

## Agile Mind in Maine 2007-2008

Agile Mind is a well-developed mathematics resource that can be a key element in the overall high school redesign plan in Maine to increase student knowledge and skills in mathematics. Agile Mind mathematics courses are arranged by topics and concepts in such a way that they can be embedded into any current math curriculum, are easily aligned with the Maine Learning Results, and may also be used as a stand alone curriculum.

Agile Mind in Maine is building upon earlier work by nearly 200 Maine high school math teachers. Funded through private and public (local school) funds, the invitation to participate was extended to all high school math teachers in Maine and the first training sessions were held in February of 2006.

This past school year, the Maine Dept. of Ed. funded up to 140 teachers to continue to use Agile Mind. These are teachers who have been trained and are able to provide good information on the effectiveness of Agile Mind Resources. Schools are paying a small fee and agreed to participate in professional development and to use Agile Mind on a regular basis to support teaching and learning. Further, schools were required to participate in a pre and post Algebra test developed by Agile Assessment. At this time there are 138 teachers involved across 36 schools- 30 high schools and 6 middle schools. This represented just over 11,000 students.

In this program teachers are asked to:

- Use feedback from on-line student learning to make adjustments to instruction.
- Use Agile Mind tools are for planning and classroom instruction on a regular basis.
- Use Agile Mind practice materials and assessments to measure student learning.
- Use the breath of Agile Mind resources to enhance current curricula.
- Develop new habits among students that include regular logging in to Agile Mind to review concepts, practice problem-solving, and to participate in on – line assessments.
- Provide evidence of improvement in student learning and change in classroom practice.

### **Agile Mind Components**

a. Agile Mind provides daily (24/7) technical support to all teachers involved. Further, ongoing support, resources, materials are provided to those leading the professional development in Maine.

b. Agile Mind teachers participate in at least two professional development sessions. Those teachers whose expertise is advanced were asked to mentor other teachers. The professional development model was allowed to evolve and be flexible as we due to the use of new technology and need to learn what strategies work best in the various regions of Maine.

## THE ACADEMIC YOUTH DEVELOPMENT INITIATIVE IN MAINE

The Academic Youth Development is designed to improve student achievement in high mathematics among those students who typically would not be expected to succeed. These are students who are capable but who do not exhibit confidence in math and who have not had a successful history in math classes. We all know that ninth grade algebra I is a critical gatekeeper for future success in high school and college, but national statistics show that nearly 50% of all students fail algebra I in their first effort, with devastating effects on their future math experience. Here in Maine, our math scores have generally been flat over the past several years. Using Agile Mind Resources is one strategy to support improved achievement and increase the use of technology in the math classroom.

The Academic Youth Development (AYD) Initiative partners Agile Mind with what we know about youth development. The key elements of the program include a three week summer session where students engage in mathematics through exciting activities, boosting their confidence as they learn more about how to learn – how to “get smart” in mathematics, emerging as future leaders in their grade nine math classrooms. Armed with the skills, attitudes, and behaviors- including a sense of belonging- that will boost their capacity to learn and lead in their Algebra I classes, students enter high school poised for success.

# Academic Youth Development

## Shaping the Culture of Ninth-Grade Algebra Classrooms



An initiative of The Charles A. Dana Center at  
The University of Texas at Austin

### Overview for Interested Schools

Fall 2007

#### Purpose of the Initiative

The goal of the Academic Youth Development (AYD) initiative is to improve student performance in high school mathematics courses—particularly for students who typically do not succeed in these courses. The AYD strategy is to create student allies who can help create positive classroom cultures for teaching and learning by reconnecting students and teachers working toward improving student motivation and academic learning.

#### The Importance of Classroom Culture

Various studies find that as many as 60% of high school students are chronically disengaged from their schooling, and that only 5% discuss school subject matter with their friends outside school.<sup>1</sup> This disengagement occurs not because students fail to recognize the value of education, but rather because in the culture of the typical high school, valuing education has less motivational power for students than the more immediate and pressing social concerns arising in their day-to-day lives.

The good news is that schools can change their culture significantly by making small changes in the ways they do business. As research demonstrates, relatively modest interventions aimed at shaping the culture of ninth-grade classes can have powerful effects on student success.<sup>2</sup>

#### Ninth-Grade Algebra as a Critical Gatekeeper

More than ever, the skills needed for college admission and success, as well as for a growing number of careers, require achievement in higher levels of mathematics. Historically, Algebra 1 has served as a gatekeeper,<sup>3</sup> as it determines whether many students will be able to access high levels of mathematics and numerous career tracks.

In many states and districts today, where algebra is taught in middle school, a large percentage of students in ninth-grade algebra have failed algebra in eighth grade. Moreover, only a relatively small percentage of students who fail algebra fail *only* algebra, meaning that they enter high school with a strongly negative experience in mathematics and in education more broadly. The effect is that teachers of ninth-grade algebra begin the academic year with many students who have come to believe that learning algebra is beyond them.



