Welcome!

Implementing the Making Middle Grades Work Design

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The Southern Regional Education Board (SREB)

- Founded in 1948 to improve the economic plight of the south through a focus on education.
- Nonprofit, nonpartisan organization.
- Works with state leaders and policymakers in the 16 member states.
  - Provide data to legislatures and state boards of education for decision making.
  - Focus on improving education pre-K through postsecondary.
SREB School Improvement Initiatives

High Schools That Work
• largest and oldest of SREB’s school improvement initiatives.
  • 1987 – 27 sites
  • 2014 – 1,200+ sites in 30+ states

Making Middle Grades Work
• 1998 – 25 sites; 2014 – 450+ sites in 21 states

Technology Centers That Work
• for shared-time technology centers
  • 2014 – 180+ sites in 18 states

Learning-Centered Leadership Program
• Preparing Aspiring Principals
• Preparing School Turnaround Leaders
Workshop Objectives and Deliverables

- Gain awareness and understanding of *Making Middle Grades Work*.
- Determine the current status of your school on each of the priorities.
- Compare the findings of the SREB Middle Grades Commission report to that of your school.
- Develop possible action steps for each priority.
- Prioritize actions for implementation.
- Establish a structure for planning, managing and monitoring the implementation of the *MMGW* framework.
Definition of Middle Schoolers

“People who run everywhere they go, and when they reach a destination, they hit something or someone.”
Middle Grades Purpose

To Prepare Students for High School
MMGW Design Elements

Foundational Elements
- Core Beliefs
- MMGW Priorities

Process Elements
- School Review
- SDW
- Assessments of School and Student Progress
- Professional Development and Coaching
- Cycle of School Improvement
Where does the SDW fit into the MMGW Design?

School Review (TAV)
Assessing the school’s status on the MMGW Priorities

Site Development Workshop
Preparing a team from the school to begin the Cycle of School Improvement based on the MMGW Priorities

Cycle of School Improvement
An on-going process through which schools implement the MMGW Priorities

You are here
Cycle of School Improvement

1. Assess the School’s Status on the 8 Priorities
2. Analyze Data to Identify a Priority for Improvement
3. Set Goals or Targets
4. Develop and Implement Plan
5. Monitor Implementation and Results
Core Beliefs

- A core belief is a statement of what an individual or organization values in connection with their goals.
- Core beliefs are the foundation or guiding principles for how you behave, act and carry out your work.

Core Belief = A person’s health is greatly dependent upon his/her diet.

Action = You eat a balanced diet that avoids sugary and high calorie foods.

Core Belief = What students learn is highly dependent upon the instruction they are provided.

Action = The faculty puts careful thought into lesson design and instructional practices.
MMGW Core Beliefs

- Almost all students can and will make the effort to learn grade level and course standards if **adults** in the school **create the right conditions**.
- All students should be enrolled in a **program of study** that will prepare them for further study and a career.
- Students learn best when they have a **personal connection** to the school.
- Students who have a **goal** and see **meaning** and **purpose** in learning are motivated to learn grade level and course standards.
- Students learn best when teachers maintain a **demanding and supportive environment** that pushes students to do their best.
- All faculty should be involved in **continually improving teaching and learning**.
- Students **change behavior** and become **more motivated** to meet school goals when adults use school and classroom practices based on **effort rather than ability**.
What Actions Could You Take to Begin Changing Faculty Beliefs?

Step 1

Step 2

Step 3
How to Change Core Beliefs

• Engage faculty in examining their current beliefs.
• Share data on the results of current beliefs and practices.
• Share the MMGW Core Beliefs with the faculty.
• Provide or have faculty generate examples of what faculty behaviors would be if they held the MMGW Core Beliefs.
• Provide professional development to support the MMGW Core Beliefs.
MMGW Priorities
MMGW Priorities

1. Purpose-Driven Mission
2. Rigorous State Standards
3. Focus on Literacy
4. Balanced Approach to Teaching Mathematics
5. STEM
6. System of Support
7. Comprehensive Guidance and Career Exploration
8. Instructional Leadership
Why Focus On Mission?

Everyone committed to the organization should know the mission statement by heart because it is the reason the organization exists and is the basis of people’s commitment to the organization.

Source: Crafting Effective Mission & Vision Statements
Emil Angelica 2001
Priority #1: Purpose-Driven Mission

Align school practices to reflect a mission focused on preparing students for success in rigorous high school courses – and, ultimately, for most students to graduate and proceed to college or technical training.
SREB Commission Report

A NEW MISSION FOR THE MIDDLE GRADES

PREPARING STUDENTS FOR A CHANGING WORLD

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Middle Grades Mission

“Middle grades schools must have a new mission: to prepare more students for success in rigorous high school courses – and ultimately, for most students to graduate and proceed to college or technical training.”

