What can we expect to get from this module? This module is focused on *leadership* and numeracy. This means that the focus will be on school-wide numeracy improvement efforts as well as on classroom strategies. This training is designed to address general numeracy needs and approaches for all grade levels. It is an opportunity for school teams at different grade levels to learn from one another.

Who is the training for? The primary audience is school teams at all levels, K-12. These may be permanent or *ad hoc* numeracy teams that can provide a bridge to the rest of the faculty. They should include the principal and key teacher leaders across grade levels. The teacher leaders should be mathematics teachers or elementary teachers who teach math. Other members may include district mathematics and/or curriculum specialists, special education teachers, parents, other community members, and policymakers. Since one focus of the workshop is vertical alignment of the mathematics curriculum, the most productive training will result from all schools in a given feeder pattern being trained together.

Big Ideas in This Module

- *The typical American mathematics class is unduly burdened by too many standards and 1000+-page textbooks. The end result is often that classes "cover" a cornucopia of topics but achieve mastery in very few.*
- *A clear, well-articulated mathematics curriculum K-12 is key to improved student achievement in mathematics. Teachers at any given grade should have a good grasp of the entire K-12 scope and sequence.*
- *High-quality mathematics instruction balances and connects conceptual understanding and procedural and computational proficiency. It requires real-world problem solving and active engagement in the learning process. Students must be encouraged to reason and make conjectures about problems and to listen and react to others' thinking and solutions to problems. They must be able to explain and justify their thinking.*
- *Strong teachers of numeracy have solid knowledge of both content and teaching strategies. They love mathematics and inspire this love in their students.*
- *Numeracy improvement takes school-wide commitment.*
- *Algebra is foundational to proficiency in numeracy and should be taught as early as the first grade. Students who have completed the equivalent of Algebra I in the middle grades show significant overall learning gains compared to students who have not.*

Other SREB Leadership Curriculum Modules that support this module. Participants attending this training must have knowledge and experience in curriculum prioritization, essential questions, curriculum mapping, and matching instructional assignments to standards. These competencies and experiences can be gained by attending the SREB leadership modules *Prioritizing, Mapping, and Monitoring the Curriculum* and *Meeting the Standards*. It is highly recommended that at least some of the members of the school team being trained complete these two modules (or have other prior knowledge and skills in these areas) before attending the Numeracy Module. Other SREB modules that are considered foundational include *Using Data to Lead Change* and *Leading Assessment and Instruction*.

What will we have to do to get the most from this module? Participants must commit to attending as a team, completing the prework, attending three initial days, completing a homework assignment, attending one follow-up day, and then completing a portfolio assignment. Schools must also commit to purchasing reference and resource materials.

Module Design. This is a four-day workshop (3+1). It also includes prework and homework assignments. Each section is described below.

Prework (about five hours). Participants complete, and ask others to complete, one of three surveys about current numeracy practices in their school. They also work as a team to divide four articles about numeracy practice among themselves. Together, they create a graphic organizer summarizing their readings. Finally, they reflect on personal and school numeracy practices. Participants are also asked to bring selected school data to class.

Introduction: The Opportunity to Make a Difference (one hour). An icebreaker activity introduces participants to each other and to the idea that numeracy supports all learning and daily activities.

Who Cares? Why Numeracy is Everyone's Job (five hours). Participants define numeracy and explore good numeracy practice, based on prework readings. Then they analyze a case story. Finally, they look at their prework survey data and identify their school's strengths and weaknesses in numeracy practice.

Homework. Participants make sure that they have all required data and documents that they'll need in Day Two. They begin to think about questions related to curriculum and instruction.

Bridge From Day One to Day Two (30 minutes). Participants reflect on questions and answers regarding the material so far.

What Are Our Mathematics Expectations? (two hours, 30 minutes). In this section, participants begin by discussing the importance of curriculum alignment and prioritization. They view and discuss the "Failing Grade" videotape. Then, as teams, they focus on just a single area of mathematics – algebra – and take a critical look at the standards, assessments, and instruction related to it for rigor and alignment.

What Is Good Mathematics Instruction? (two hours, 30 minutes). Participants have the opportunity to work with a checklist for improving mathematics lessons by applying it to two trainer-led demonstration lessons and then to their own work.

Homework. Participants read an article about differentiation and gather materials (current math textbook and sample lesson plans).

Bridge From Day Two to Day Three (30 minutes). The trainer reviews, then participants construct a list of their "Top Ten" learning points from yesterday.

What Is Good Mathematics Instruction? Part II (one hour, 30 minutes). Participants have the opportunity to work with a checklist for improving mathematics lessons by applying it to two trainer-led demonstration lessons and then to their own work.

The Work of the Numeracy Leadership Team (three hours, 30 minutes). Participants explore, in a general sense, the role of a numeracy leadership team. Then, they work through a series of activities in which they learn concepts and then apply them to their real work as a team. For example, they learn about the data that may be helpful to a numeracy team, then they determine what data they need and how they will get it.

Homework. Between Days Three and Four of the training, participants should make measurable progress on implementing their action plans. This is

the "team" part of their homework. There is also an individual assignment—to select a mathematics concept, skill or topic; develop a lesson based on research and tools from this training; and document the process for fellow participants.

Bridge From Day Three to Day Four—Eight to 10 Weeks Later (two hours, 15 minutes). Participants share key learning points from the action plans that they completed related to improving numeracy. Each school team chooses an action plan to describe to the others. After sharing, participants work on revising/renewing their action plans for continued effort in the future.

Numeracy Strategies (two hours). In this section, participants explore various classroom strategies for improving numeracy. They do this by alternately attending and facilitating a series of concurrent sessions related to the mathematics lessons they developed for homework. Following a discussion of differentiation strategies, they complete a pairs activity to develop differentiation strategies for their sample lessons.

Summary and Portfolio Assignments (45 minutes). Teams must continue to implement their numeracy plan. Participants submit a portfolio that contains team products as well as individual reflections and narrative.