La Center School District

Instructional Materials Recommendation
Elementary Mathematics
May 2009

All instructional materials were evaluated using AIM (Analyzing Instructional Materials). This process requires the use of a four part rubric (copy attached) aligned with a set of criteria which supports the national research, *How People Learn: Brain, Mind, Experience and School* and *How Students Learn Mathematics in the Classroom* published by The National Academy Press. The AIM Process is an evidence-based process for analyzing instructional materials. BSCS (curriculum developer and research facility in Colorado Springs, Colorado) adapted the AIM Process from the work of the K-12 Alliance, a division of WestEd. The mission of WestEd is to promote excellence, achieve equity, and improve learning for children, youth, and adults. They are guided by knowledge from research and practice, drawing on an ever-growing and constantly refined database in development for more than four decades.

La Center first began using this process after participating in a three-year national curriculum leadership academy 2004-2006 held in Richland, WA. Considering the time and resources required to complete an alignment review, scores for the standards alignment were based on information provided by the OSPI review teams. No materials met the district standard of 90% or more alignment. Therefore no elementary materials received a score higher than a 3. A score of 1 was given for anything meeting less than 70% of the standards as defined by the state review. In addition, no accuracy concerns were noted unless specifically identified by a team member. For example: One text used the term "diamond" in reference to the geometric form rhombus.

La Center School District has chosen to add a component to assist in the evaluation of available materials to support students at home. In the rubric it is identified as "*Parent Communication/Support*" under the *"Work Teachers Do"*. Considering the importance of this element, it was addressed separately in the final evaluation. This is especially important since each line item has approximately a 4% impact on the total score. Therefore teams evaluated this first individually and then jointly considering any communications and available supports including but not limited to newsletters, accessibility of student work samples, vocabulary, textbook support, online tutorials and available additional practice.

Parent Support Considerations:

Math Connects:
Although there were a variety of online resources (games, tool chest, online student edition, and a media library), it appears at home support is primarily dependent on families having home access to technology and Internet. Homework practice booklet and letters to parents are available to copy.

Investigations in Number, Data and Space:
Parent friendly letters and homework options are available as a hardcopy resource. Letters include examples of student work. Student math handbook is available both hardbound and online. In addition, all units are supported with additional supplement of extra practice and homework connections. Online resources include video clips from classrooms, *"Learn More"* (guides for helping parents help their children, Math At Home, and sample activities), and examples of student thinking. Each level has at least one technology connection which is also available for students to use at home.

Bridges:
Letters to parents and resource "*Home Connection*" are available to copy. This includes games to play at home. Some materials are available in an online pdf format. Online resource includes links to outside resources to support mathematics development.

Math Expressions:

Parent letters are available and included in Spanish. Homework seems pretty straight forward yet very repetitive. A variety of online resources including, math videos that provide grade level teaching models for major concepts, at home activities, e-Glossary, literature suggestions and eGames.

Elementary Recommendation: *Investigations in Number, Data and Space*

The elementary committee members felt strongly that no text should score a "5" unless it met 90% or above on the state alignment review. Therefore all materials scored a "3" or less for alignment. Although *Investigations* ranked lower in alignment, the team felt the areas not met could easily be addressed. In addition, in evaluating the other three aspects of the district rubric, the elements directly related to classroom implementation and student learning scored higher in the *Investigations* materials.

To score concept development, one major concept that is taught across the K-5 band is identified to analyze. Team members analyze the amount of new information that is introduced and the depth of the concept development. Although accessing students' prior knowledge was a key consideration in the development of the concept, repetition was considered a problem, especially considering the number of standards being assessed each year. For the elementary, "place value" was identified as the concept. This has been an area of concern for grades K-5 and was felt to be critical in supporting students' development of number sense. "Place value" was also considered when scoring sequencing and context/connections.

K-5 Mathematics Program Evaluation Results

The four tables on the following pages are organized by the title of the series. The scores are line item scores for each strand of the rubric for each grade level. Scorers were instructed to score 1, 3 or 5. In order to more accurately distinguish how well the materials met the criterion, scores of 2 or 4 were not allowed.

Other considerations:

Investigations in Number, Data and Space will be more financially feasible to implement. A minimal amount of new manipulative materials will need to be purchased. Teachers already have knowledge of *Investigations.* We will be able to have more focused professional development that can address mathematics instructional issues.

