementation. Participants, including teachers and instructional leaders, learned about the LDC research-based instructional framework and its implementation in various educational settings. The two-year LDC project is funded by the Bill & Melinda Gates Foundation.

**Judith Irvin:** [jirvin@nlproject.org](mailto:jirvin@nlproject.org)

### **LDC for All: Transforming School Culture Through Literacy**

**Melissa Fincher**, academic dean, and **James Godwin**, English/language arts teacher, at **Marshall Junior High School** (MJHS) in Marshall, Texas, are eager to share the secret of how to improve students’ reading and writing skills. The answer is teacher collaboration. “Nobody gets along all the time, but we need to be able to talk with others in the school about what we are teaching,” Fincher said. “Our faculty was much like a family,” she continued. “While there were no feuds, there was not much communication either.”

The solution to getting teachers together was to dedicate space in the school — in this case, Room 109 — as the command post for schoolwide implementation of the Literacy Design Collaborative (LDC) strategies. Unlike in the film “*Field of Dreams*,” simply “building” the room did not mean the teachers would use it. “We painted it and hung quotes and pictures on the walls,” Fincher said, “but we had to get teachers to leave their comfort zones.”

Fincher used a number of tactics to get teachers to use the room:

- The school installed current technology.
- She displayed pictures of teachers in the classroom to reinforce the importance of students and the value of teachers.
- Materials that teachers needed were made available in the room.
- Displays showed thinking maps and teaching strategies.
- Teachers benefitted from having a place to meet and share with other teachers.
- Teachers attended an afternoon writing party where they worked together to learn to score written papers on the same level.
- Fincher plied the teachers with pizza and chocolate.



Once teachers began to use Room 109, they found important differences in how staff members were teaching. “Even with common planning, everyone was teaching vocabulary differently,” Godwin said. This realization led to discussions of what is taught and how it is taught. **“As teachers began to talk, they began to collaborate also, and LDC became a powerful tool for teaching and learning,” Godwin said.**

Godwin shared his LDC modules with other teachers in Room 109. When he showed student writing samples from his classes, other teachers began to see the benefits of LDC and were eager to do cross-curricular planning. To use the LDC modules in their classrooms, teachers of non-ELA subjects realized the need to learn reading strategies to help students succeed with their studies.

All teachers at MJHS are now seeing the benefits of promoting reading and writing in their classrooms. They are also using the power of collaboration gained in Room 109 in the grading process as well: ELA and

non-ELA teachers are helping each other learn to use the grading rubric. **“Room 109 has become a place for constructive criticism, where rounds of warm and cool feedback are exchanged regularly,” Fincher said.**

The school has built the room; the teachers are coming to use it, and the students are improving their reading and writing skills across content areas. “Students’ writing skills improved drastically from fall to spring with the use of LDC,” Fincher said. **“Students’ writing scores on the State of Texas Assessments of Academic Readiness (STAAR) were at 56 percent in 2012 but showed a gain of 4 percentage points in 2013 after we implemented LDC across the campus. It may not sound like a big gain, but it was. Before we began using LDC, our campus was steadily declining in state scores.”**

**Melissa Fincher: [finchermr@marshallisd.com](mailto:finchermr@marshallisd.com)**

**James Godwin: [godwinja@marshallisd.com](mailto:godwinja@marshallisd.com)**

## **Increase the Percentage of Staff Members Using Literacy Strategies Daily**

**Susan Haines** is the English department chair at **Chaffin Junior High School** in Fort Smith, Arkansas. Her journey with LDC began in November 2011 at an SREB training session. She attended several more training sessions and helped form a collaborative community of instruction at her school. “It’s taken me back to what I love,” she said. “I’ve been learning ever since.”

Haines participated in the train-the-trainer program at the networking conference in July 2013 where in-depth training, as well as sessions focusing on strategies for vocabulary and project-based learning, increased her understanding of the LDC

implementation process. “I was inspired by the enthusiasm and expertise of my colleagues who presented useful information,” she said. “I felt energized to return to the classroom.”

During 2013-14, Haines continued to work with teachers at her school who are creating LDC modules. **“We have 16 buddy teachers with more on the way,” she said. “The goal is to have 80 to 90 percent of staff emphasizing literacy daily through module-designed lessons.”**

**Susan Haines: [shaines@fortsmithschools.org](mailto:shaines@fortsmithschools.org)**

## Teacher Uses LDC to Engage Students in Learning Chemistry

*The LDC framework is bringing more engagement of students and ownership of their work. They are gaining ideas and completing assignments that may relate to their future careers.*

**Douglas Owensby**, a chemistry teacher at **Springdale High School** in Springdale, Arkansas, is also an LDC star teacher trainer. “The LDC framework has transformed how I teach,” he said. **“My students take ownership of learning and are more engaged than ever before.”**

Owensby’s students include 43 percent English-language learners. Thirteen percent of his students are from the Marshall Islands. “These students may make some spelling mistakes, but the organization of their writing is great,” Owensby said.



Owensby described how his students write argumentative and informational literary pieces in chemistry classes. He begins all lessons or modules with an essential question or a real-life problem that requires in-depth research by students. “The problem directly affects the students,” he said. He then chooses the best template to fit the investigation and the level at which the students will research, read and write.

**When students completed an argumentative letter to the state department of agriculture on the use of fertilizers and the effects on humans and the environment, they made connections between famine, economics, jobs, environment**

**and health concerns. Students were able to write the chemical formulas of fertilizers and recognize their names.**

### Argumentative Module Structure

Owensby shared glimpses into the classroom by describing how to engage chemistry students in writing an argumentative piece:

- Students copy the essential question from the board and receive a rubric on argumentation. Owensby reviews what students will be required to read, write, listen and speak about. Students are required to address the credibility and origin of their sources, acknowledge competing views, and give examples from past or current events or issues to illustrate and clarify positions.
- To prepare students for the task, Owensby shows YouTube clips to illustrate both sides of the problem. Students do a quick write on what they know about the question. Each student has a “clock buddy” for different questions, allowing students to work with others with various strengths and weaknesses. Students share their findings with the whole class and compile a chart of pros and cons on the question.
- Students become engaged in the task by doing a quick write on the clips they viewed. They tell what they know about the topic and how the knowledge relates to the essential question and the rubric.
- For the reading process, Owensby selects three science journals from EBSCOhost online research databases. Students then select three articles from the journals and take notes. Each student completes a vocabulary concept map while doing the research. New words are placed on a PowerPoint presentation that runs each day before class. “If someone misses class, it’s easy to catch up,” Owensby said. Students complete quick writes with their clock buddies to determine what the author of an article is trying to accomplish.
- Students receive an argumentative graphic organizer to make the transition to writing. They share with their buddies the three points they would like to argue, plus one counterpoint. The class hears all of the ideas.



