



IOWA CITY  
COMMUNITY  
SCHOOL DISTRICT  
Child-Centered : Future-Focused

# Self Study of MATHEMATICS EDUCATION Instructional Program

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## ICCSD Mathematics Program Mission, Belief Statements and Goals

As a result of the curriculum review process, the self-study team reviewed the mission statement, belief statements and goals for mathematics education and adopted the following.

### MISSION STATEMENT

To develop mathematically literate students who will possess critical thinking skills and the ability to apply the principles of mathematics and technology in making decisions and solving complex problems.

This mission is accomplished by providing students with a high quality mathematics curriculum using high quality instructional materials, instructional practices, and assessments with a focus on academic achievement for all students, and with administrative and professional development supports.

### BELIEF STATEMENTS

We believe

- Math curriculum and teaching strategies should focus on developing the learning of **all** students.
- Students should be involved in positive, active and collaborative learning opportunities in mathematics classes, demonstrating what they have learned using a variety of strategies.
- Alignment among rigorous and challenging standards, high quality ongoing assessments, and effective teaching practices is necessary for supporting student learning.
- Efficient and appropriate use of technology can improve math instruction and lead to increased student learning.
- All of our students should be taught by highly competent and qualified mathematics teachers and specialists using high quality materials.
- Learning in mathematics should focus on deep understanding of concepts with proficient and fluent skills, all of which will be applied in problem solving settings.
- Core studies should include connections between mathematics and other curricular areas and vocational subjects.
- Every student should have the opportunity to learn in a safe environment.
- Teachers should be provided with continued systematic and multi-level professional development based on current research.
- Communication among parents, teachers, administrators, community members, post-secondary educators and employers is vital to a strong mathematics education program.
- Parents must feel comfortable and supported in assisting with their children's math education.
- A strong math program must include a vertically articulated program understood by teachers in order to provide a smooth transition between grade levels, buildings, and to post-secondary institutions.

### ACADEMIC ACHIEVEMENT GOALS

The following academic achievement goal is set by the ICCSD Board of Directors:

- Over time, students will solve, independently, increasingly complex mathematical problems.

## ICCSD Mathematics Program Strengths and Limitations

The following information was generated from review and analysis of data gathered from surveys as well as academic achievement data, namely historical Iowa Assessment data. Those responding to surveys included elementary and secondary teachers, students, administrators and parents. Strength statements and limitation statements have been confirmed by mathematics teachers and by the math curriculum review self-study committee.

### Academic Achievement

#### *Strengths*

Students are engaged in challenging work, using a variety of problem solving strategies.

#### *Limitations*

Lack of fluency with computation exists.

### Curriculum

#### *Strengths*

Teachers have high performance expectations as they teach the current curriculum.

#### *Limitations*

Current books are not aligned with the Common Core State Standards.

Students of limited ability are not exposed to grade level Common Core Curriculum at all grade levels.

### Instructional Practices

#### *Strengths*

Technology, where available, is being used effectively.

#### *Limitations*

Current programs do not provide ample technology for instructional purposes.

### Assessment

#### *Strengths*

Standardized test scores are high, particularly at the secondary levels.

#### *Limitations*

Current assessments are limited in their ability to monitor student progress.

### Instructional Materials

#### *Strengths*

Online resources are appreciated by parents.

#### *Limitations*

Current books do not have ample online support.

A wide variety of course offerings exist; various topics and activities exist within courses.

Current 7-12 books lack a variety of contextual problems.

### Professional Development

#### *Strengths*

There are strong, caring teachers who make the effort to collaborate.

#### *Limitations*

There is insufficient time for teachers to collaborate.

### General Administration

#### *Strengths*

Administrators and teachers all work toward meeting the needs of all students.

#### *Limitations*

There are limited supports for struggling students.

**ICCS D Mathematics Education Program Improvement Plan**

**Academic Achievement**

<b>Limitation</b>	<b>RECOMMENDATIONS and ACTION STEPS</b>	<b>CONTACT PERSON(S)</b>	<b>TIMELINE</b>
Students generally lack fluency with computation	Provide instruction fostering fluency in computation <ul style="list-style-type: none"> <li>• Provide for more strategy instruction and meaningful practice opportunities</li> <li>• Expect mastery of basic facts (3-4 seconds per basic fact)</li> <li>• Expect mastery of standard algorithms for computation, with retention, within Common Core State Standards (CCSS)/Iowa Core expectations</li> </ul>	K-8 math Teachers	Ongoing
	Provide explicitly targeted instruction <ul style="list-style-type: none"> <li>• Use systematically designed materials that are grade-level specific to align with CCSS/Iowa Core</li> <li>• Utilize additional supports for students in all tiers of support</li> </ul>	K-8 math Teachers	
	Monitor progress <ul style="list-style-type: none"> <li>• Analyze district normed data and identify specific student needs</li> <li>• Use supplemental materials that are aligned with district curriculum</li> <li>• Use measurable interventions to track computation progress</li> <li>• Provide immediate feedback to students and update parents on progress</li> </ul>	K-12 math Teachers	