Overall scores for the 4 instructional materials evaluated:

	Bridges	***Math Expressions***	***Math Connects***	***Investigations in Number, Data and Space***
Kindergarten	77.4	60.0	47.8	87.8
1st	70.4	67.0	56.5	89.6
2nd	93.0	32.2	47.8	67.0
3rd	84.3	44.3	30.4	84.3
4th	65.2	47.8	42.6	79.1
5th	72.2	47.8	39.1	82.6
Average	77.08	49.85	44.03	81.73

Math Connects

Criteria/Component	K	1	2	3	4	5
CONTENT:						
Standards Alignment	3	3	3	3	3	1
Accuracy	5	3	1	1	5	5
Concept Development	3	3	5	1	1	1
Sequencing	3	5	3	1	3	3
Context/Connections	3	5	3	1	1	1
TOTAL Content Criterion	17	19	15	7	13	11
WORK STUDENTS DO:						
Engaging Prior Knowledge	1	1	1	1	3	3
Metacognition	1	1	1	1	1	1
Reasoning/Proof/Problem Solving	1	1	1	1	1	1
Communication/Representation	1	3	1	1	1	1
Accessibility	3	1	1	3	1	1
TOTAL Work Students Do Criterion	7	7	5	7	7	7
ASSESSMENT:						
Quality	3	3	3	3	3	3
Multiple Measures	1	1	5	1	1	1
Use of Assessments	1	3	3	1	3	3
Metacognition	1	1	1	1	1	1
Accessibility	3	3	3	3	3	1
TOTAL Assessment Criterion	9	11	15	9	11	9
THE WORK TEACHERS DO:						
Instructional Model	1	3	3	3	1	3
Teaching Strategies	1	3	1	1	1	1
Support for Work Teachers Do	3	3	1	1	3	3
TOTAL Work Teachers Do Criterion	5	9	5	5	5	7
GRAND TOTAL	38	46	40	28	36	34

TOTAL Content Criterion	6.8	7.6	6.0	2.8	5.2	4.4
TOTAL Work Students Do Criterion	1.4	1.4	1.0	1.4	1.4	1.4
TOTAL Assessment Criterion	1.8	2.2	3.0	1.8	2.2	1.8
TOTAL Work Teachers Do Criterion	1.0	1.8	1.0	1.0	1.0	1.4
TOTAL	11.0	13.0	11.0	7.0	9.8	9.0

Weighted Percentage Scores	47.8	56.5	47.8	30.4	42.6	39.1

Investigations in Number, Data and Space

Criteria/Component	K	1	2	3	4	5
CONTENT:						
Standards Alignment	1	3	1	1	1	1
Accuracy	5	5	5	5	5	5
Concept Development	5	5	3	5	3	5
Sequencing	5	5	3	5	5	3
Context/Connections	5	5	3	5	5	5
TOTAL Content Criterion	21	23	15	21	19	19
WORK STUDENTS DO:						
Engaging Prior Knowledge	3	3	3	3	3	5
Metacognition	5	3	3	3	5	5
Reasoning/Proof/Problem Solving	3	5	3	3	5	5
Communication/Representation	5	5	5	3	5	3
Accessibility	3	5	5	5	3	5
TOTAL Work Students Do Criterion	19	21	19	17	21	23
ASSESSMENT:						
Quality	5	5	3	5	3	3
Multiple Measures	5	3	3	5	5	5
Use of Assessments	5	5	3	5	5	3
Metacognition	5	3	3	3	3	3
Accessibility	5	5	3	5	3	5
TOTAL Assessment Criterion	25	21	15	23	19	19
THE WORK TEACHERS DO:						
Instructional Model	5	5	5	5	5	5
Teaching Strategies	5	5	5	5	3	5
Support for Work Teachers Do	5	5	3	5	5	5
TOTAL Work Teachers Do Criterion	15	15	13	15	13	15
GRAND TOTAL	80	80	62	76	72	76

