

**MATH PROGRAM
SIX-YEAR INSTRUCTIONAL PLAN
June 9, 2008**

ABSTRACT

In the implementation of the six-year plan, the Math Program will focus on the following goals:

- Increase the number of students who are proficient on the SBA's.
- Increase the number of students, particularly from under-represented groups, who take AP math courses.
- Provide standards-based math content and pedagogy support to all new-to-district math teachers.
- Provide ongoing standards-based math support in content and pedagogy, to teachers of math at all grade levels.
- Provide a well-articulated, standards-based math curriculum to all ASD students.
- Provide credit classes in math content and pedagogy.
- Increase the use of technology to support quality math instruction and expand course opportunities for students.
- Increase the use of data in making decisions to increase student achievement in math.
- Increase parent and community awareness of, and participation in, the math education of the ASD students.
- Provide support to APU and UAA pre-service teacher programs.
- Continue with successful programs, such as: the Alaska Math Consortium, Middle School Girls Math Conference, and the Elementary Math Derby.

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Math Six-Year Instructional Plan FY07 to FY12

Year 1 FY 2006 - 2007	Year 2 FY 2007- 2008	Year 3 FY 2008 - 2009	Year 4 FY 2009 - 2010	Year 5 FY 2010 – 2011	Year 6 FY 2011 - 2012
<p>Goal 1:</p> <ul style="list-style-type: none"> ▪ Increase achievement of all students ▪ Reduce achievement gap 					
<p>Math K-12:</p> <p>Teachers deliver the grade level curriculum as defined by the ASD Grade Level Expectations.</p> <p><i>Develop GLE resource guides that identify where strands are addressed in curriculum.</i></p> <p><i>Pacing guides K-68 in place and in use in every classroom.</i></p> <p><i>New model of K-68 training is developed that is responsive to specific site needs. Trainings are inclusive of Special Education, Indian Education, and ESL staff.</i></p> <p><i>All new-to-district elementary Everyday Math teachers receive training on use and pacing of the math curriculum.</i></p> <p><i>All new-to-multiage teachers receive training on use and pacing of math curriculum.</i></p>	<p>GLE resources guides in use.</p> <p>→</p> <p>Implement new training model.</p> <p>→</p> <p>→</p> <p>→</p>	<p>→</p> <p>→</p> <p>→</p> <p>→</p>	<p>→</p> <p>→</p> <p>→</p> <p>→</p>	<p>→</p> <p>→</p> <p>→</p> <p>→</p>	<p>→</p> <p>→</p> <p>→</p> <p>→</p>
<p>Professional development and support in place for classroom level assessments aligned with curriculum/GLEs.</p> <p><i>Joint trainings with A&E and CIS at targeted schools focusing on using data</i></p>	<p>→</p>	<p>→</p>	<p>→</p>	<p>→</p>	<p>→</p>

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<p><i>effectively.</i></p> <p><i>Math Support Teachers participate in Writing Effective Assessment class and item writing for GLE item bank.</i></p> <p><i>Develop GLE resource guides that identify where strands are addressed in curriculum.</i></p> <p><i>Math Support Teachers collaborate with teachers on focus strands.</i></p> <p><i>Training embeds appropriate use of EDM assessment discs.</i></p>	<p><i>Continue Math item writing to expand GLE item bank.</i></p> <p><i>GLE Resource Guides <u>In use and posted on ARS.</u></i></p>	<p>—————></p> <p>—————></p> <p>—————></p> <p>—————></p>	<p>—————></p> <p>—————></p> <p>—————></p> <p>—————></p>	<p>—————></p> <p>—————></p> <p>—————></p>	<p>—————></p> <p>—————></p> <p>—————></p>
<p>Overall scores on State standards-based assessments (SBA) increase annually for grades 3-10.</p>	<p>↑ 2.5% SBA scores</p>	<p>↑ 2.5% SBA scores</p>	<p>↑ 2.5% SBA scores</p>	<p>↑ 2.5% SBA scores</p>	<p>↑ 2.5% SBA scores</p>
<p>Articulate math program for students between elementary and middle schools.</p> <p><i>Develop criteria for placing 5th or 6th grade elementary students into middle school math.</i></p> <p><i>Teachers put recommendations for middle school math on ARS.</i></p> <p><i>K-8 teachers review research, design rubrics, and analyze curriculum review survey results.</i></p> <p><i>Review math curriculum for Middle School Math 6, Math 7, and Math 8.</i></p> <p><i>Select and recommend standards-based curricula that align with K-8 math program student and instructional rubrics, and ASD</i></p>	<p><u>Apply criteria</u></p> <p>—————></p> <p><i>Use curriculum review data to guide K-8 professional development.</i></p> <p>Implement new middle school math curriculum.</p>	<p><u>Review and revise criteria</u></p> <p>—————></p> <p>—————></p> <p>—————></p> <p>—————></p>	<p><u>Apply criteria</u></p> <p>—————></p> <p>—————></p> <p>—————></p> <p>—————></p>	<p>—————></p> <p>—————></p> <p>—————></p> <p>—————></p>	<p>—————></p> <p>—————></p> <p>—————></p> <p>—————></p>