2012 SREB Middle Grades Commission

Rationale for a New Mission

• The nation’s civic and economic life has changed.
• New research has revealed the key to middle grades achievement.
• The nation’s push for higher standards increases the urgency.
Self-Assessment: Purpose-Driven Mission

<table>
<thead>
<tr>
<th>How many of your teachers would agree with these statements?</th>
<th>% of teachers who would agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Our school’s mission statement is focused on preparing students for high school.</td>
<td>0 to 25% 25 to 50% 50 to 75% 75 to 100%</td>
</tr>
<tr>
<td>2) Our school’s mission statement is aligned with the MMGW Core Beliefs?</td>
<td>0 to 25% 25 to 50% 50 to 75% 75 to 100%</td>
</tr>
<tr>
<td>3) Our school’s mission identifies what we do for students.</td>
<td>0 to 25% 25 to 50% 50 to 75% 75 to 100%</td>
</tr>
<tr>
<td>4) People who read our mission statement find it inspiring.</td>
<td>0 to 25% 25 to 50% 50 to 75% 75 to 100%</td>
</tr>
<tr>
<td>5) Our school’s mission is being achieved.</td>
<td>0 to 25% 25 to 50% 50 to 75% 75 to 100%</td>
</tr>
</tbody>
</table>
Action Plan

Review the mission for your school:

1. How does our school’s current mission compare with the mission contained in the Commission Report?

2. What changes are needed to bring our school’s mission more in line with the Commission’s mission?

3. Who should be involved in making these changes?

4. What process will we use to make these changes?

5. How will we ensure the new mission is communicated to all stakeholders?
Priority #2: Rigorous State Standards

Accelerate learning to help all students perform at grade level on rigorous college and career readiness standards.
What Makes a Standard “Rigorous”?

Standards become more rigorous as the cognitive complexity embedded in the standard increases.

- Require more complex thinking
- Involve more steps
- Integrating information from multiple sources

<table>
<thead>
<tr>
<th>Previous Standard</th>
<th>More Rigorous Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine the main idea of a passage.</td>
<td>Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.</td>
</tr>
<tr>
<td>Calculate the unit rate for a complex fraction.</td>
<td>Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.</td>
</tr>
</tbody>
</table>
What is Cognitive Complexity?

Cognitive refers to mental processes.

Examples = remembering, reasoning, perceiving or understanding, calculating, evaluating, creating, comparing, contrasting etc.

The number and type of steps involved in a particular cognitive process determines its complexity.

Who is the founder of the Ford Motor Company? Would purchasing stock in the Ford Motor Company be a good investment?
Can We Sort These Tasks By Cognitive Complexity?

A  Determine if NASA was negligent in launching Challenger despite the extremely low temperature at launch.


C  Draft a persuasive letter to Senator Nelson arguing for or against an expansion of the manned space program. Include adequate supporting evidence to make your argument.

D  Recall the major milestones of the US space program.

A  Determine if NASA was negligent in launching Challenger despite the extremely low temperature at launch. **EVALUATE**

B  Rewrite Neil Armstrong’s statement “One small step for man; a giant leap for mankind.” in your own words. **UNDERSTAND**

C  Draft a persuasive letter to Senator Nelson arguing for or against an expansion of the manned space program. Include adequate supporting evidence to make your argument. **CREATE**

B  Rewrite Neil Armstrong’s statement “One small step for man; a giant leap for mankind.” in your own words. **UNDERSTAND**

D  Recall the major milestones of the US space program. **REMEMBER**
How To Interpret The Cognitive Complexity Of A Standard

1) Read the standard carefully all the way through and look at what it requires the student to do.
   • Pay attention to the content, not just the verb(s).

2) Determine how many steps are required to meet the standard.
   • How many different mental processes (i.e., thinking skills) will students have to complete?

3) For each step, determine what level of cognitive complexity (see the DOK Wheel) students will need to apply to meet that step of the standard.
   • Look for cognitive behaviors that are similar to what students are expected to do in each step.
# How It Works

Sample Standard → Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.

<table>
<thead>
<tr>
<th>Step</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read the standard all the way through</td>
<td>(Be sure to read carefully and look beyond the verb(s) to the content described in the standard.)</td>
</tr>
<tr>
<td>Determine the steps students will complete</td>
<td>Step 1 = Delineate the argument and specific claims</td>
</tr>
<tr>
<td></td>
<td>Step 2 = Evaluate the argument, including the validity of the reasoning as well as the relevance and sufficiency of evidence</td>
</tr>
<tr>
<td>Determine the cognitive complexity of each step</td>
<td>Step 1 = DOK Level Two</td>
</tr>
<tr>
<td></td>
<td>Step 2 = DOK Level Three</td>
</tr>
</tbody>
</table>
Standards → Assignments

- Students encounter more rigorous standards in the assignments teachers make.
- Teachers and principals can also see the level of rigor in classroom instruction by looking at student work.
Grade-Level Standards vs. Grade-Levels of Assignments

Source: John Holton, Analysis of assignments from 362 Elementary and Middle Schools.
Grade-Level Standards vs. Grade-Levels of Assignments

Source: John Holton, Analysis of English Language Arts Assignments in 44 High Schools
# Examples of Rigorous Assignments

<table>
<thead>
<tr>
<th>Standard</th>
<th>Does Not Address the Standard</th>
<th>Addresses the Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delineate and evaluate the argument and specific claims in a text,</td>
<td>Read James Ritter’s article on off-shore drilling in the Gulf and state your own position on</td>
<td>Read James Ritter’s article on off-shore drilling in the Gulf, identify each claim he</td>
</tr>
<tr>
<td>including the validity of the reasoning as well as the relevance and</td>
<td>this issue.</td>
<td>makes and assess each claim in terms of its validity and how well it connects with the</td>
</tr>
<tr>
<td>sufficiency of the evidence.</td>
<td></td>
<td>issue. Then, determine if the evidence supporting his claims is sufficient to convince</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the average person of his position.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sample Problem:</td>
</tr>
<tr>
<td>Solve multi-step real-life and mathematical problems posed with positive</td>
<td>Sample Problem: What is 3% of 15?</td>
<td>If a worker who earns $15 per hour gets a 3% raise every 6 months for 2 years, what will</td>
</tr>
<tr>
<td>and negative rational numbers in any form (whole numbers, fractions,</td>
<td></td>
<td>the worker’s hourly wage be at the end of this two year period?</td>
</tr>
<tr>
<td>and decimals), using tools strategically.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A New Wave of Testing