TOTAL Content Criterion	8.4	9.2	6	8.4	7.6	7.6
TOTAL Work Students Do Criterion	3.8	4.2	3.8	3.4	4.2	4.6
TOTAL Assessment Criterion	5	4.2	3	4.6	3.8	3.8
TOTAL Work Teachers Do Criterion	3	3	2.6	3	2.6	3
TOTAL	20.20	20.60	15.40	19.40	18.20	19.00

Weighted Percentage Score	87.8	89.6	67.0	84.3	79.1	82.6

Bridges

Criteria/Component	K	1	2	3	4	5
CONTENT:						
Standards Alignment	3	1	3	1	1	3
Accuracy	5	5	5	5	5	5
Concept Development	5	5	5	5	3	5
Sequencing	5	5	5	5	3	3
Context/Connections	5	5	5	5	3	3
TOTAL Content Criterion	23	21	23	21	15	19
WORK STUDENTS DO:						
Engaging Prior Knowledge	3	3	5	3	3	3
Metacognition	3	3	5	3	3	3
Reasoning/Proof/Problem Solving	3	3	5	3	5	3
Communication/Representation	3	1	5	5	3	5
Accessibility	3	3	3	3	3	3
TOTAL Work Students Do Criterion	15	13	23	17	17	17
ASSESSMENT:						
Quality	5	3	5	5	5	3
Multiple Measures	3	3	5	5	3	5
Use of Assessments	3	3	5	5	3	3
Metacognition	3	3	5	5	3	3
Accessibility	3	3	5	3	3	3
TOTAL Assessment Criterion	17	15	25	23	17	17
THE WORK TEACHERS DO:						
Instructional Model	3	5	5	5	5	3
Teaching Strategies	5	3	3	5	3	5
Support for Work Teachers Do	3	3	5	5	3	3
TOTAL Work Teachers Do Criterion	11	11	13	15	11	11
GRAND TOTAL	66	60	84	76	60	64

TOTAL Content Criterion	9.2	8.4	9.2	8.4	6	7.6
TOTAL Work Students Do Criterion	3	2.6	4.6	3.4	3.4	3.4
TOTAL Assessment Criterion	3.4	3	5	4.6	3.4	3.4
TOTAL Work Teachers Do Criterion	2.2	2.2	2.6	3	2.2	2.2
TOTAL	17.80	16.20	21.40	19.40	15.00	16.60

Weighted Percentage Score	77.4	70.4	93.0	84.3	65.2	72.2

Math Expressions

Criteria/Component	K	1	2	3	4	5
CONTENT:						
Standards Alignment	1	3	1	3	1	1
Accuracy	3	3	1	3	5	3
Concept Development	3	3	1	3	3	3
Sequencing	3	5	1	3	1	3
Context/Connections	1	3	1	3	1	3
TOTAL Content Criterion	11	17	5	15	11	13
WORK STUDENTS DO:						
Engaging Prior Knowledge	3	3	3	1	3	3
Metacognition	3	3	3	1	3	3
Reasoning/Proof/Problem Solving	1	3	3	1	3	1
Communication/Representation	5	3	3	1	1	1
Accessibility	3	5	3	1	3	3
TOTAL Work Students Do Criterion	15	17	15	5	13	11
ASSESSMENT:						
Quality	5	3	3	3	1	3
Multiple Measures	5	1	1	3	1	1
Use of Assessments	3	3	1	1	3	3
Metacognition	5	3	1	1	3	1
Accessibility	3	3	1	1	3	1
TOTAL Assessment Criterion	21	13	7	9	11	9
THE WORK TEACHERS DO:						
Instructional Model	5	5	3	3	3	3
Teaching Strategies	3	3	1	3	3	3
Support for Work Teachers Do	3	5	1	1	3	3
TOTAL Work Teachers Do Criterion	11	13	5	7	9	9
GRAND TOTAL	58	60	32	36	44	42

TOTAL Content Criterion	4.4	6.8	2	6	4.4	5.2
TOTAL Work Students Do Criterion	3	3.4	3	1	2.6	2.2
TOTAL Assessment Criterion	4.2	2.6	1.4	1.8	2.2	1.8
TOTAL Work Teachers Do Criterion	2.2	2.6	1	1.4	1.8	1.8
TOTAL	13.8	15.4	7.4	10.2	11	11

Weighted Percentage Score	60.0	67.0	32.2	44.3	47.8	47.8