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## Achievement Inspired Mathematics for Scaffolding Student Success...

by Erin Mayer and Lisa Meyer-Jacks

Students are often our best teachers in finding the most effective way to teach them. During a class discussion a number of years ago, Erin Mayer's students were reflecting on their goals and the strategies that helped them learn. To her surprise, the students said that the strategies Erin thought were exactly what they needed were all right—but if she could do what they were suggesting instead it would be even better!

That conversation set in motion the practitioner research that led to the development of this model, *Achievement Inspired Mathematics for Scaffolding Student Success* (AIM4S<sup>3</sup>), which provides support beyond the typical core program to increase the mathematics achievement of all learners. This model was developed by Erin Mayer in collaboration with Dual Language Education of New Mexico, and that joint effort has resulted in a recently released monograph and a professional development model.

AIM4S<sup>3</sup> is designed to provide a framework of instructional components that shelter mathematics content to make it comprehensible and accessible to all students, with a specific focus on English learners (ELs) and academic language learners (ALLs).

AIM4S<sup>3</sup> can be implemented with any mathematics program or curriculum for students in kindergarten through high school, as well as post-secondary school.

### Model Components

Below is a diagram of the different components of the model.

#### Opening Bookend:

- ▣ Two introductory components that are implemented prior to beginning a unit
  - Focus/Motivation
  - Compendium

#### Unit Instruction:

- ▣ Core mathematics program lessons

#### Closing Bookend:

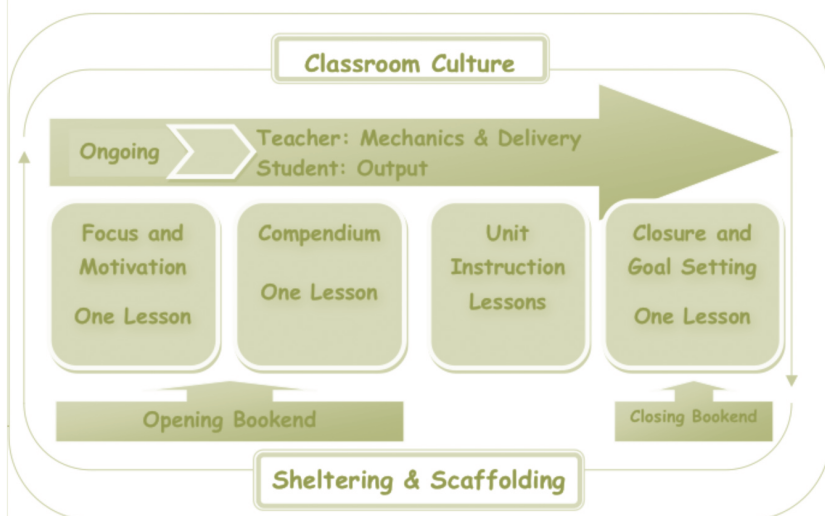
- ▣ Two ending components after the unit assessment
  - Closure
  - Goal Setting

#### Key Instructional Principles

- ▣ Teacher mechanics and delivery
- ▣ Student output
- ▣ Positive classroom culture
- ▣ Sheltering and scaffolding strategies

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### Opening Bookend

The first component of the opening bookend, Focus and Motivation, is meant to prime students' thinking prior to teaching new concepts and to create connections between students' current understandings and these new concepts. Developing schema, or prior knowledge or understanding, is essential for learners to make connections between ideas and concepts (Anderson, 1984). When beginning a new unit, the teacher utilizes strategies that generate excitement and provide experiences that students can build on throughout the unit.

The second component, the Compendium, is a chart created with the students that provides the foundational “big picture” for the unit. It builds a common language, defines the standards or targets in student-friendly language, and captures what students already know about the topic and questions that they have. Students use the Compendium throughout the unit to connect new information to previous learning, creating a solid understanding of the concept to support them as they develop their foundation in mathematics. With a strong “big picture” foundation, students' proficiency increases as they are able to demonstrate their knowledge on a variety of assessments.

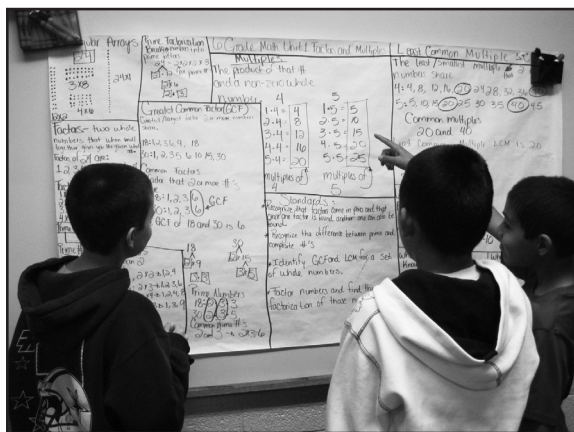
### Unit Instruction: Core Mathematics Program Lessons

The core mathematics unit is central to instruction and guides the development of the other components of the model. Teachers use their core program pacing guide, coupled with the standards, as they integrate the AIM4S<sup>3</sup> model into their instruction.

During the mathematics program lessons, sheltered instruction is incorporated on a daily basis to support content and language development for English learners as well as academic language learners. The following six characteristics (adapted from Rich, 2001, [www.lcequity.com](http://www.lcequity.com)) guide teachers in meeting the needs of their students while using the resources in their program's materials: activate prior knowledge/create shared knowledge; support meaning with realia; focus on language; make text accessible; plan for structured peer interaction; and teach for transfer.

### Closing Bookend

The closing bookend contains two components that are designed to solidify connections and ideas for students and provide reflective goal setting. The first component, Closure, connects students to the initial Focus and Motivation experiences and activities to clarify and reinforce students' end understandings. Goal Setting, the second component, provides students with the opportunity to reflect on their progress and devise an action plan for the next unit. Students consider which strategies support their learning and how their actions and attitude impact their progress. Goal setting and reflection celebrate student progress, and they heighten awareness of deliberate practice and the important role students play in their own learning.



Sixth grade students refer to a Compendium.

### Key Instructional Principles

Four key instructional principles provide the pedagogical foundation for the model: teacher mechanics and delivery, student output, positive classroom culture, and sheltering and scaffolding instruction. Mechanics and delivery refer to the methods the teacher uses to present the material and how the teacher engages or interacts with the students. Throughout the unit, this model emphasizes effective mechanics and delivery as well as frequent opportunities for student output. Strong sheltering and scaffolding practices and a positive classroom culture surround all elements of instruction. These key principles are discussed in detail throughout the monograph in the descriptors of the model components.

### Monograph Overview

In the AIM4S<sup>3</sup> monograph, each of the components above is addressed in greater depth. These are accompanied by examples of classroom practice, supporting assessment data, planning support, teachers' voices, and more. DLeNM subscribers receive a copy of the document, and they can also access it electronically at [www.dlenm.org](http://www.dlenm.org). The monograph is available for purchase at [publications.dlenm.org](http://publications.dlenm.org). DLeNM's Clearinghouse is also a resource for a video of the model's introduction at La Cosecha 2011 and classroom videos of the model in action. For just a small sample of what you'll find in the monograph, please see the classroom vignette on page 7.