- The writing process begins with students using a graphic organizer to write a “hook” statement, a transition and a thesis statement. Students are required to write citations in their graphic organizers, an action that makes it easy to apply citations to their literary pieces. Students transfer the information to an essay form that they and their buddies read before revising it, videotaping it and reading it to the entire class. Students save their essays on a Q drive so that the teacher can make the final analysis. “The great thing about formative assessments is that the teacher has already graded 95 percent of the essay,” Owensby said. **His students are required to predict, explain and/or describe what is happening or how something works. “You can tell immediately if a student truly understands the concept,” he said.**

### Informational Literary Pieces

Owensby uses the same structure when assigning informational literary problems; the task template and rubric are different. “Make sure the essential question addresses some problem that relates directly to the students,” he said.

Springdale chemistry students researched COPD (chronic obstructive pulmonary disease) and created an informational pamphlet for distribution to the school and the local newspaper. The curriculum concepts included gas laws, equilibrium, chemical formulas, reaction rates and factors affecting reaction rates. Students were exposed to the chemistry and biology of blood and used a blood buffer system and a matrix to analyze arterial blood gas samples from the hospital. “Students gained a deeper understanding of the relationship of cigarette smoking, COPD and arterial blood gasses,” Owensby said. “They were able to connect all sciences as well as economics and implications to the cost of health care.”

### Summary

The LDC framework is bringing more engagement of students and ownership of their work. “Students are realizing that they can have a profound effect on others through literary communication,” Owensby said. They are also gaining ideas and completing assignments that may relate to their future careers.

**Douglas Owensby: owensbydouglas@att.net**

### Science Teacher Recalls First-Year Experiences With LDC

The first-year LDC experiences of science teacher Stephen Sayago of Richmond Hill High School in Richmond Hill, New York City, were twofold:

- At the teacher level, intensive training with **Lynda Gillespie** of SREB prepared the 16-year veteran teacher to implement LDC by creating meaningful and purposeful unit tasks, developing reading and writing skills, planning engaging instructional strategies and using the rubric to complete and evaluate the product. “The LDC modules I taught during the school year were products of strong collaboration among the LDC core group and fellow science teachers through constant communication in planning and implementation,” Sayago said. He also had support from the administration. “The use of LDC in my instruction has improved the way I plan a unit aligned to college- and career-readiness standards,” Sayago said. “It enhances students’ reading and writing skills and prepares them for college and careers.”
- Perceptions on the use of LDC by students were generally good. This was evident in students’ total engagement in completing each module. Students were able to produce a story book for third-graders on how a cell functions like a factory; an argumentative essay on whether water aids or hinders the action of digestive enzymes; and two comprehensive lab reports in conjunction with the state-mandated lab activities for the Living Environment course that Sayago taught.

As a session facilitator at the networking conference in summer 2013, Sayago focused on literacy, inquiry and student engagement in teaching science with LDC. The networking continues as he receives requests for materials from the participants. “The expertise shared by SREB national trainers, such as jurying the module and using the rubric as a tool for teaching the unit, has enriched me as a practitioner and future trainer,” he said.

**Stephen Sayago: ssayago@schools.nyc.gov**

## LDC and Career and Technical Education: Read, Write and Collaborate

Agriculture teacher **Toby Craver** of **Oden High School** (OHS) in Oden, Arkansas, created four LDC modules during 2012-13. He collaborated with a career and technical education (CTE) adviser to put students' work online. He teamed with a teacher from a rival high school to have students check each other's work, and he began 2013-14 with plans to help other OHS instructors use LDC in their content areas.

"I believe I am the only agriculture instructor in Arkansas who has implemented LDC," said Craver, who hopes to get the ball rolling to make the agricultural education profession aware of the benefits of LDC.

In summer 2013, Craver participated in a train-the-trainer program at the networking conference in Charlotte. The conference was sponsored by SREB and the Bill & Melinda Gates Foundation. Craver gives credit to SREB consultant **Dixie Lee**, who mentored him in the first year of LDC implementation.



Craver's first module, titled "Genetics: Purebred versus Crossbred," has been juried as good-to-go and is available on the LDC website at <http://www.literacydesigncollaborative.org/in> the Think Tank section of sample modules for teachers to adopt. He expects another module, "Where's the Beef?" to be juried soon.

**Lee Smith**, CT program adviser, set up a wiki page at <http://cte-literacy-share.wikispaces.com> for all CTE teachers in the educational cooperative. A wiki page is a web application that allows someone to add, modify or delete content in collaboration with others. Craver had his students join the wiki and post their products online using Google Docs. During the first semester of 2012-13, Craver and Smith were the only ones who commented on the papers. At the beginning of the second semester,

Smith suggested taking peer editing to the next level by involving other students. "I thought it was an awesome idea," Craver said. "It allowed our students to have an even larger audience for their work."

Twelve miles away, family and consumer sciences instructor **Michelle Abernathy** of **Mount Ida High School** was in her first year of LDC implementation. She was teaching a module on how technology has improved the food industry. "Because her module was similar to the one I wrote on how consumers purchase beef products, we decided to involve students from both schools in reviewing the written products online," Craver said. The schools are not only small and rural but rivals as well.

The guidelines for the project were fairly simple: Students from one school would find one or two positive points about students' papers from the other school. The critiques were to be kept professional. "The students really bought into the concept and produced some of their best work because they knew someone from the rival school would be reading their products," Craver said. "This was all the motivation they needed to do a good job." Students used the back-and-forth discussions to greatly improve the final products.