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<p>and AK GLEs.</p> <p>Zero-hour PreAlgebra classes held in six middle schools.</p>	<p>Inservice middle school math teachers, including Special Education collaborators, ESL tutors, and Indian Education tutors on new curriculum.</p> <p>Revise Math 6, Math 7 and Math 8 course content and pacing guides.</p> <p>Recommendations from math evaluation analyzed, disseminated, and used to inform K-6 math program direction.</p> <p>Pilot zero-hour PreAlgebra classes at eight Math 6 Enhancement classes at 9 elementary sites.</p>	<p>New middle school math teachers receive training on curriculum.</p> <p>Math 6, Math 7 and Math 8 course content and pacing guides in place and used in all classrooms.</p> <p>Monitor elementary site implementation and determine expansion.</p>	<p>→</p> <p>→</p>	<p>→</p> <p>→</p>	<p>→</p> <p>→</p>
<p>Math support will be provided for all non-proficient K-8 students.</p>	<p>→</p>	<p>→</p>	<p>→</p>	<p>→</p>	<p>→</p>
<p>Teachers will use the ARS to identify areas of need for non-proficient students and use the info to guide instruction.</p>	<p>→</p> <p>Develop standards and course content guide for MS Math Support.</p> <p>Select and purchase materials for MS Math Support.</p> <p>Inservice middle school Math Support teachers on new curriculum.</p>	<p>→</p> <p>MS Math Support course content guide in use.</p> <p>Inservice teachers new to MS Math Support course on curriculum.</p> <p>Develop standards and course content guide for MS</p>	<p>→</p> <p>MS Math Support course content guide in use.</p>	<p>→</p>	<p>→</p>

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		<p><u>Math Support.</u></p> <p><u>Select and purchase materials for MS Math Support.</u></p> <p><u>Inservice middle school Math Support teachers on new curriculum.</u></p>	<p><u>Inservice teachers new to MS Math Support course on curriculum.</u></p>		
	<p><i>Begin development of benchmark assessments in two strands K-6 to align with SBRCAR.</i></p>	<p><i>Extend development of K-8 benchmark assessments.</i></p>	<p><i>K-8 benchmark assessments in use.</i></p>	<p>—————></p>	<p>K-8 District benchmark assessments in place to monitor growth and guide instruction.</p>
<p>Articulate math pathways for students between elementary and middle schools, between middle schools and high schools and within high schools.</p> <p>Identify pre-requisite courses and pathways that lead to AP math courses.</p> <p><i>Elementary teachers put math recommendations for incoming middle school students on ARS.</i></p> <p><i>Criteria established for student placement in all middle school math courses.</i></p> <p><i>Middle school and high school teachers put recommendations for math on ARS.</i></p> <p><i>Orleans Hanna Prognosis test given to all middle school Math 8 students and identified 6th grade students. OH test results posted on the ARS system.</i></p>	<p>—————></p> <p>Vertical teams meet and plan during the school year.</p> <p>—————></p> <p><i>Criteria used for placement of students in all middle school math courses.</i></p> <p>—————></p> <p>—————></p> <p>—————></p>	<p>—————></p> <p>—————></p> <p>—————></p> <p>—————></p> <p>—————></p>	<p>—————></p> <p>—————></p> <p>—————></p> <p>—————></p>	<p>—————></p> <p>—————></p> <p>—————></p> <p>—————></p>	<p>—————></p> <p>—————></p> <p>—————></p> <p>—————></p> <p>—————></p>