Explain what a line of symmetry is. Explain why the dashed line drawn in the figure below is NOT a line of symmetry for the figure.
### Increased Rigor of Assessments

<table>
<thead>
<tr>
<th>Cohort Entering 6&lt;sup&gt;th&lt;/sup&gt; Grade in 2011-12</th>
<th>Does Not Meet</th>
<th>Partially Meets</th>
<th>Meets Standard</th>
<th>Exceeds Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Students (6&lt;sup&gt;th&lt;/sup&gt; in 2011-2012)</td>
<td>0%</td>
<td>46%</td>
<td>49%</td>
<td>5%</td>
</tr>
<tr>
<td>All Students (7&lt;sup&gt;th&lt;/sup&gt; in 2012-2013)</td>
<td>0%</td>
<td>63%</td>
<td>31%</td>
<td>6%</td>
</tr>
<tr>
<td>All Students (8&lt;sup&gt;th&lt;/sup&gt; in 2013-2014)</td>
<td>87%</td>
<td>11%</td>
<td>3%</td>
<td>0%</td>
</tr>
</tbody>
</table>

The chart visually represents the same data.
How Can Teachers Accelerate Learning?

- **Scaffolding instruction** provides students who have learning problems a teacher-supported transition from primarily seeing and hearing the teacher model a particular concept or skill to applying the concept or performing the skill independently.

- **Scaffolding Strategies:**
  1. Think aloud (a form of modeling in which the teacher “thinks aloud” while performing the task or skill)
  2. Activating prior knowledge
  3. Time to talk (students talk about the content in a Think-Pair-Share format)
  4. Pre-teach vocabulary
  5. Use visual aids
  6. Frequent comprehension checks
More Strategies For Accelerating Learning

- **Self-paced instruction or practice** delivered via technology that optimizes students’ time engaged with relevant content.
- **“Catch-up” courses** that blend the ideas of remediation and acceleration to enable students to make faster progress.
What Does Rigorous Instruction Look Like?

• Instruction is aligned with one or more standards and students know what the learning goal.
• Students are working in teams, often explaining their work as they complete tasks.
• Instruction is student-centered with less teacher talk.
• Assignments shift from daily to multi-step and multi-day assignments.
• Students are required to read complex content material from diverse sources and discuss/write about what they learned.
• Connects learning in multiple content areas.
Rrigorous Standards...Only the Beginning

Read “Common Core State Standards...Only the Beginning!”

Text Rendering Protocol:

- **Highlight** one sentence that reinforces what you already know.
- **Underline** one phrase that is important to remember.
- **Circle** one word that summarizes what the article is about.
Webb’s Depth of Knowledge

Level One (Recall)
- Describe
- Explain
- Interpret

Level Two (Skill/Concept)
- Use
- Compare
- Differentiate
- Investigate

Level Three (Strategic Thinking)
- Revise
- Apprise
- Hypothesize
- Cite Evidence

Level Four (Extended Thinking)
- Design
- Connect
- Synthesize
- Apply Concepts

- Analyze
- Create
- Prove
- Critique

- Define
- Calculate
- Arrange
- Repeat
- State
- Tell
- Recall
- Recite

- Identify
- Memorize
- List
- Label
- Illustrate
- Measure
- Name
- Report
- Use
- Quote
- Match
- Infer
- Categorize
- Collect and Display
- Identify Patterns
- Graph
- Classify
- Separate
- Cause/Effect
- Estimate
- Compare
- Relate
- Use Context Cues
- Make Observations
- Summarize
- Show
Rigor Framework & Resources

Webb’s Depth of Knowledge Levels
- Level One – Recall
- Level Two – Skill/Concept
- Level Three – Strategic Thinking
- Level Four – Extended Thinking

In your planner complete:
“What is the DOK Level and Why?”
## Self-Assessment: Rigorous State Standards

What percentage of students at your school would agree that in their classes they are:

<table>
<thead>
<tr>
<th>What percentage of students at your school would agree that in their classes they are:</th>
<th>% of Students that would Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Completing tasks related to one or more standards with a clear learning goal</td>
<td>0 to 25%</td>
</tr>
<tr>
<td>1) Working in teams, often explaining their work as they complete it</td>
<td>0 to 25%</td>
</tr>
<tr>
<td>1) Doing the work rather than listening to long lectures or presentations from the teacher</td>
<td>0 to 25%</td>
</tr>
<tr>
<td>1) Working on multi-step, multi-day assignments rather than one-day assignments</td>
<td>0 to 25%</td>
</tr>
<tr>
<td>1) Reading complex content material from diverse sources and discussing or writing about what they learned</td>
<td>0 to 25%</td>
</tr>
<tr>
<td>1) Completing tasks that require them to connect what they are learning across multiple content areas</td>
<td>0 to 25%</td>
</tr>
</tbody>
</table>
What steps can your school take to ensure:

- Our practices focus on accelerating learning rather than remediating deficits?
- Teachers understand how to plan for and implement rigorous instruction aligned with grade-level standards?
- Students are challenged with assignments and assessments aligned to grade-level standards?
Priority #3: Focus on Literacy

Focus the middle grades curriculum on literacy in all content areas to embed literacy skills and build students’ ability to read and understand grade-level texts and related documents and to express thoughts orally and in writing.
New Literacy Standards

- Engaging deeply with more complex text, particularly non-fiction.
- Writing that goes beyond narrative and expository forms to challenging students to argue their positions and cite evidence from the text.
- Using literacy skills across content areas (embedded literacy).
Rationale for Embedded Literacy

- Every test is a reading test.
- College and career readiness standards place a focus on literacy in all content areas.
- Current literacy strategies do not prepare students for success in rigorous high school classes.
- Achievement in reading, writing and reasoning usually accelerates students’ rate of progress in all subjects.
Instructional Shifts in Literacy

After reading "Reaping the Rewards of Risk-Taking" by Steve Lohr and "Steve Jobs: Imitated, Never Duplicated" by David Pogue, write an essay that describes ways in which Steve Jobs was a nonconformist. Support your discussion with evidence from the texts.

Explain what being a nonconformist is, using examples from your life experiences.
## Impact of Literacy Experiences on Reading Achievement

<table>
<thead>
<tr>
<th>Students Reported Experiences</th>
<th>Average Reading Score (N=1015)</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>My teachers require me to compare information in one text to information from other sources.</td>
<td>YES 635.2, NO 626.2</td>
<td>9.0</td>
</tr>
<tr>
<td></td>
<td>50%, 50%</td>
<td></td>
</tr>
<tr>
<td>I am often asked to read difficult materials and to write about them to show my understanding.</td>
<td>YES 637.6, NO 625.3</td>
<td>12.3</td>
</tr>
<tr>
<td></td>
<td>50%, 50%</td>
<td></td>
</tr>
</tbody>
</table>
## Impact of Literacy Experiences on Reading Achievement

<table>
<thead>
<tr>
<th>Students Reported Experiences</th>
<th>Average Reading Score (N=1015)</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>My teachers require writing assignments that make me defend my thinking with evidence from my reading.</td>
<td>639.9</td>
<td>615.7</td>
</tr>
<tr>
<td></td>
<td>51%</td>
<td>49%</td>
</tr>
<tr>
<td>The comments I get on my work from my teachers help me understand how to improve.</td>
<td>636.5</td>
<td>625.4</td>
</tr>
<tr>
<td></td>
<td>50%</td>
<td>50%</td>
</tr>
</tbody>
</table>
Student Survey Results  
7,431 GUA Students

- 38 percent of students say they are often asked to read difficult materials and write about them to show their understanding.
- 17 percent of students wrote a major research paper (with footnotes and works cited/bibliography) once a year.
- 60 percent say their teachers require them to compare information in one text to information from other sources.
Chalk Talk Walk About

Thinking about preparing students for high school and the new literacy standards that we want students to meet or exceed:

1. What instructional shifts would need to take place in our language arts classrooms?
2. What do content area teachers need to do differently?
3. What do administrators need to do differently?
4. What literacy skills do students need?
5. How can language arts teachers and content area teachers collaborate?
Instructional Practices to Promote Literacy

Assignments and tasks ask students to:

- Complete writing assignments that make them defend their thinking with supporting evidence from what they read.
- Assess the reasoning and evidence from a text or other readings to support or refute the author’s position.
- Make inferences from information provided to develop a solution for a problem or project.
- Read challenging materials and write multi-paragraph papers on the readings to demonstrate understanding.
Literacy Design Collaborative

- Framework for literacy instruction.
- Aligned to College and Career Readiness Standards.
- 2-4 week instructional modules:
  - Task
  - Skills
  - Instruction
  - Results
LDC in Action
LDC Activity

1) Review the LDC Tasks provided.
2) Discuss how they are similar to the traditional assignments and how they are different.
3) Don’t skip the “Give It A Try” section!
SREB Literacy Goals

- Write a major research paper (with footnotes and bibliography) on a subject they choose once a semester or once a year.
- Complete a short writing assignment of one to three pages for a grade weekly.
- Make an oral presentation each month or each semester.
- Read, both in and out of school, the equivalent of 11 or more books of various types, raising the bar annually to reach the 25-book level.
Self-Assessment: Focus on Literacy

Assess where your school is currently. Individually respond to the questions posed that address the degree to which a focus on literacy is in place at your school. Then compare and discuss answers.

<table>
<thead>
<tr>
<th>How often are your students required to:</th>
<th>How often: Daily/Weekly/Monthly/Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Complete writing assignments that made them defend their thinking with evidence from what they read?</td>
<td>Daily □ Weekly □ Monthly □ Never □</td>
</tr>
<tr>
<td>2) Assess the reasoning and evidence from text to support or refute the author’s position?</td>
<td>Daily □ Weekly □ Monthly □ Never □</td>
</tr>
<tr>
<td>3) Read challenging materials and write papers on the reading to demonstrate understanding?</td>
<td>Daily □ Weekly □ Monthly □ Never □</td>
</tr>
<tr>
<td>4) Make inferences from information provided to develop a solution?</td>
<td>Daily □ Weekly □ Monthly □ Never □</td>
</tr>
<tr>
<td>5) Complete extended projects that require planning, developing a solution or product and present the results orally or in writing?</td>
<td>Daily □ Weekly □ Monthly □ Never □</td>
</tr>
</tbody>
</table>
Action Plan