As of October 2013, the OHS wiki has had more than 3,000 hits. More teachers are showing interest and want to include their students. "The wiki is a great way to demonstrate what the LDC instruction accomplishes," Smith said.

Craver credits LDC with improving OHS students' end-of-course assessment scores. "Before LDC, my students would average 80 to 85 percent on the state tests," Craver said. "During 2012-13, I used LDC modules in both of my classes, along with LDC strategies when students were not working on modules. The results were very encouraging. My animal science students averaged 94 percent, with one student scoring 97 percent. Students in biological animal science averaged 92 percent."

After the summer conference, Craver met with his principal to discuss how to schedule time to collaborate with other OHS staff to implement LDC in their content areas. "This is important, because several other staff members have experienced the three-day training and are working on writing their first modules," Craver said. He has been in contact with the teachers to offer support as needed.

Craver was also selected to lead the literacy committee at OHS in 2013-14. Using the LDC strategies, he hoped to raise student achievement in reading and writing. He is also working on two new modules designed to:

- introduce LDC to teachers who have never used it or even heard of it; and
- introduce content to students in an engaging way that allows them to connect their learning with their goals.

Craver said he picked up some valuable strategies from veteran LDC teachers who attended the networking conference. “I can use these strategies to benefit my own students,” he said.

**Toby Craver:** [tcraiver@orsd.k12.ar.us](mailto:tcraiver@orsd.k12.ar.us)

## LDC in the Non-ELA Classroom: Tips for Easy Implementation in the Middle Grades

*“Implementing the LDC initiative in our middle grades schools has been an excellent tool to enable both ELA and non-ELA teachers to incorporate literacy standards into their units of study.”*

**Franklin County Public Schools** in Frankfort, Kentucky, completed two years of implementing the Literacy Design Collaborative (LDC) strategies and tools in 2012-2013. **Jeannece Luhrs**, middle grades literacy coach, worked with non-English/language arts (ELA) teachers on the development and implementation of their LDC modules. At the end of the school year, she interviewed these teachers about their classroom experiences with LDC. She also asked the educators to share tips with teachers in other schools who are reluctant to embrace the LDC initiative.

In summarizing the interviews, Luhrs focused on four steps: What task? What skills? What instruction? What results?

### Step One: What Task?

The first step of the LDC cycle requires the following actions:

- Choose a topic connected to state content and college- and career-readiness standards.
- Choose a mode for writing (argumentative or informational).
- Choose a template.

- Write an essential question.
- Choose reading texts for prompts or describe how students will be guided to select texts.

### Teachers’ Responses to Step One

**Jennifer Sexton**, visual arts teacher at **Bondurant Middle School**, admitted that she was reluctant at first to embrace a writing piece as an art product.

**After several attempts, she chose a task based on this essential question: “How does persuasive art impact the daily life of middle grades students?”**

Sexton said the topic was interesting to students and, much to her surprise, the students enjoyed LDC. “Students didn’t complain, and when we completed the module, I was convinced they knew about persuasive art,” she said. Her advice is to choose a topic carefully to ensure student buy-in.

**Carmen Thompson**, sixth grade social studies teacher at **Elkhorn Middle School**, advised teachers to spend time developing an essential question and task to encompass a large section of content. **Lee Gay**, eighth grade social studies teacher at **Bondurant Middle**, gave personal testimony about the importance of rubric analysis at the beginning of an LDC unit. **“At first I was reluctant to devote an entire day to rubric analysis,” she said. “After all, we do have content to cover. But at the end of the day, I was amazed by what the students had learned. Now I can truly say that I wouldn’t teach a writing piece without rubric analysis.”**



## Step Two: What Skills?

The second aspect of the LDC process requires teachers to:

- list the skills needed by students to succeed in the task; and
- define each skill using the stem, “the ability to...”

### Teachers’ Responses

**Valerie Ramsey**, eighth grade social studies teacher at **Bondurant**, reminded teachers of college- and career-readiness state reading and writing standards for science, social studies and technical subjects. “These are our standards, and we are required to teach them,” she said. “The LDC process provides a way to do so. It’s great for teaching reading and writing in the non-ELA classroom.”

Teachers in a workshop during SREB’s networking conference were asked to compare the new rigorous state standards for social studies, science and technology with those of ELA. In looking for similarities and differences, the teachers determined that the verb (what students are asked to do) is essentially the same in those subjects. The difference, they said, is in the context or the content.

## Step Three: What Instruction?

The third step in the LDC process requires these actions:

- Create a mini-task for each identified skill.
- Use an instructional strategy to teach or model each mini-task.
- Include a formative rubric for each task.
- Estimate pacing (the time for each lesson).
- List materials and other resources needed to complete the task.

Luhrs described a middle grades writing assignment completed by students in grade six at **Elkhorn Middle School**. The students chose a country to research regarding its culture. Luhrs wrote a sample piece using the United States as a model. “It is important for teachers to model throughout the LDC process,” Luhrs said.

### Teachers’ Responses

Teachers from both middle grades schools in Franklin County Public Schools shared teaching strategies that helped them achieve success. **Kim Cox**, seventh grade

science teacher at Elkhorn Middle School, said the GIST strategy (the main or essential part of a matter) was the most helpful in teaching content. “Understanding how to summarize a science text is important to comprehending it,” she said.

**Allison Lorenz**, eighth grade social studies teacher at **Elkhorn Middle School**, and **Lyndsay Hite**, seventh grade science teacher at **Bondurant Middle School**, encouraged teachers to try the text annotation strategy. “Getting eighth-grade students to understand what to include — and what not to include — in a writing piece is a real challenge,” Lorenz said. “That is why I recommend the text annotation strategy.” Hite said, “Not being a language arts teacher, I was a bit hesitant about how to teach the students. The text annotation strategy helped both me and the students.”

**Carmen Thompson**, sixth grade social studies teacher at **Elkhorn Middle School**, said the boxes and bullets outline strategy is most helpful to her students. “We used the essential question to create a thesis statement,” she said. “Then we used our three main points to create topic sentences for each body paragraph. This helped my students so much that I left the poster up during the entire writing process.”