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<p><i>Identify prerequisite courses and pathways for vertical teaming between middle school and high school math teachers.</i></p> <p><i>Common course content and pacing guides in place and in use for math courses (i.e. Algebra I and Geometry) taught in both middle school and high school.</i></p>	<p>→</p> <p>→</p>	<p>→</p> <p>→</p>	<p>→</p> <p>→</p>	<p>→</p> <p>→</p>	<p>→</p> <p>→</p>
<p><i>Provide vertical team content and instruction by offering the Alaska Math Consortium Basic Institute.</i></p>	<p>→</p>	<p>→</p>	<p>→</p>	<p>→</p>	<p>→</p>
<p>Increase the number of 7th and 8th grade students who enroll in and complete Algebra I.</p>	<p>↑ 5% student increase</p>	<p>↑ 5% student increase</p>	<p>↑ 5% student increase</p>	<p>↑ 5% student increase</p>	<p>↑ 5% student increase</p>
<p>Increase use of technology to enhance course offerings and math support.</p> <p>Computer-based Larson’s Math remedial tutorial in place at all Title I elementary schools, all Middle Schools and other schools that purchase Larson’s Math.</p> <p><i>Provide training and support for teachers to use Larson Math.</i></p> <p><i>Use on-line courses to expand the math options for students. Credit recovery for Algebra 1 available for students through Florida Virtual.</i></p> <p><i>Increase use of on-line or computer-based courses to provide support for HSGQE prep – particularly for students who have not passed the HSGQE; pilot Carnegie Bridge to Algebra online course at Bartlett.</i></p>	<p>→</p> <p>→</p> <p>→</p> <p>↑ 5% student increase</p> <p><i>Expand use of Bridge-to-Algebra for HSGQE to three additional high schools.</i></p>	<p>→</p> <p>→</p> <p>→</p> <p>↑ 5% student increase</p> <p><i>Use Bridge-to-Algebra for HSGQE support in all high schools and special programs.</i></p>	<p>→</p> <p>→</p> <p>→</p> <p>↑ 5% student increase</p> <p>→</p>	<p>→</p> <p>→</p> <p>→</p> <p>↑ 5% student increase</p> <p>→</p>	<p>→</p> <p>→</p> <p>→</p> <p>↑ 5% student increase</p> <p>→</p>

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<p><i>Pilot Carnegie Bridge to Algebra online course at Bartlett for Pre-Algebra.</i></p> <p><i>Establish base line number of students who use APEX test prep in math at each school.</i></p>	<p><i>Expand use of Bridge-to-Algebra for PreAlgebra to one additional high school.</i></p> <p>↑ 5% student increase</p>	<p><i>Expand use of Bridge-to-Algebra for PreAlgebra to all high schools.</i></p> <p>↑ 5% student increase</p>	<p>————→</p> <p>↑ 5% student increase</p>	<p>————→</p> <p>↑ 5% student increase</p>	<p>————→</p> <p>↑ 5% student increase</p>
<p>More students pass math HSGQE in 10th grade.</p>	<p>↑ 2.5% SBA scores</p>	<p>↑ 2.5% SBA scores</p>	<p>↑ 2.5% SBA scores</p>	<p>↑ 2.5% SBA scores</p>	<p>↑ 2.5% SBA scores</p>
<p>Advanced Placement (AP) Math courses provide the nationally-defined course content in every enrollment area.</p> <p><i>Annually review content to check for accurate math alignment to national curriculum standards.</i></p>	<p>————→</p>	<p>————→</p>	<p>————→</p>	<p>————→</p>	<p>————→</p>
<p><i>AP Math teachers receive training by nationally certified or qualified instructors.</i></p>	<p>————→</p>	<p>————→</p>	<p>————→</p>	<p>————→</p>	<p>————→</p>
<p><i>Develop curriculum guide for AP Statistics. Align curriculum with AP Statistics content.</i></p>	<p><i>Curriculum guide for AP Statistics and AP Calculus used in all high schools.</i></p>	<p>————→</p>	<p>————→</p>	<p>————→</p>	<p>————→</p>
<p><i>Offer AP Calculus class for teachers who are part of the math vertical team.</i></p> <p><i>Provide support to teachers to complete annual College Board Course audit.</i></p>	<p><i>Offer AP Statistics class for teachers who are part of the math vertical team.</i></p> <p>————→</p>	<p><i>Offer AP Calculus class for teachers who are part of the math vertical team.</i></p> <p>————→</p>	<p><i>Offer AP Statistics class for teachers who are part of the math vertical team.</i></p> <p>————→</p>	<p><i>Offer AP Calculus class for teachers who are part of the math vertical team.</i></p> <p>————→</p>	<p><i>Offer AP Statistics class for teachers who are part of the math vertical team.</i></p> <p>————→</p>
<p>Proportion of under-represented groups in AP Math courses increases each year.</p>	<p>↑ 3% under-represented groups</p>	<p>↑ 3% under-represented groups</p>	<p>↑ 3% under-represented groups</p>	<p>↑ 3% under-represented groups</p>	<p>↑ 3% under-represented groups</p>
<p>Students who graduate from ASD high</p>					