<sup>1</sup> Marks, 2000; Sedlak, et al., 1986; Steinberg, Brown, & Dornbusch, 1996.

<sup>2</sup> Vaughn, 2006.

<sup>3</sup> Adelman, 2006.

## Strategies for Shaping the Culture of Ninth-Grade Algebra

At the heart of the Academic Youth Development Initiative is a three-week transitional summer school and yearlong follow-up program. The approach of the initiative is simple. Rather than focus on the behavior of all students, it focuses on the beliefs, attitudes, and behavior of a cadre of Student Allies—upon whom the algebra teachers can rely to model respectful engagement and academic success and thus help shape the classroom culture during the regular school year.

During the summer program, incoming students (future Student Allies):

- gain an understanding of mathematics,
- realize the value of effective effort (e.g., learn that hard work pays off),
- learn about their own learning, and
- gain interpersonal skills that support learning.

The *mathematics content* of the AYD curriculum focuses on problem solving that connects prior learning to what the summer program students will experience in freshman algebra. The mathematics content is designed to help students gain expertise in a few key topics while learning to recognize what learning feels like.

The *youth development content* of AYD provides the summer program students with an explicit and rehearsed set of strategies for respectfully asking classmates to clarify their remarks, to enter a discussion, and to engage in other acts critical to a successful classroom. This part of the curriculum helps students develop an appreciation for—and understanding of—learning that will influence their attitudes about their own intelligence and help them create a culture of respect, engagement, accountability, and effective effort in the summer classroom. Once students have created and experienced this culture in the summer, they explore the benefits of helping create a similar culture of respectful engagement in the coming school year.



## Implementation of the AYD Initiative

The Charles A. Dana Center at The University of Texas at Austin and its partners in the Academic Youth Development Initiative are recruiting schools to implement the AYD program.

Components of the program include:

- *The summer AYD program for students.* Participating schools will receive a complete online curriculum for the summer program (fourteen 4-hour days), which includes both mathematics components and youth development components. The Dana Center and partnering social psychologists, working with commercial education company Agile Mind, Inc., have developed online resources, including rich animations, engaging problems for students, student assessments, and step-by-step instructions for teachers. The resources also include extensive off-line activities.
- *Professional development institute for teachers.* Teachers will participate in a 2-day professional experience with colleagues from sites across the country. The AYD professional development will provide specific instruction on how to use the AYD initiative's online tools and strategies and a complete walkthrough of the curriculum. It will also provide opportunities for participating teachers to expand their understanding of how the brain grows and to learn more about how to encourage effective effort from their students and how to help students experience successful mathematical problem solving.

- *Academic year program.* Participating schools will receive resources to plan an academic year kickoff for students and teachers, activities and suggestions for regular student gatherings, and suggestions for ongoing communication among students and teachers throughout the year.

### Leaders of the Initiative

Dr. Uri Treisman of the Charles A. Dana Center at The University of Texas at Austin and Dr. Josh Aronson of New York University's Steinhardt School of Education have led codevelopment of the AYD program. Working with leaders in psychological research, experts in mathematics education reform at the Charles A. Dana Center, and teachers from several school districts nationwide, including districts in the Minority Student Achievement Network (MSAN; [www.msanetwork.org](http://www.msanetwork.org)), we have developed the materials, which are being produced and delivered in collaboration with Agile Mind, Inc.

### To Learn More

For more information about the AYD initiative contact:

Mark Stephenson, Agile Mind, Inc.  
[mstephenson@thinkfive.com](mailto:mstephenson@thinkfive.com),  
 866-284-4655, extension 3077.

agile  
Mind

For more information about the Dana Center and its work, see:

[www.utdanacenter.org](http://www.utdanacenter.org)

### References

- Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college*. Washington, DC: U.S. Department of Education. Retrieved January 26, 2007, from [www.ed.gov/rschstat/research/pubs/toolboxrevisit/toolbox.pdf](http://www.ed.gov/rschstat/research/pubs/toolboxrevisit/toolbox.pdf).
- Marks, H. M. (2000). Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Educational Research Journal*, 37(1), 153-184.
- Sedlak, M. W., Wheeler, C. W., Pullin, D. C., & Cusick, P. A. (1986). *Selling students short: Classroom bargains and academic reform in the American high school*. New York: Teacher's College Press.
- Steinberg, L., Brown, B., & Dornbusch, S. (1996). *Beyond the classroom: Why school reform has failed and what parents need to do*. New York: Simon and Schuster.
- Vaughn, (2006). Tipping a middle school to excellence. Paper presented at the Technology Information Conference for Administrative Leadership, Little Rock, AK, February 27-March 1, 2006.