**Will Barker** and **Katie Lee**, seventh grade social studies teachers at **Bondurant Middle School**, agreed the LDC process does not require teachers to stop what they are doing to begin a writing piece. The LDC process intertwines reading and writing together and helps increase the rigor of the social studies curriculum.

## Step Four: What Results?

The final step in an LDC unit requires teachers to score the final pieces and return rubrics to the students for reflection and goal setting. “We encourage teachers as well as students to reflect on their work and set goals for improvement,” Luhrs said.

“Implementing the LDC initiative in our middle grades schools has been an excellent tool to enable both ELA and non-ELA teachers to incorporate literacy standards into their units of study,” she concluded.

### Jeannece Luhrs:

[jeannece.luhrs@franklin.kyschools.us](mailto:jeannece.luhrs@franklin.kyschools.us)

## MDC Instructional Practices That Work: A Unit on Quadratics

Algebra teacher **Toni Canizaro** of **Raymond Freshman Academy** in Raymond, Mississippi, received help from SREB and the Mathematics Design Collaborative (MDC) to implement multiple strategies that resulted in higher achievement by her students in 2012-13.

Canizaro noted 92 percent of her ninth-grade students scored Proficient or Advanced on the state exam in 2012-13. **This was an increase from 55 percent scored by the same students during eighth grade in 2011-12.** “Almost 40 percent of the students moved to Proficient or Advanced from Minimal or Basic in one school year,” she said.

“Of the ninth-graders I taught prior to full implementation of MDC in 2011-12, only 75 percent scored Proficient or Advanced,” Canizaro continued. **“After one school year of using resources and training from SREB, I was able to increase student achievement to 92 percent Proficient or Advanced.”**

Canizaro’s primary goal was to see students go beyond what she calls “plug and chug” mathematics. She believes students need a deeper understanding of math concepts as well as a variety of problem-solving strategies to be truly successful in math. One approach was a unit on quadratics that included the MDC formative assessment lesson, *Forming Quadratics*.



MDC formative assessment lessons are implemented two-thirds to three-fourths of the way through a math unit. During initial instructional time, Canizaro used a series of hands-on activities to deepen students’ understandings of quadratics. In one example,

students constructed a picture frame to model a problem requiring them to use factored form. Students also rolled paint-soaked tennis balls up an inclined board to create parabolas that they “dissected” mathematically.

In the classroom, students became instructional resources for each other as they worked together to solve problems. **Rather than telling students what to do, Canizaro engineered effective discussions and activities that allowed her students to explore the concept of quadratics and discover mathematical connections.**

After implementing the MDC formative assessment lesson, Canizaro used the results of the post-lesson assessment to fine-tune her students’ knowledge prior to administering the final unit assessment. The fine-tuning activities included:

- small group instruction;
- student experts making presentations;
- accelerated math software for students needing enrichment;
- *Study Island* (a web-based standards mastery program) for students needing additional practice; and
- tasks from the Shell Centre (developer of the MDC formative assessment lessons).

**“Before the academy partnered with SREB, my classes were primarily teacher-focused,” Canizaro admitted. “Now most of them are infused with student-led learning.** I serve as a facilitator to guide students to ask questions that will move their thinking forward. Students have become active participants in learning and persevere to complete their work.”

Canizaro was named Teacher of the Year for the Hinds County School District in 2012-13.

**Toni Canizaro: [tcanizaro@hinds.k12.ms.us](mailto:tcanizaro@hinds.k12.ms.us)**

## Trainer Tells How to Involve More Teachers in Using MDC

**Morgan Wilson**, math teacher and MDC trainer at **Sheridan High School** in Sheridan, Arkansas, works to help every teacher in the math department implement MDC effectively. **“If they can experience it, they will become addicted to it,” she said.**

Before attending the networking conference in summer 2013, Wilson was already using formative assessment lessons (FALs) in her geometry and Algebra II classes frequently to measure student learning. She was also creating her own FALs.

**“The change in my students was dramatic,” Wilson said. “Their willingness to participate was greatly increased after they experienced a few FALs.** Their mathematical discourse was at a much higher level than I ever thought possible.” The experience with MDC caused Wilson to realize that her expectations for students had been low. She found that it was possible to engage all students in learning and to provide an opportunity for students to increase understanding at their own pace.

At the end of the 2011-12 school year, 85 percent of Wilson’s geometry students were Proficient or Advanced on the Arkansas End-of-Course Geometry Exam. After implementing MDC, 2012-13 achievement rose to 93 percent Proficient or Advanced.

Wilson noted her colleagues at the school immediately became interested. “I set out to relay the same information I learned in my three-day training, plus additional training,” she said. “This year I will be much more prepared to assist teachers with implementation.” **She has created an action plan that includes modeling lessons for other teachers, co-teaching and observing in the classroom.**

“During 2013-14, I will plan each unit with the best MDC lesson in place to accurately assess my students and then use the results to further plan each unit,” Wilson said. “I will strive to teach conceptual math to give my students a better understanding of geometry. **Ultimately, I will integrate MDC methods into everyday lessons.”**

**Morgan credits other teachers at the networking conference with inspiring her to go all-out with MDC. “We visited and shared ideas,” she said. “It was great to meet other teachers who were accurately and effectively implementing MDC.”**

**Morgan Wilson:**  
**[morganwilson@sheridanschools.org](mailto:morganwilson@sheridanschools.org)**

## Whole-Group Response Strategies Are Popular With Reluctant and Struggling Students

*Those who rarely attempted a problem with paper and pencil tried everything on their whiteboards and proudly displayed their answers.*

Every teacher would love to know how to reach students who don’t want to be in class. These students typically never bring supplies, leave class as often as possible, put their heads down constantly and use every avoidance technique possible to get out of being involved in learning.