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<p>schools will be ready for post-secondary level math courses.</p> <p><i>Pilot Accuplacer as vehicle to identify gaps in math knowledge, allowing students to register as seniors for the appropriate math courses that prepare them for post-high school careers (i.e.: college, apprenticeships, internships, trade schools, technical/vocational opportunities.)</i></p>	<p><i>Expand the use of Accuplacer to include students (available to all ASD juniors and 1st sem. seniors) from all high schools.</i></p> <p><i>Expand the number of students within each school (target middle 30%) that take the test.</i></p> <p><i>The results from Accuplacer will be posted on the ARS.</i></p>	<p>↑ Number of students 5%</p> <p>↑ Number of students 5%</p> <p>————→</p>	<p>↑ Number of students 5%</p> <p>↑ Number of students 5%</p> <p>————→</p>	<p>↑ Number of students 5%</p> <p>↑ Number of students 5%</p> <p>————→</p>	<p>↑ Number of students 5%</p> <p>↑ Number of students 5%</p> <p>————→</p>
	<p><u>Increase math opportunities for all students.</u></p>	<p><u>Develop 6-8 Summer Math Enrichment classes.</u></p>	<p><u>Continue 6-8 Summer Math Enrichment classes.</u></p>	<p>————→</p>	<p>————→</p>
<p>Goal 2: Supportive and Effective Learning Environment</p>					
<p>Support provided to the K-8 schools with the greatest numbers of struggling math students, with particular focus on those with SBA scores below the district average.</p> <p><i>Provide direct support to the 20 elementary schools and 6 middle schools with AYP scores below the district average. Train teachers on effective instructional and assessment strategies.</i></p>	<p>————→</p> <p><i>Provide training to remaining elementary schools on using ARS and curriculum to improve SBA results for struggling students.</i></p> <p><i>Continue to provide additional support to the elementary schools and middle schools</i></p>	<p>————→</p> <p><i>Provide support to K-8 schools with the greatest numbers of struggling math</i></p>	<p>————→</p> <p>————→</p>	<p>————→</p> <p>————→</p>	<p>————→</p> <p>————→</p>

