

AIM4S^{3™} and the Bridge— Strengthening our Mathematics Instruction

by Hilda Sandoval and Alena Fiala—Mitchell Elementary, Racine Unified School District

Promising practices...

My name is Hilda Sandoval, and I am a first grade teacher at Mitchell Elementary, a dual language school in Racine Unified School District in Wisconsin. I have the joy of working with Alena Fiala, our English as a Second Language (ESL) instructor. Last year Alena and I had the opportunity to obtain professional development on the math framework Achievement Inspired Mathematics for Scaffolding Student Success (AIM4S^{3™}) from Dual Language Education of New Mexico (DLeNM). Alena also received training from Cheryl Urow on the Biliteracy Framework and “the Bridge” the year before. We found these professional development frameworks worked together beautifully to meet the language and content needs of our students, especially our language learners, during our math instruction.

Last year, the district moved from an ESL pull-out model to having ESL teachers push into our dual language classrooms during our ESL time. Racine Unified School District follows an 80/20 dual language model, and our first graders spend 80% of their day in Spanish. Alena and I work closely together to make sure this limited English time is maximized and supports students in transferring language they have in Spanish to English in multiple content areas.

Last year I began developing math units in Spanish integrating the ideas and information presented during the AIM4S^{3™} training with our adopted math program. Alena planned ESL extension lessons following the WIDA standards targeting the four language domains: listening, speaking, reading, and writing for our first grade students.

I would teach the math unit in Spanish. After the unit was over, the students and I would use the

Bridge to transfer the key math vocabulary and language structures from Spanish to English. The Compendium and anchor charts were used to support the Bridge from Spanish to English. Color-coded Bridge charts were created using both languages, and the students learned to look for similarities

and differences with the two languages through metalinguistic analysis. Alena would then teach the extension activities, giving students the opportunity to practice the English vocabulary and structures. The Bridge, along with the unit planner, guided Alena in creating these extension lessons used during ESL time. We had the opportunity to co-teach in our classroom and model collaboration. We used one teach/one supports, parallel teaching, or team teaching to benefit students’ learning in both languages during ESL time.

During our second year of working with the AIM4S^{3™} framework, we have been able to reflect upon what we learned last year and refine our units and our

teaching. Our district currently works with a math basal, so last year my units were planned keeping in mind the outline of the basal. Over the summer, I had the opportunity to work with Lisa Meyer, DLeNM, to deepen my understanding of the Common Core State Standards for Mathematics (CCSSM) and the Mathematical Practices. I read and analyzed the first-grade CCSSM and built a year-long plan, creating math units that included regrouping the basal lessons to enhance my math instruction and better match the CCSSM. I have continued following this year-long plan throughout the year.

Our instruction has improved in our second year working together, and we are now more familiar with the CCSSM. Overall we have seen a 20% increase in students’ performance on state testing in math since

once	11	eleven
doce	12	twelve
trece	13	thirteen
catorce	14	fourteen
quince	15	fifteen
dieciseis	16	sixteen
diecisiete	17	seventeen
dieciocho	18	eighteen
diecinueve	19	nineteen
veinte	20	twenty

In this Bridge anchor chart, students compared and contrasted the numbers 11 to 20 across the two languages.

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we implemented AIM4S^{3™} and the dual language biliteracy framework. Much of our collaboration to plan lessons is done via email since face-to-face time is more limited this year. In planning the ESL extensions, the Compendium has become a key tool because Alena can reference the Compendium directly for key vocabulary in the unit. The Compendium has become a timesaver in planning extensions.

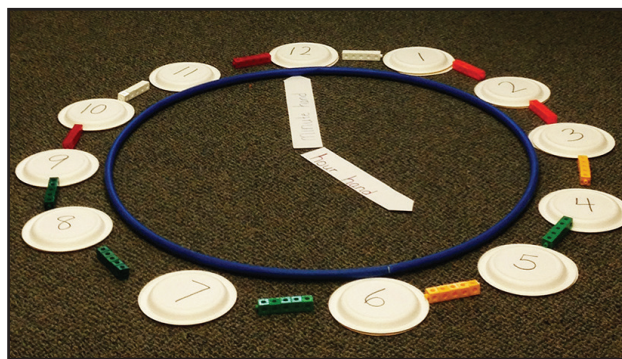
Although implementation of the AIM4S^{3™} framework, the Bridge, and the extension activities has been valuable for our students, it has not come without challenges. Some of the challenges have been finding time to collaborate, being consistent, and learning how to implement the frameworks with fidelity. How do we plan our units with limited time? How do we ensure consistency? These questions have been on our minds as we have been implementing the frameworks; however, they are being answered during our journey.