Utilizing whole-group response strategies learned through MDC, math teacher **Susan Rigby** has seen her Algebra 1A students — all of whom scored Level 1 on Florida’s Comprehensive Assessment Test (FCAT) and 46 percent of whom have Individual Education Plans (IEPs) — become engaged in math lessons everyday. Her classroom has become the “Wow Room” at **Pine Forest High School** in Pensacola, Florida. Rigby introduced whole-group response by using mini-whiteboards while participating in the school’s MDC leadership team and learning how to implement formative assessment lessons in the classroom.



## Not a Typical Classroom

Typically, a math teacher presents several examples on the board and students work problems independently. This is when struggling students check out, lower their heads and want to leave class. When a question is posed to the class, the same students usually answer over and over while the less confident students fail to respond.

In Rigby's classroom, every student receives a mini-whiteboard, a marker and an eraser. When a question or problem is posed, students work individually on their whiteboards. No one holds up a board until the teacher calls on him or her. Rigby uses a countdown process: "Ready class, all boards up on 5, 4, 3, 2, 1. Remember, I must have a board from everyone."

Amazingly, every student raises a board. First of all, it's fun to write on the whiteboards. Secondly, the intimidation factor is eliminated, since no one is asked to read an answer aloud. Most importantly, the teacher can immediately assess students' responses by scanning the answers written on the whiteboards. "It makes it possible for me to specifically tailor the next question to the difficulties I see on the boards," Rigby said.

## Students Want to Compete

As students become more comfortable and confident with whole-group responses, they want to defend their answers against others. Students now come to the front of the classroom to demonstrate how or why they arrived at an answer. **"Students find their own**

**mistakes without my telling them who is right or wrong," she said. "They have evolved into students who are willing to construct viable arguments and critique the reasoning of others."**

The whiteboards have become an integral part of everyday instruction as Rigby has sought ways to use them throughout daily lessons. One approach is to have half the students write an "x" on their boards and the other half to write a "y." They hold up their boards when they think they have the right match. For example, "I am the domain," "I am vertical," or "I am the input."

Students who began the year saying they disliked math started asking, "May we use the whiteboards today?" Those who rarely attempted a problem with paper and pencil tried everything on their whiteboards and proudly displayed their answers. They said, "I used to hate math but now it's my most fun class."

Rigby saw improvement in classroom participation and the number of homework and classroom assignments completed. "Students' subject area exam scores increased and excelled those of their peers," Rigby said. "Most important, the students' attitudes and confidence about math were transformed. As they go to the next grade level, they will take tools that cannot be measured in numbers — the confidence to do math and the belief that they can succeed."

**Susan Rigby: [srigby@escambia.k12.fl.us](mailto:srigby@escambia.k12.fl.us)**

## Using Formative Assessment Lessons (FALs) in Algebra Classes

**Lisa Choate**, math teacher at **Cannon County High School** in Woodbury, Tennessee, has used MDC for the past two years in Algebra I and II classes. She said SREB consultant **Donna Farmer** introduced the school to MDC and has observed in classrooms and helped teachers learn to implement formative assessment lessons (FALs).

The networking conference in summer 2013 inspired Choate to continue with implementation. "I learned about other teachers' successes and discovered that my journey had been very much

like theirs," she said. As a result of the conference, she has an MDC analysis guide to help drive instruction.

Choate hoped to take her instruction to the next level and do more with MDC during the 2013-14 school year. She planned to do a FAL at least once every two weeks in all of her classes. "FALs have increased rigor, engagement and performance in my math classes," she said.

**Lisa Choate: [lisa.choate@ccstn.net](mailto:lisa.choate@ccstn.net)**

## Teachers Use the Five Strategies of Formative Assessment to Accelerate Learning



Two teachers who share the same vision for students and use the same formative assessment approach in their instruction received go-ahead from the **Gadsden Independent School District (GISD)** in Sunland Park, New Mexico, to establish a program or school-within-a-school at **Chaparral High School**. The program, which prepares students for college by the high school junior year, is known as the **Early College High School**.

**Gema Salcedo**, administrative intern and math teacher, and **Brenda Mejia**, social studies teacher, taught 19 students from the three comprehensive high schools in the district in 2012-13. The program grew to 67 students in 2013-14. Student demographics in the Gadsden Independent School District are 75 percent Hispanic and 25 percent white. Most students are from economically disadvantaged families.

The enrollment process begins with ECHS faculty conducting informational sessions at GISD middle grades schools in the spring semester. Family members learn about the sessions from mailings, fliers and posters. Students who want to attend ECHS submit an application, including an essay titled, “What Makes You a Candidate for ECHS?” They send grade and attendance reports, state and district assessment scores, a parent questionnaire and three letters of recommendation from current or former teachers.

The ECHS faculty screens the applications and invites qualified students and their parents to a commitment interview. Students and families describe the applicant’s strengths and weaknesses and discuss the applicant’s scholastic achievement. The group addresses the expectations of all stakeholders. When admission decisions are made, the families are notified by phone.

Students in the first year took math and social studies at ECHS and regular high school English and science courses at their home high schools. In 2013-14 the ECHS faculty grew to include an English teacher and a science teacher. All four subject area teachers share the same educational philosophy, with an emphasis on formative assessment, a diagnostic approach to determine what students are learning. Formative assessment helps teachers make decisions about the next steps in instruction.

The Five Formative Assessment Strategies to Improve Student Learning as provided by researcher and author Dylan Wiliam are:

- **Clarify and share learning intentions and criteria for success.** Get students to really understand what their classroom experience will be and how their success will be measured.
- **Engineer effective discussion, questions, activities and tasks that elicit evidence of learning.** Develop effective classroom instructional strategies that allow for the measurement of success.
- **Provide feedback that moves students forward.** Work with students to provide information they need to better understand problems and solutions.
- **Activate students as instructional resources for one another.** Get students involved with each other in discussions and working groups to help improve student learning.
- **Activate students as owners of their own learning.** Self-regulation of learning leads to improvement of student performance.