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	<i>with SBA scores below the district average.</i>	<i>students as identified each year.</i>			
Implement Curriculum and Materials Adoption Cycle. <i>Review, align, and purchase curriculum materials for:</i> <i>Math 6</i> <i>Math 7</i> <i>Math 8</i> <i>High School Pre-Algebra</i> <i>HSGQE support</i> <i>AP Statistics</i>	<i>Inservice teachers on new math materials.</i>	<i>Provide ongoing math curriculum support to teachers – particularly new or new-to-district teachers.</i>	→	→	→
		<u><i>Conduct Middle School PreAlgebra and Algebra Review; review and purchase curriculum materials.</i></u>	<u><i>Implement new Middle School PreAlgebra and Algebra curriculum.</i></u>		
		<u><i>Collaborate with and consult with other districts on “Algebra for All” initiatives.</i></u> <u><i>Complete backward mapping of essential skills and understandings for Algebra.</i></u>	<u><i>Incorporate essential skills and understandings in K-8 trainings.</i></u>	→	→
		<i>Inservice teachers on new math materials.</i>	<i>Provide ongoing math curriculum support to teachers—particularly new or new-to-district teachers.</i>		
	<i>Review, align, and purchase curriculum materials for:</i> <i>MS Math Support</i> <i>Algebra I, Algebra A/B,</i> <i>Survey of Algebra, Algebra II,</i> <i>Geometry, Informal Geometry</i> <i>Analyzing/Displaying Data,</i>	<u><i>Select and purchase materials for Algebra I, Algebra A/B, Survey of Algebra, Algebra II, Geometry, Informal Geometry.</i></u>	<u><i>Inservice teachers on new math materials.</i></u>	<u><i>Provide ongoing math curriculum support to teachers – particularly new or new-to-district teachers.</i></u>	→

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	<i>Algebra/Stat/Trig.</i>				
		<i>Review, align, and purchase curriculum materials for: MS Math Support.</i>	<i>Inservice teachers on new math materials.</i>	<i>Provide ongoing math curriculum support to teachers – particularly new or new-to-district teachers.</i>	—————>
			<i>Review, Align and purchase curriculum materials for: Analyzing/Displaying Data, Algebra/Stat/Trig.</i>	<i>Inservice teachers on new math materials.</i>	<i>Provide ongoing math curriculum support to teachers – particularly new or new-to-district teachers.</i>
		<i>Review, align, and purchase curriculum materials for: Integrated Math., Basic Math, HSGQE Support.</i>	<i>Inservice teachers on new math materials.</i>	<i>Provide ongoing math curriculum support to teachers – particularly new or new-to-district teachers.</i>	—————>
	<i>Purchase curriculum materials for Elementary Math K-6.</i>	<i>Inservice teachers on new math materials.</i>	<i>If not already completed during K-8 curriculum review; purchase curriculum materials for Elementary Math K-6. Provide ongoing math curriculum support to teachers – particularly new or new-to-district teachers.</i>	<i>Inservice teachers on new math materials.</i>	<i>Provide ongoing math curriculum support to teachers – particularly new or new-to-district teachers.</i>
		<i>Embed Social and Emotional Learning into K-6 math training.</i>	—————>	—————>	—————>
					<i>Review, align, and purchase curriculum materials for: PreCalculus and AP Calculus.</i>
<u>Teachers increase their knowledge of math content and pedagogy.</u>	—————>	—————>	—————>	—————>	—————>
	<i>Provide professional</i>				
		—————>	—————>	—————>	—————>

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<p><i>Experience Conference, including community support and participation. Ensure all middle schools participate.</i></p> <p><i>Develop K-6 Math rubrics and report card faceplate for standards based report card.</i></p>	<p><i>Pilot K-6 Math rubrics.</i></p>	<p><i>Monitor and adjust Math rubrics. <u>Expand math pilot.</u></i></p>	<p>Implement SBRCAR K-6.</p> <p><i>Develop middle school Math rubrics.</i></p>	<p>—————→</p> <p><i>Pilot middle school Math rubrics.</i></p>	<p>—————→</p>
<p><i>Provide support to APU and UAA Preservice Teacher Ed. programs.</i></p>	<p>—————→</p>	<p>—————→</p>	<p>—————→</p>	<p>—————→</p>	<p>—————→</p>
<p>Increase parent participation on math curriculum committees. until at least one high school, one middle school, and 2 elementary school parents participate.</p>	<p>—————→</p>	<p>—————→</p>	<p>—————→</p>	<p>—————→</p>	<p>—————→</p>
<p>Increase elementary teacher participation on math curriculum committee. by 10% each year.</p>	<p>↑10% participation</p> <p>—————→</p>	<p>↑10% participation</p> <p>—————→</p>	<p>↑10% participation</p> <p>—————→</p>	<p>↑10% participation</p> <p>—————→</p>	<p>↑10% participation</p> <p>—————→</p>