What actions can your school take to ensure that in all content areas:

• Literacy skill development is embedded.
• Students who lack basic reading and writing skills receive special instructional support and the time needed to catch up before high school.
• Teachers receive specialized training to help students read complex informational texts at grade level.
• Students are provided with an accelerated ELA curriculum that builds their abilities to read and analyze.
Priority #4: Balanced Approach to Teaching Mathematics

Accelerate mathematics learning through the use of instructional strategies that focus on reasoning, understanding and application.
New Mathematics Standards

• Deep understanding of math concepts; students can identify, apply and give examples of math principles.
• Use multiple representations to demonstrate their understanding in multiple ways.
• Reason with and make sense of math using critical thinking and problem solving skills, recognizing if a solution is “logical” or makes sense.
• Apply their math knowledge to “real-world” problems.
• Respond to open-ended problems and challenges that require students to rely on their understanding of math to be successful.
Rationale for Balanced Mathematics

• College and career readiness standards emphasize more complex math knowledge and skills that require real-world application.
• Only 35 percent of 8th graders scored at the proficient level or above in math, according to 2013 NAEP results – no overall increase in 2011 figures.
• The Algebra I course has typically one of the highest failure rates in high school.
• Catch-up courses that have used the same instructional philosophy for math instruction have not worked.
• Increased requirements for students to take math courses have not resulted in math achievement gains.
# Impact of Teaching Strategies on Student Achievement

<table>
<thead>
<tr>
<th>Students Reported Experiences</th>
<th>Average Math Score (N=1015)</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am encouraged to understand math concepts instead of just memorizing rules and procedures.</td>
<td>633.1, 51%</td>
<td>18.7</td>
</tr>
<tr>
<td>My teachers provide feedback frequently to help me understand my mistakes and improve my</td>
<td>630.8, 50%</td>
<td>10.6</td>
</tr>
<tr>
<td>performance in mathematics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My teachers review my work and provide feedback to help me solve math problems.</td>
<td>628.1, 50%</td>
<td>2.9</td>
</tr>
</tbody>
</table>
## Impact of Teaching Strategies on Student Achievement

<table>
<thead>
<tr>
<th>Students Reported Experiences</th>
<th>Average Math Score (N=1015)</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers give me challenging problems to solve and sometimes allow me to work on them independently.</td>
<td>YES: 634.1, 50%   NO: 614.8, 49%</td>
<td>19.3</td>
</tr>
<tr>
<td>My mathematics teachers guide my understanding of mathematics through questioning as well as through explaining.</td>
<td>YES: 632.8, 51%   NO: 617.3, 49%</td>
<td>15.5</td>
</tr>
<tr>
<td>I am able to demonstrate my understanding of content through assignments before taking a test.</td>
<td>YES: 639.9, 51%   NO: 613.2, 49%</td>
<td>26.7</td>
</tr>
</tbody>
</table>
Student Survey Results
7,431 GUA Students

- 18 percent have to explain to the class how they solved a math problem *monthly*.
- 21 percent have to use their math skills to solve problems in other classes *a few times a year*.
- 38 percent say they will complete Algebra 1 during or before 8th grade.
Balanced Approach to Teaching Mathematics

- Skills and concepts are clearly defined.
- An ability to apply concepts and skills to new situations is expected.

*Keep a balanced emphasis — through extensive professional development in mathematics instruction — on teaching students fluency in mathematics procedures, in conceptual understandings, reasoning and application.*
### Balanced Approach to Teaching Mathematics

<table>
<thead>
<tr>
<th>Type</th>
<th>Example</th>
<th>Key Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedural</td>
<td>60 divided by 8</td>
<td>Step-by-step process; single correct answer</td>
</tr>
<tr>
<td>Conceptual</td>
<td>Mrs. Sanchez needed to pack 60 books. Each box holds 8 books. How many boxes does she need?</td>
<td>Goes beyond memorization to an understanding of underlying concepts</td>
</tr>
<tr>
<td>Application</td>
<td>There are 60 students on a field trip. Each minivan holds 8 students. How many minivans are full?</td>
<td>Applies skill to a real-world situation</td>
</tr>
</tbody>
</table>
Standards of Mathematical Practice (NCTM)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.
Time for a little “productive struggle”
Cats can’t add but they do multiply!

In just 18 months, this female cat can have 2000 descendants.

Make sure your cat cannot have kittens.

This poster was produced by an organization that looks after stray cats. Before it goes to the printer, they have asked you to check if the number of descendants is realistic.
Facts You Will Need:

- Length of pregnancy – 2 months
- Age at which a female cat can get pregnant – About 4 months
- Number of kittens in a litter – 4 to 6
- Average number of litters a female cat can have in one year – 3
- Age at which a female cat no longer has kittens – About 10 years
Processing with students

Total cats = 1 + 6 x 6 + 6 x 36
= 1 + 36 + 216
= 253

So it's not realistic
Yes It is Possible!

Time In Months

Generations of Kittens

2551 Descendants
Introduction to MDC

Mathematics Design Collaborative
The MDC Framework

Formative Assessment Lessons (FALs):

- Initial pre-assessment to identify misconceptions, weaknesses.
- Teacher uses pre-assessment data to create homogenous pairs/groups.
- Students engage in collaborative assessment task.
- Whole-group discussion to summarize learning and strengthen understanding.
- Students complete post-assessment to provide teacher with feedback on teaching and learning.
Self-Assessment: Balanced Approach to Teaching Mathematics

Assess where your school is currently. Individually respond to the questions posed that address the degree to which a balanced approach to teaching mathematics is in place at your school. Then compare and discuss answers.