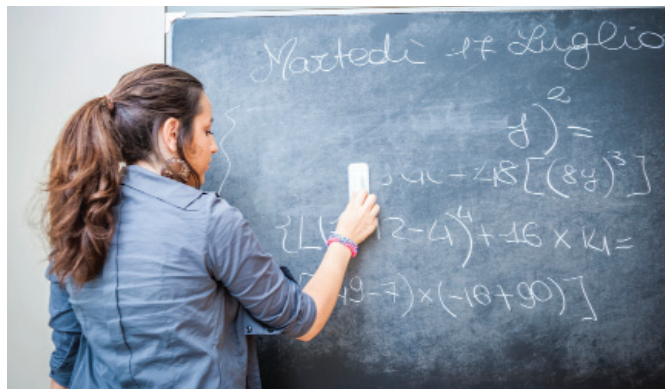
Salcedo and Mejia believe it is very important to gauge where students are in a class and to adjust instruction to meet students’ needs. For example, math students are given a pre-assessment and the results are used to group students homogeneously and drive instruction. In social studies, students are asked to complete a task to informally assess content mastery. The results are used by the teacher to adjust the lesson for the following day. Students frequently use language skills to communicate, clarify and question understandings of their peers.

The two teachers provide evidence of the effectiveness of this approach in raising student achievement:

- The district’s short-cycle assessment — Measures of Academic Progress (MAP) developed by the Northwestern Evaluation Association (NWEA) — is used as a predictor for high school high-stakes assessment. The scores that correlate with a Proficient score on the state assessment are 245 for math and 230 for reading. The first group of students had gains after only one year. Salcedo and Mejia attribute the gains to constantly assessing students formatively and using the results to drive instruction.

## Math Ready: Avoiding College Remediation

SREB is working with a group of states to develop and offer model readiness courses in math and disciplinary literacy for high school students who need extra help to avoid remedial classes in college. The new math course was field-tested by select teachers in Arkansas in spring 2013, followed by revisions and a teacher training workshop in the summer. The criteria for pilot or statewide implementation were published in fall 2013.



The new SREB readiness course — Math Ready — includes eight content units:

- Algebraic Expressions
- Equations
- Measurement and Proportional Reasoning
- Linear Functions
- Linear Systems of Equations
- Quadratic Functions
- Exponential Functions
- Summarizing and Interpreting Statistical Data

- Students take the COMPASS assessment to show they are college ready. After only one year at ECHS, 32 percent of math students and 21 percent of English students were college ready. They will not have to take remedial courses in math and English at the postsecondary level. Eighty-four percent of students scored high enough on the assessment to start taking courses at a local community college.

**Gema Salcedo:** [gsalcedo@gisd.k12.nm.us](mailto:gsalcedo@gisd.k12.nm.us)

**Brenda Mejia:** [bmejia@gisd.k12.nm.us](mailto:bmejia@gisd.k12.nm.us)

The units combine to form a focused, coherent and rigorous course consisting of math content necessary to be college ready. The course is designed to develop mathematically proficient students by engineering effective learning tasks, effective discussions and questions that elicit evidence of learning.

Each unit in the course includes a “hook” at the beginning to engage students and pre-assess prior math experiences and understandings. The hook is followed by several days of tasks that delve deeply into math found in the accepted Standards for Mathematical Practice and the major headlines (focus, coherence and rigor) of the College- and Career-Readiness Standards. Each unit also includes a formative assessment lesson when the unit is two-thirds completed, allowing the teacher to adapt instruction and learning during the remaining one-third of the unit. The hook also serves as a performance assessment.

In a unit titled Systems of Linear Equations, the hook is war games. After the teacher tapes two axes to the floor, the students receive three equations (in standard form) that represent “shipping lanes” of enemy vessels. They also are given an equation that represents their own shipping route. Groups of students are challenged to place three “blockades” made of small squares of construction paper somewhere within the grid in an effort to block each enemy ship without going off course.

To complete the project, students engage in a “productive struggle” that involves problem solving and communication. The teacher monitors the activity and makes notes on how the students graphed the equations:



Did they change the equations into slope-intercept form?  
Did they calculate the x- and y-intercepts?

Also, did the students recognize the need to place the blockade at the intersection of the enemy lane and their own shipping route? Did they use words such as solution, system or intersection as they discussed the project? Did any of the students use paper-and-pencil techniques to solve the problem or did they place the blockades strictly by graphing?

Groups of students are asked to compare their graphs with those of others. They talk about transformations such as rotations and dilations and may estimate the intersection points. Some groups will have more precision in their answers, leading to discussion about factors such as tolerances.

“In a workshop on the Math Ready course during the networking conference in Charlotte last July, school leaders and teachers participated in the Systems of Linear Equations unit and were exposed to some of the tasks incorporated into the first two-thirds of the readiness course,” said **Kenna Barger**, director of product and material development at SREB. “These two activities gave participants a quick glimpse into the format of the readiness course units and allowed them to experience the productive struggle and in-depth application of the Standards for Mathematical Practice.”

**Kenna Barger: [kenna.barger@sreb.org](mailto:kenna.barger@sreb.org)**

## Leading by Example: Principal Plays an Active Role in LDC and MDC

**Van Cove High School** in Cove, Arkansas, is in a small rural community where two high schools recently consolidated. The socioeconomic status of the majority of the surrounding area is low. Most of the students are white.

Consolidation was just one change that occurred at the school in a short period of time. With the advent of college- and career-readiness standards (CCRS) in Arkansas, school leaders sought ways to bring the standards to the classroom effectively. “The state mandated the implementation of LDC and MDC and supported the school through training,” said Principal **Terry Thompson**.

The regional training included LDC and MDC sessions that took place concurrently, causing Thompson to split time between the two programs. The training was followed by school visits from LDC and MDC coaches, during which Thompson joined classroom observations and took part in feedback conversations. The principal and his staff also participated in webinars and conference calls to support the implementation of LDC and MDC.