**Curriculum [content and process standards, benchmarks, objectives]**

<b>Limitation</b>	<b>RECOMMENDATIONS and ACTION STEPS</b>	<b>CONTACT PERSON(S)</b>	<b>TIMELINE</b>
Current books are not aligned with CCSS/Iowa Core	Adopt new programs aligned with CCSS/Iowa Core <ul style="list-style-type: none"> <li>• Review newly published materials</li> <li>• Select programs that provide support for <i>all</i> students</li> <li>• Provide inservice time/extra time in summer for teachers to prepare for this change</li> <li>• Ensure continued vendor support for technology (online resources for parents, students and teachers)</li> </ul>	School board, Dir. of Schools, MARS, Coord., K-12 math teachers	Aug. 2014 to May 2015
Students of limited ability are not exposed to grade level CCSS/Iowa Core	Adopt a 6-8 math program <ul style="list-style-type: none"> <li>• Eliminate Math 7A and use differentiated instruction to deliver grade level content to all students in grade 7.</li> <li>• Look to eliminate Math 8A for 2016-17</li> <li>• Monitor students who would have taken Math 7A and provide appropriate supports outside of the classroom, such as in a math lab.</li> <li>• Provide and utilize support programs, differentiated instruction, and accommodated materials.</li> </ul>	School Board, Dir. of Schools, Coord., 6-8 principals, 6-8 math teachers	Fall 2015

**Instructional Practices**

<b>Limitation</b>	<b>RECOMMENDATIONS and ACTION STEPS</b>	<b>CONTACT PERSON(S)</b>	<b>TIMELINE</b>
Current programs do not provide ample technology for instructional purposes	Adopt new programs that include technology that is compatible with district equipment, and clarify expectations on how it should be used <ul style="list-style-type: none"> <li>• During instruction, such as SMART materials, with support and training for teachers</li> <li>• For monitoring purposes</li> <li>• For extra practice for students in school and at home, including online resources for parents and students</li> </ul>	Dir. of Schools, Coord., MARS, K-12 math teachers	Aug. 2014 to May 2015

**Assessment**

<b>Limitation</b>	<b>RECOMMENDATIONS and ACTION STEPS</b>	<b>CONTACT PERSON(S)</b>	<b>TIMELINE</b>
Current assessments do not adequately monitor student progress	Develop or purchase districtwide assessments: <ul style="list-style-type: none"> <li>• To pretest, formatively assess, and posttest K-12 students</li> <li>• That include materials for progress monitoring</li> <li>• That are available throughout the district</li> <li>• That reflect a conceptual understanding of the big ideas</li> </ul>	Dir. of Schools, MARS, Coord., K-12 Principals, K-12 math teachers	ongoing

**Instructional materials**

<b>Limitation</b>	<b>RECOMMENDATIONS and ACTION STEPS</b>	<b>CONTACT PERSON(S)</b>	<b>TIMELINE</b>
Current books do not have ample online support	Adopt new programs aligned with online and video resources <ul style="list-style-type: none"> <li>• Review newly published materials</li> <li>• Select programs that provide support for <i>all</i> students</li> </ul>	Dir. of Schools, Coord., MARS, K-12 math teachers	Aug. 2014 to May 2015
Current 7-12 books lack a variety of contextual problems	Adopt new textbooks that offer a rich variety of real-world problems to give students: <ul style="list-style-type: none"> <li>• Practice at tackling multistep word problems</li> <li>• Problems that promote conceptual understanding and engage students in problem solving</li> </ul>		

**Professional development**

<b>Limitation</b>	<b>RECOMMENDATIONS and ACTION STEPS</b>	<b>CONTACT PERSON(S)</b>	<b>TIMELINE</b>
Not enough time exists for teachers to collaborate	Provide more inservice time for teachers to collaborate: <ul style="list-style-type: none"> <li>• Within buildings, utilizing model teaching</li> <li>• Across buildings via webinar, with teachers who teach similar classes</li> <li>• As a district (Thursday inservice)</li> </ul> Provide more inservice time for teachers to: <ul style="list-style-type: none"> <li>• Learn to use new materials effectively</li> <li>• Adjust to technology with the new materials</li> <li>• Learn how to access and appropriately use online resources</li> <li>• Consider how to support students making the transition from grades 6-7 and from grades 8-9</li> <li>• Learn math content knowledge in the classroom and in support environments like success center</li> </ul>	Dir. of Schools, Coord., MARS, Principals	ongoing

**General administration**

<b>Limitation</b>	<b>RECOMMENDATIONS and ACTION STEPS</b>	<b>CONTACT PERSON(S)</b>	<b>TIMELINE</b>
Not enough support is available for students who are struggling	Provide more support, monitoring of students struggling in math <ul style="list-style-type: none"> <li>• Provide Tier 2, 3 interventions (MTSS) using materials aligned with district curriculum</li> <li>• Keep class sizes small enough for all students to receive adequate daily support</li> <li>• Provide more communication to parents</li> <li>• Provide support in school with support courses and/or Math Labs</li> <li>• Utilize screeners or diagnostic assessments K-12 that are the same across the district.</li> </ul>	K-12 principals, teachers	ongoing