The Algebra Formative Assessment Project

Terri Gibbs-Burke
Arroyo Valley High School
San Bernardino City USD
Please Note:

If I made any mistakes in this test, perhaps this picture of a giraffe will convince you otherwise.

[1 0 0; 0 1 1; 0 1 0]

$R_2 \leftrightarrow R_3$

5

Indeed (+1)
All students will learn Algebra I concepts by means of utilizing instructional strategies that will benefit English Learners and vertical collaboration between teachers on applying the MDTP and common formative assessments to drive instruction. These steps will prepare the students for a rigorous high school curriculum and college success.
Top 3 Priorities

- Effective Mathematics Instruction – Algebra 1
- Increase PLC Efficiency
- Increase College and Career Readiness
Arroyo Valley High School
  1 lead teacher
  5 Algebra 1 teachers

Chavez Middle School
  1 lead teacher
  9 ~ 6th - 8th grade teachers

King Middle School
  1 lead teacher
  9 ~ 6th – 8th grade teachers
Student Enrollment by Group (School Year 2010-11)

- Hispanic or Latino 80.4%
- Black or African American 13.3%
- White 3.4%
- Asian 1.9%
- American Indian or Alaska Native 0.2%
- Two or More Races 0.1%
- Filipino 0.2%
- Native Hawaiian or Pacific Islander 0.3%
Student Enrollment by Group (School Year 2010-11)

- Hispanic or Latino 70.9%
- Black or African American 10.0%
- White 14.9%
- American Indian or Alaska Native 0.5%
- Two or More Races 0.2%
- Asian 1.8%
- Filipino 0.5%
- Native Hawaiian or Pacific Islander 0.4%
Student Enrollment by Group (School Year 2010-11)

- Hispanic or Latino 76.2%
- Black or African American 17.6%
- White 2.6%
- American Indian or Alaska Native 0.5%
- Two or More Races 0.1%
- Asian 0.7%
- Filipino 0.1%
- Native Hawaiian or Pacific Islander 2.2%
Socioeconomically Disadvantaged

- Arroyo Valley High School 91.1%
- Chavez Middle School 82.7%
- King Middle School 95.5%
• Arroyo Valley High School  52.4%
• Chavez Middle School   49.4%
• King Middle School     57.1%

English Language Learners
This CAPP grant will support secondary schools in closing the achievement gap and improving algebra readiness by focusing on middle and high school and alignment of coursework and placement across grade levels to prepare students for success in Algebra the first time students take the course. CAPP provides these supports based on our experience that improving teaching practice is most likely to occur when teams of teachers work together to improve curriculum and instruction and school site leadership understands and supports this work.
• Improve teachers’ capacity to assess and address students’ individualized needs through diagnostic and formative assessment process including the use of the Math Diagnostic Testing Project (MDTP) http://mdtp.ucsd.edu
• Students at all three schools to take the appropriate MDTP assessment using Daskala, the online assessment component.
  • Fall Semester
  • Spring Semester
  • Dr. John Sarli and Bruce Arnold
• Improve teachers’ pedagogical and content knowledge in math;
• Increase students’ conceptual math knowledge and skills in middle grades;
• 4 teams of 6-8 teachers across grade levels
• Facilitator
• Meet every 3-4 weeks
• Dedicated collaboration time for teachers
• 6 Meetings
• Discuss, Research, Plan, Implement, Debrief, Revise
• Common Core State Standards
  • Standards for Mathematical Practice
Team 1 Goals

• Behavioral
  Focus on SMP 1: Make sense of problems and persevere in solving them.

• Content
  Integers

• Lesson
  Students will be able to develop their understanding of the meaning of the minus sign as negative numbers, as opposite, and as an operation.
• Behavioral
  
  Focus on SMP 1: Make sense of problems and persevere in solving them.

• Content

  Fractions

• Lesson

  Students will develop and demonstrate an understanding of the different types of division as they relate to fractions.
Team 3 Goals

- Behavioral
  Focus on SMP 1: Make sense of problems and persevere in solving them.

- Content
  Rational Numbers

- Lesson
  Students will be able to explain their mathematical reasoning during problem solving.
Team 4 Goals

- Behavioral
  Students will develop understanding and utilize procedural knowledge in order to strengthen their adaptive reasoning.

- Content
  Function Transformations

- Lesson
  Students will investigate the properties of functions through the use of multiple representations (algebraically, graphically, numerically in a table, and a verbal description or application problem). (from pg. 57 in CaCCSS, F-IF 9)
• Dr. Sharon Whitehurst-Payne ~ Special Education Clinical Practice Coordinator at Cal State San Marcos

• Site visits
  • Individual Teacher
  • Video Taping
• Meetings

Math Consultant
• Revise math placement procedures to improve access and equity;
• Improve articulation of coursework and placement between middle and high school.
• District Guidelines
  • Grades
  • CST Scores
  • MDTP
• Course Taking Patterns Report
  • Findings

Student Placement
• Approximately 21 of 144 8th grade Algebra 1 students from one of the Middle Schools were placed in 9th Grade Algebra 1 with Advanced and Proficient CST’s.
• Other placement inconsistencies throughout Math Course Placement existed.
• A closer look into grades, past CST scores and teacher recommendations were utilized for a more correct placement of 9th graders this year.
• More College Prep Geometry courses were created as a result of this.
• 2011-2012 over 480 9th graders in Algebra 1.
• 2012-2013 approximately 260 9th Graders in Algebra 1.
• 6th, 7th, 8th and 9th grade
  • Essential Standards
  • Scope and Sequence
  • Pacing
  • Common Assessments
  • Grading Practices
  • MDTP Written Response Items
• Develop practical and effective mathematics teaching methods with units/sequences that are aligned with the Common Core Standards, the recommendations of the National Mathematics Advisory Panel, and the Statement of Competencies in Mathematics Expected of Entering College Students.

Expectation
• Increase student discourse centered on mathematical concepts.
• Increase student metacognition.
• Increase student collaboration.
• Create and maintain a culture of learning in a safe, non-judgmental classroom.

Teaching Methods
• Focus has been on the Standards for Mathematical Practice 1st year
• Lesson Study – Includes both ‘97 and Common Core Standards
Lesson Study
“I like the idea of collaboration across the grade levels.”

“It is just really hard to be out of my classroom, as I am out for other things besides CAPP, but I do see the long term benefits, it was just rough this year.”

“After lesson study meetings, I can typically go back to my classroom and immediately apply something.”

“Learning not to assume what my students know or should know”

“Increased use of student sharing and discourse in the classroom.”
“Lesson study has challenged my thinking, by looking at mathematics from a different perspective.”

“Being able to observe my own students.”

“Increased use of student sharing and discourse in the classroom.”
Importance of formative assessment:

“We realized that our exit card did not match the goal that we were trying to assess. Better development, in terms of targeting the goals, which would give us a better measurement tool. “

“Maybe start with constructing the student response we are looking for.”

“Recognizing that formative assessment is not just about paper and pencil.”
QUESTIONS?
Thank you!

• tgibbsburke@gmail.com
• Terri.Burke@sbcusd.com