“I discovered that I would have to balance my time between the two initiatives and would need to be more than a passive participant,” Thompson said. **As a former math teacher, he knew how to support MDC teachers but decided to step out of his comfort zone and become familiar with LDC as an exercise in personal professional development.**

Thompson learned early that the two frameworks are similar. “They are both grounded in formative assessment, and the teachers facilitate skills development rather than just procedural instruction,” he said. **The major difference in the two modules is that MDC is a set of turn-key lessons to be used in an existing unit of instruction while LDC requires teachers to create a set of materials using a template as a guide to unit development.**

As he began to “walk the walk” as the instructional leader in teaching students the new standards, Thompson created an LDC template task as part of a faculty meeting. Using the rigor/relevance framework graphic, he led his teachers down a self-reflective path to determine whether they were providing rigorous and relevant instruction. He then introduced the faculty to this task:

*After reading the rigor/relevance framework and application model, write a letter to Mr. Thompson that defines rigor and relevance and explains how you included rigor and relevance in a lesson you taught this week. Support your discussion with evidence from the text. What implications about your teaching can you draw?*

Thompson used the language learned in LDC and MDC training to frame his feedback after walkthroughs and formal observations. During these conversations, he was able to determine the level of teacher buy-in and therefore was able to custom-tailor his support. “It was similar to asking teachers to provide scaffolding to their students,”

he said. The staff conversations began to turn to rigor and relevance and how to implement the tools they received in training.

“State assessment data have been coming back with a positive growth trend since we implemented LDC and MDC, but the school consolidation will require a much closer disaggregation,” Thompson said. “Anecdotal data have caused us to be pleased with the successful launch of the LDC and MDC initiatives at our school, and we are confident that we will experience growth in student achievement as we continue to meet the challenges of the rigorous state standards.”

**For 2013-14, Thompson and his team developed a plan to train every teacher in the new combined high school in LDC and MDC. Every teacher implemented a module or a FAL in class by the end of the year.**

**Terry Thompson:** [tthompson@cosstatot.k12.ar.us](mailto:tthompson@cosstatot.k12.ar.us)

### **The Florida Story: It’s a Journey, Not a Destination**

SREB is working with three high schools and nine middle grades schools in three Florida school districts to implement the college-and career-readiness standards (CCRS) and raise student achievement. The districts are Escambia County, Madison County and Orange County. SREB school improvement consultant **Deborah Bass** described the effort to build the capacity of principals and teacher facilitator teams to lead and support implementation of the LDC and MDC frameworks.

The project consists of a two-year commitment between SREB and the 12 schools. SREB agreed to:

- provide five rounds of LDC and MDC training by content experts.
- provide five days of expert coaching.
- provide five days of leadership coaching.
- demonstrate teaching strategies.
- evaluate the effectiveness of the training.
- assist in planning schoolwide rollouts in the second year.

The individual schools agreed to:

- participate in five rounds of LDC and MDC training.
- meet with expert and leadership coaches.
- implement the frameworks in facilitators’ classrooms.
- conduct walkthroughs focusing on LDC and MDC.
- model strategies for other teachers.
- provide time for facilitators to plan and work together.
- participate in evaluation of the training.

### **Teachers Use LDC and MDC to Increase Rigor and Student Engagement**

Teachers at **Bismarck High School** in Bismarck, Arkansas, developed curriculum maps and unit plans based on the college- and career-readiness standards (CCRS). The materials included short and complex texts and required projects that are embedded in the standards. “However, we felt the maps and plans lacked rigor and student engagement,” said Principal **Larry Newsom**.

To address the needs, Newsom and teachers attended the networking conference as a team in summer 2013 to learn how to improve implementation of the standards. “I was inspired by the presenters and realized that this idea is spreading across the nation,” Newsom said. “Schools are seeing great results from the LDC and MDC models.”

Newsom and the Bismarck team now have a solid plan to give students a better understanding of what is being taught so they will be ready for college and careers. **The school planned on implementing LDC and MDC in 2013-14. Teachers have attended additional conferences on the two strategies and have begun creating modules for their classrooms.** “In conjunction with our local educational co-op, we plan to create at least three modules for each core subject and to improve them throughout the year,” Newsom said.

**Larry Newsom:**  
[larry.newsom@bsd-lions.net](mailto:larry.newsom@bsd-lions.net)

## Implementing the Frameworks

Training rounds took place throughout the year, and expert content-area and leadership coaching was given between each round.

“The goals for the first year of implementation were successfully achieved with the training of school administrators and facilitators, coaching by content experts and a leadership coach, implementation of LDC and MDC modules in the classroom, and modeling of strategies,” Bass said. “Evaluation was ongoing throughout the school year.”

The Year 2 plan was developed and implemented during the 2013-14 school year. It includes training additional administrators and facilitators, implementing LDC and MDC modules in more classrooms, ongoing coaching, continuation of modeling and sharing, and evaluation of implementation and training. The final step will be to implement LDC and MDC in all CCSS classrooms at the 12 Florida schools.

## Principals' Commitment

**“A major factor in the first-year success was the commitment of principals to participate in training, choose facilitators wisely and support teachers as they implemented LDC and MDC,” Bass said.**

“Being asked by system leaders to sign a letter of commitment heightened the awareness of school leaders of their role in launching and supporting the initiative.”



School facilitators were expected to participate in five rounds of training, use new practices in the classroom, establish professional learning communities (PLCs) for teachers to collaborate and reflect, receive and respond

to feedback from experts, and share and model new practices with teachers.

During Year 2, school facilitators will help deliver training to departments; coach teachers to implement new practices; provide model lessons and materials; and convene departmental meetings for planning, collaborating and reflecting. “During both years, facilitators will be expected to assist in evaluation,” Bass said. “They also will participate in planning for full implementation in the schools.”

**Stefanie Shames**, principal of **Maitland Middle School** in Orange County, shared recommendations for successful implementation. Key factors at **South Creek Middle School** in Orange County, where she was principal at the time, were involvement of administrators in the training rounds, principal involvement in the PLCs, selection of teacher facilitators and coaching. “The hurdles included lack of time, the need to select teachers as well as department chairpersons as LDC and MDC members, and other initiatives being carried out in the school system at the same time,” Shames said. The positive outcomes:

- Students saw relationships between course disciplines and a common vocabulary.
- Math students were grouped based on pre-assessments.
- LDC assignments became teaching tools for other students. For example, a science teacher developed a module and asked students to create a PowerPoint presentation to teach concepts to other students taking the same course.
- School walkthroughs and weekly reports concentrated on rigor.
- Coaching gave teachers opportunities to practice without evaluation.
- MDC strategies were readily observed and documented.