<table>
<thead>
<tr>
<th>How often are your students:</th>
<th>How often</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Encouraged to understand math concepts instead of just memorizing rules and procedures?</td>
<td>Daily Weekly Monthly Never</td>
</tr>
<tr>
<td>2) Provided with feedback to help them understand mistakes and improve performance in mathematics?</td>
<td>Daily Weekly Monthly Never</td>
</tr>
<tr>
<td>3) Guided in their understanding of mathematics through questioning as well as explaining?</td>
<td>Daily Weekly Monthly Never</td>
</tr>
<tr>
<td>4) Given complex problems to solve that require using multiple math concepts?</td>
<td>Daily Weekly Monthly Never</td>
</tr>
</tbody>
</table>
Action Plan

What actions can your school take to:
• Shift instructional practices to develop a balanced approach to teaching mathematics?
• Provide professional development to support teachers’ efforts to incorporate the CCSS for Mathematical Practice?
• Accelerate rather than remediate to ensure students below grade level can meet current grade level standards?
Priority #5: STEM

Create opportunities for students to engage in project-based learning that couples science, technology, engineering, math concepts with literacy; these experiences will allow them to develop their critical thinking and problem-solving skills and connect to their learning in exciting ways.
Rationale for STEM Experiences

• When taught through hands-on, project- and problem-based contexts, STEM activities engage students’ curiosity and creativity.
• Creativity is better predictor of success than SAT or ACT.
• STEM projects enable students to see the need to do well in math and science.
• Females and minorities continue to be underrepresented in STEM careers.
• There is a shortage of qualified people to fill STEM career opportunities.
Data on STEM Careers

- The US will have more than 1.2 million job openings in science, technology, engineering and math (STEM) – related occupations by 2018.
- Only 16% of the Bachelor’s degrees awarded in 2020 will specialize in STEM.
- STEM occupations are growing by 17% while all others are growing at 9.8%.
- One in five STEM college students decided to study STEM in middle school or earlier.
- 68% of female STEM college students say that a teacher or class sparked their interest in STEM.
Instructional Practices

The SREB Middle Grades Commission recommends:

• Giving middle grades students greater access to lab-based opportunities.
• Elevating science instruction to the same level of importance as reading and math.
• Identify students who have skills to succeed in an accelerated curriculum that leads to Algebra I completion by the end of 8th grade.
Perspectives on STEM Education

Read the article “The Disconnect between Minority Students and STEM Careers.”

4 A’s Protocol

Consider the following after reading:

• What **assumptions** does the author of the text hold?
• What do you **agree** with in the text?
• What do you want to **argue** with in the text?
• What questions would you **ask** the author?
Self-Assessment: STEM

Assess where your school is currently. Individually respond to the questions posed that address the degree to which STEM experiences are in place at your school. Then compare and discuss answers.

<table>
<thead>
<tr>
<th>How often do your students:</th>
<th>How often Daily/Weekly/Monthly/Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Complete projects that require them to plan, research, discuss/debate, and present a product?</td>
<td>Daily □ Weekly □ Monthly □ Never □</td>
</tr>
<tr>
<td>2) Solve problems using real-world applications of literacy, math, science and technology?</td>
<td>Daily □ Weekly □ Monthly □ Never □</td>
</tr>
<tr>
<td>3) Engage in learning activities that allow them to explore STEM topics?</td>
<td>Daily □ Weekly □ Monthly □ Never □</td>
</tr>
</tbody>
</table>
Action Plan

What actions can your school take to:

• Embed STEM experiences throughout all core subject areas and CTE courses?
• Elevate science instruction to the same level of importance as reading and mathematics?
• Engage students in opportunities to explore STEM coursework and careers?
• Provide students with opportunities to discover their interests and aptitudes by using math, science and technology as tools for solving problems?
Priority #6: System of Support

Develop a comprehensive system to accelerate student learning, identify potential dropouts and implement immediate targeted interventions to support these students to meet grade level standards. Implement strategies to get below grade level students on track to graduate.
Robert Balfanz and his colleagues found that more than half of sixth graders that met any of these criteria eventually dropped out of school.

Balfanz & Herzog, 2005
Data

- More than 1.2 million students drop out of high school each year (2013 data).
- National graduation rate of 81% in 2013 (up from 75% in 2008).
  - Hispanic 73%
  - Black 69%
  - White 86%
  - ELL 59%
  - Special Education Students 61%
- The earlier a student develops an off-track indicator, the greater his/her odds of not graduating.
Student Survey results
7,431 GUA Students

• 33 percent of students do less than 30 minutes of homework each day outside of school.
• 24 percent are often required to redo work that does not meet standards.
• 61 percent feel they often have to work hard to meet high standards on assignments.
Developing a Comprehensive System of Support

On-going Data Collection & Early Warning System

Reflective Review of Impact of Support System

Targeted Support & Interventions
High Expectations and a System of Extra Help and Extra Time
High Expectations Indicators