Earlier this year, after the first grade class had learned about time in Spanish and key vocabulary had been bridged, the students moved into the extension activities. The class collectively built a clock on the floor using a hula-hoop, paper plates with numbers, and cardboard hands (see sidebar). Then we practiced telling time together using sentence frames such as, “What time is it? It is _____.” After students had the opportunity to practice orally, they wrote about time in their interactive notebooks. Some students chose to write about the hour hand and minute hand. They also wrote sentences about how they use time. As part of the extension activities, Alena and I worked with small groups of five to six students, with each group focusing on a different activity. These small group activities were filled with opportunities for students to use language.

Last year, we used to bridge at the end of each unit, but this year we are finding it more effective to bridge once a part of a compendium has been taught instead of at the end. For example, in teaching Unit 2 on addition and coins, our first Bridge was on addition and the second was on coins. I was able to work with coins while the ESL group was doing extension activities in addition. Once I felt students were ready for coins, we did the Bridge. We are finding it more useful to bridge once most students have a strong understanding of the concept being presented.

We have found that planning with the AIM4S^{3™} framework has focused our units, which in turn

Planning extension activities...



Extensions can be done in whole group or small groups. There is certainly value to each type of delivery; however, having students in small heterogeneous groups allows more meaningful opportunities to use the language. Sentence frames are used as an integral part of developing oral language. Once the students have practiced orally, they read and write in their interactive journals. As the ESL teacher plans the extensions, it is important to remember that the extension activities should not be reteaching content, but rather reinforcing the concepts and using the language of math in English. We make sure that the activities done in Spanish are not repeated during the extensions.

ensures consistency and fidelity across our instruction. With the Compendium, we have a constant point of reference to the standards and what we need to be teaching. It has been a successful partnership to follow the CCSSM and WIDA standards during our English as a Second Language time using the Bridge and extensions. The effectiveness of our instruction has improved because we are more efficient creating and planning lessons. Our co-teaching has created a learning environment of collaboration where students feel safe to learn and share ideas with each other. Implementing AIM4S^{3™}, the Bridge, and extension activities together has strengthened our own teaching and learning and served our students well.

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The text and graphic on the following page describe how AIM4S^{3™} and the biliteracy framework support content and language development during mathematics instruction.



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Racine Unified School District—Making the Most of Professional Development by Lisa Meyer—Dual Language Education of New Mexico

During last year's *La Cosecha* Conference, Erin Mayer and I met with Cheryl Urow to debrief our work in Racine. While we were not providing professional development at the same time, we were seeing overlap for the teachers with our work and wanted to support them in implementing both AIM4S^{3™} and the biliteracy framework during their math instruction. Our goal was to support teachers in maximizing student content and language development in both Spanish and English.

AIM4S^{3™} provides a framework of instructional components that shelters 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^{3™} supports teachers in planning and implementing the Common Core State Standards. This framework provides the strategies to allow students to own the language of mathematics, to access the knowledge, and to be fluent in demonstrating their understanding.

In their book, *Teaching for Biliteracy: Strengthening Bridges between Languages*, Beeman and Urow (2013) present three phases of biliteracy instruction: Spanish instruction, the Bridge, and English instruction. They define the Bridge as “the instructional moment when teachers purposefully bring the two languages together, guiding students to transfer the academic content they have learned in one language to the other ...” After the Bridge, extension activities provide the opportunity to develop language skills in the other language.

The resource below was developed to support Racine teachers in correlating the two frameworks and incorporating the Bridge and the extension activities into their AIM4S^{3™} instruction. This was a powerful opportunity for us to collaborate with Beeman and Urow—and to support teachers in seeing how the different professional development they had received provided them with tools to meet the academic content and language needs of their students in mathematics.

Bridging between Two Languages: Applying to Mathematics and AIM4S^{3™}

Resources:
Beeman, K., & Urow, C. (2013). *Teaching for Biliteracy—Strengthening Bridges Between Languages*. Philadelphia: Caslon.
Mayer, E., & Meyer, L. (2013). *Achievement Inspired Mathematics for Scaffolding Student Success...* Albuquerque, NM: Fuente Press.