Principal **Judy Frank** of **Avalon Middle School** in Orange County said the level of teacher training was excellent. A key to her school’s success was making it possible for teachers to learn new content, use it in the classroom and receive coaching. **“The coaching component set this model apart from any other training our staff has received,” Frank said.** Another component of implementation was the involvement of teachers who instruct students in the



exceptional student education program. “Helping teachers understand that the LDC and MDC modules are good for all students not only increased participation but is changing teachers’ perceptions about common core standards and rigor,” Frank said.

**Deborah Bass:** [deborah.bass@sreb.org](mailto:deborah.bass@sreb.org)

**Stefanie Shames:** [stefanie.shames@ocps.net](mailto:stefanie.shames@ocps.net)

**Judy Frank:** [judith.frank@ocps.net](mailto:judith.frank@ocps.net)

## LDC and MDC Successes Abound in Schools Nationwide

School leaders and teachers are singing the praises of the LDC and MDC frameworks in delivering instruction that results in greater student engagement, motivation and learning. Educators in high schools and middle grades schools report instruction is more rigorous and efficient; teachers are leaving their “comfort zones” to teach in new ways and are collaborating to make learning more meaningful. Students benefit from reading and writing assignments in all subjects; they work harder to solve problems and exam scores increase.

**Maria Osakwe, Social Studies Teacher,  
Kendrick High School, Columbus, Georgia**

*“LDC is time saving and structured for easy implementation. Its effectiveness cannot be overemphasized. Students read with a purpose. Standardized test scores have improved greatly.”*

**Timothy Morrow, Social Studies Teacher,  
Randolph-Clay High School, Cuthbert, Georgia**

*“LDC exposes students to additional sources of information and gives them more opportunities to write. Administrators have given teachers time to plan with colleagues at middle schools and high schools.”*

**Douglas Owensby, Chemistry Teacher,  
Springdale High School, Springdale, Arkansas**

*“Students are learning to think and not just brush the surface of materials. One student said LDC had already helped him in other classes, will help him get through college and will help him in life.”*

**Hallie Booth, Science Teacher, Holmes Middle  
School, Covington, Kentucky**

*“Students’ overall grades have increased due to having to understand the material fully and not just ‘spit it back’ on a test. Each science teacher completes two LDC modules by the end of the year.”*

**William Chesser, Biology Teacher, Har-Ber  
High School, Springdale, Arkansas**

*“Students are much more engaged with LDC, and the level of discussion is exceptional. The principal says teachers are asking better questions. It’s almost like I’ve been given permission to teach the way I always wanted to teach.”*

**Arnoldo Villalon, History Teacher, Mirabeau B.  
Lamar Middle School, Laredo, Texas**

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

**Sam Sanchez, Assistant Principal, Mirabeau B.  
Lamar Middle School, Laredo, Texas**

*“LDC is incredible! Students are working, and their minds are going a hundred miles an hour.”*

**Toby Craver, Agriculture Teacher, Oden High  
School, Oden Arkansas**

*“Students are sharing their knowledge with each other, and it pushes them to do better. LDC has made teaching fun again.”*

**Frances Patterson, Grade Five Science Teacher,  
Red Springs Middle School, Robeson,  
North Carolina**

*“Students learn on their own and in groups. The learning is inquiry-based. Student achievement in the units taught with LDC have far outpaced the gains in other units.”*

**Carla Golden, Mathematics Teacher, Umpire  
High School, Umpire, Arkansas**

*“Teachers get so much bang for the buck with formative assessment. We get multiple coverage and multiple standards.”*

## LDC and MDC Successes Abound in Schools Nationwide (*continued*)

**Christopher Jackson, English/Language Arts Teacher, Eddy Middle School, Columbus, Georgia**

*“Writing is the best way for students to retain knowledge. I see gaps to be filled from week to week and address them with differentiated writing assignments.”*

**Rachel Schrimsher, Grades Seven and Eight Math Teacher, Windy Ridge Middle School, Orlando, Florida**

*“My school plans to involve every teacher in using MDC formative assessment lessons by the end of the school year.”*

**Leona Martin, Algebra and Geometry Teacher, Wickes High School, Wickes, Arkansas**

*“After completing several formative assessment lessons, my students started taking more initiative, not just during MDC activities, but during regular classwork.”*

**Linda Barnes, Algebra Teacher, Oden High School, Oden, Arkansas**

*“MDC makes learning real. It gives concrete reasons for doing math. Our principal is 100 percent behind the project. He comes into my class to observe and sees that my students are learning.”*

**Amanda Cook, Algebra and Geometry Teacher, Monticello High School, Monticello, Arkansas**

*“After using MDC, 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. I began changing the way I teach all of the time and made sure I gave students the opportunity to discover mathematics.”*

**Marsha Eggburn, Algebra and Geometry Teacher, Sheridan Freshman Academy, Sheridan, Arkansas**

*“The principal comes into the classroom to watch the formative assessment lessons. A student said, ‘I finally understand math.’”*

**Harry Collins, Mathematics Teacher, Arlie Boggs Elementary School, Eolia, Kentucky**

*“I am retooling...Questioning and providing feedback allow students to think about the process.”*

**Susan Rigby, Algebra Teacher, Pine Forest High School, Pensacola, Florida**

*“I no longer walk by and tell students what to do. I now ask what they think is the first thing they should do. Before MDC, I could have won an award for giving predetermined steps to find an answer. I no longer feel my students are shutting down.”*

**Toni Canizaro, Algebra and Geometry Teacher, Raymond Freshman Academy, Raymond, Mississippi**

*“MDC causes teachers to back off. It allows students to struggle and lets them know it is okay to struggle.”*

**Joseph Miller, Algebra Teacher, Carver Magnet School, Dothan City Schools, Dothan, Alabama**

*“I have to fight with myself not to teach the way I was taught. The hurdle with MDC is getting out of your comfort zone and making changes in instruction. I want to develop a full scope and sequence for Algebra I.”*