- Students report they spend between one and two hours on homework each day.
- Their courses are sometimes or often exciting.
- Their courses are sometimes or often challenging.
- Most of their teachers often encourage them to do well in school.
- Most of their teachers often set high standards and are willing to help them meet them.
- Most of their teachers often clearly indicated the amount of work and what was necessary to earn a good grade.
- Their teachers often care about them enough that they will not let them get by without doing the work.
- Their teachers often know their subject and can make it interesting and useful.
- They often work hard to meet high standards on assignments.
- They are often required to redo work that does not meet standards.
Developing a Comprehensive System of Support – Actions

• Identify and monitor students using the ABCs and other locally relevant indicators.
• Define what is required for A- and B-level work.
• Give students rubrics and examples for high quality work.
• Provide additional time and extra help for students who need it so that they can complete their assignments, pass course tests, and meet grade-level standards.
• Provide school time and require extra help for those not meeting grade-level standards.
Stories of Success

1. Knox County Schools, Knoxville, TN
2. Chicago Public Schools, Chicago, IL
3. Metropolitan Nashville Public Schools, Nashville, TN
4. Big Brothers Big Sisters, A Community Partnership

Identify the factors that contributed to the success of the effort in your case study. Then, as a group we will discuss commonalities among the four.
Self Assessment: System of Support

The system’s goal is to find those students who need extra help and support to meet grade-level standards. Reflect on the support your students experience. Respond individually before discussing with your teams.

<table>
<thead>
<tr>
<th>What percentage of your teachers would say:</th>
<th>% of teachers that would Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) There is a system in place that includes monitoring Early Warning Signals for all students</td>
<td>0 to 25% □ 25 to 50% □ 50 to 75% □ 75 to 100% □</td>
</tr>
<tr>
<td>2) There is a system of tiered interventions that is implemented for targeted students as soon as they are identified</td>
<td>0 to 25% □ 25 to 50% □ 50 to 75% □ 75 to 100% □</td>
</tr>
<tr>
<td>3) Extra help is available during the school day to accelerate learning for students who have fallen behind or are in danger of falling behind</td>
<td>0 to 25% □ 25 to 50% □ 50 to 75% □ 75 to 100% □</td>
</tr>
<tr>
<td>4) Every student has at least one caring adult who takes a personal interest in the student’s progress in school</td>
<td>0 to 25% □ 25 to 50% □ 50 to 75% □ 75 to 100% □</td>
</tr>
<tr>
<td>5) The individual components (EWS monitoring, interventions, extra help and connections with caring adults) are integrated into a comprehensive system</td>
<td>0 to 25% □ 25 to 50% □ 50 to 75% □ 75 to 100% □</td>
</tr>
<tr>
<td>6) The system actively engages families and the local community in supporting students</td>
<td>0 to 25% □ 25 to 50% □ 50 to 75% □ 75 to 100% □</td>
</tr>
</tbody>
</table>
Questions to guide planning and implementation:
1. What will you do to collect and use data on the ABCs?
2. How will you involve stakeholders in the planning and implementation phases of a support system?
3. What existing structures or programs could be incorporated into a comprehensive system of support?
4. What new structures and practices will need to be added?
5. How will you measure the effectiveness of the system of support?
Priority #7: Guidance and Career Exploration

Assist schools to provide a range of exploratory experiences, help students and their parents to understand future career and education options, and guide them to develop individual academic and graduation plans.
Rationale for Guidance and Career Exploration

• Students need to explore career interests during the middle grades so they will be ready to select the appropriate program of study for their high school years.
• Connecting what they learn in school to real-world opportunities improves student achievement by increasing motivation and encouraging students to take their course work seriously.
• Guidance and exploration are important if students are to see beyond narrow options so they see the full scope of what they may learn and do.
Data

• One-half of new jobs in the next decade will require some education beyond high school, but less than a college degree (passing employer certification exams, earning certificates or associate’s degrees, etc.).

• 40% of mid-skill jobs will earn more than the average salary of those with bachelor’s degrees.

• People are more likely to have several careers within their lifetime than previous generations.

• While new careers are being created, some careers will fade away.
Comprehensive system of guidance and advisement that involves parents

- Engage teachers, students and parents in a comprehensive guidance and advisement system including
  - academic advisement,
  - career exploration and
  - educational planning that leads to a successful transition to high school.

- Involve parents in the school improvement process by
  - informing them of the school’s mission
  - assisting them to understand the higher standards of performance now required of middle grades students
  - Informing them of the need to support students to make greater effort and work harder to meet standards.
Student Survey Results
7,431 Students

• 29 percent of your students have a written plan for courses they would take in high school.
• 61 percent were assisted by parents, guardians, or someone at school to develop a written plan of the courses they would take.
• 69 percent have never talked to a guidance counselor about the classes they should take in high school.
• 23 percent have a specific career goal but do not know what education and training would be required to reach it.
MMGW Survey Data

Students experiencing a combination of these activities had higher math and reading scores:
- I took a career exploratory class.
- I heard guest speakers from various careers.
- I heard guest speakers from various colleges.
- I participated in job shadowing.
- I attended a career fair.
- I have shadowed my parents at their workplace.
# A Shift In Thinking

<table>
<thead>
<tr>
<th>Traditional Approach</th>
<th>Recommended Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counseling for college</td>
<td>Counseling for careers</td>
</tr>
<tr>
<td>College is the end game</td>
<td>College is a means to a career</td>
</tr>
<tr>
<td>Everybody goes to college</td>
<td>College is purpose-designed to lead to a desired career path</td>
</tr>
</tbody>
</table>
Career Guidance
Best Practices

SREB’s most-improved middle schools stress:
• Involving parents in discussions about their child’s performance and readiness for high school.
• Helping students understand what will be expected of them in high school.
• Exposing students to a range of different careers and to related educational opportunities.
• Assisting students to develop a six-year plan for high school and postsecondary studies.
## Self-Assessment: Comprehensive Guidance and Career Exploration

<table>
<thead>
<tr>
<th>What percentage of your 8th grade students would say:</th>
<th>% of Students that would Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) They and their parents have been involved in discussions about their performance and readiness for high school.</td>
<td>0 to 25% □</td>
</tr>
<tr>
<td>2) They understand what will be expected of them in high school.</td>
<td>0 to 25% □</td>
</tr>
<tr>
<td>3) They have been exposed to a range of different careers and to related educational opportunities.</td>
<td>0 to 25% □</td>
</tr>
<tr>
<td>4) They have a six-year plan for high school and postsecondary studies.</td>
<td>0 to 25% □</td>
</tr>
</tbody>
</table>
Action Plan

What steps must be taken at your school to:

• Ensure every student has a 6-year plan before leaving 8th grade.
• Ensure parents are involved in the career counseling and guidance process.
• Provide an Adviser-Advisee Program that ensures every student has an adult advocate in the school.
• Provide a range of experiences to help students develop their career aptitudes and interests.
Priority #8: Instructional Leadership

Focus professional development for teachers, counselors and school leaders to continuously improve teaching and learning. Use data, classroom observations and proven leadership techniques to guide school change and to support teacher growth.
Rationale for Instructional Leadership

- Effective instructional leaders achieve structural and cultural transformation of the school by...
  - focusing the thoughts and actions of the faculty, staff, parents and other stakeholders on student learning
  - helping teams of teachers ensure that students achieve the intended outcomes of their schooling rather than helping individual teachers improve instruction
  - sharing the leadership function
  - emphasizing collaborative planning of instruction
Effective Leadership Practices

• Provide ongoing support and feedback to guide teachers to reflect on their work and improve it.
• Conduct classroom observations, conference with teachers, provide feedback on observations and help teachers use classroom data effectively.
• Create structures for teachers to work together to plan instruction.
• Create policies, practices and procedures that make engaging instruction a priority in the school.
• Connect teacher evaluation systems to improving instruction.
High Quality Professional Development

- Use student achievement data and data from classroom observations to plan professional development
- Ensure faculty understand the purpose of professional development and how it connects to the school’s mission and focus on learning
- Make professional development an ongoing process
- Implement coaching as a critical element of follow-up and support for professional development
- Establish procedures for gathering feedback and evaluating implementation, impact on instructional practices and results for students
- Develop a plan for sharing and sustaining practices learned in professional development; i.e., collaborative teams that apply what they learned in planning and delivering instruction
Self-Assessment: Instructional Leadership

Leadership plays a critical role in being able to provide real support for teachers with effective feedback, professional development aligned to school priorities, and using data to drive decision making.

<table>
<thead>
<tr>
<th>What percentage of your teachers would agree that:</th>
<th>% of Teachers that would Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) The goals and priorities for the school are clear.</td>
<td>0 to 25%</td>
</tr>
<tr>
<td>2) Teachers and school leaders work as a team to improve student achievement in their school.</td>
<td>0 to 25%</td>
</tr>
<tr>
<td>3) The faculty is organized in ways to take ownership of the problems and solutions at the school.</td>
<td>0 to 25%</td>
</tr>
<tr>
<td>4) The principal and school leadership team focus efforts on improving instruction.</td>
<td>0 to 25%</td>
</tr>
<tr>
<td>5) School leadership plans, supports and follow-up professional development so that it improves school and classroom practices.</td>
<td>0 to 25%</td>
</tr>
</tbody>
</table>
What actions can your school take to:

- Ensure all decisions consider the impact on learning.
- Shift professional development from an event to an ongoing process that improves teaching and learning.
- Provide teachers with the support needed to improve instruction.
- Engage all faculty in the improvement process.
- Provide more time for collaborative teams to work together to plan instruction.
Next Steps

1) Select Priorities for the initial improvement focus for your school.
   • What were the results of your self-assessments and the action plans you created for each Priority

2) Develop a plan for sharing the key ideas from this SDW with your faculty.

3) Create focus teams for the Priorities you selected.
   • Review data and analyze current status.
   • Develop priority action plans to reach a goal.
   • Focus team members present plans to the faculty and school leadership team.

4) Identify resources that can help the focus teams implement action plans.

5) Put the plans into action!
Action Plans

Complete the GEAR UP Goals/MMGW Priority Worksheet by:

• Review the action steps you created over the past two days
• Review your TAV Report
• Review your Data Analysis Report
• Review all of your survey data
Sharing

- On a note card write:
  - Your school name
  - One or two priorities that you will work on next school year
  - For each priority write one or two action steps
- Select a spokesperson for your school
- Each school will share what is on their note card
Additional Opportunities

LDC/MDC Networking Conference
Atlanta, GA
July 12-15, 2015

29th Annual *High Schools That Work*
Staff Development Conference
Atlanta, GA
July 15 - 18, 2015

GUA receives reduced registration rate: GEARUP-AL
GUA Designated Debriefing Room
Stay the Course!
Wrap-Up

Exit Slip/ 3-2-1
3 things we learned
2 things we plan to implement
1 thing SREB can do to support our school’s action plan

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