

### Description of Mathematics Programs

Foundational to the Dana Center/Agile Mind mathematics programs are these principles: that all students, regardless of their life circumstances, need and deserve access to challenging curricula every day, and that all teachers need and deserve tools and data that help them address the changing demands of the accountability landscape and the varied experiences their students bring.

Our comprehensive system for teaching and learning is designed to equip educators to engage all students in deep learning of the standards, support teachers in best practice, and do so in a way that is accessible and scalable in all classrooms, every day, for every student.

Our programs foster classrooms in which all students can access key mathematics' concepts, embrace challenging work, persist through failure, and succeed.

For teachers, this means having access to comprehensive programs and proven professional experiences and resources that enable them to adapt their teaching practice to the full diversity of the students they serve.



### Development of concepts to reflect the rigor of next-generation standards

A deep, authentic command of mathematics is reflected in three aspects of learning: conceptual mastery, procedural skill and fluency, and application — or the ability to correctly apply mathematics in different situations. Throughout our lessons, homework, and formal assessments, students work on rich tasks that ensure their learning reflects the rigor of the standards. Lessons are designed to support the development of deep conceptual understanding, and the use of multiple representations and real-world contexts support differentiation for diverse learners.

Strategic, deliberate practice and review—supported through print materials and online practice and assessment—enable students to attain the fluencies and procedural skills the standards require.

### Designed for all students

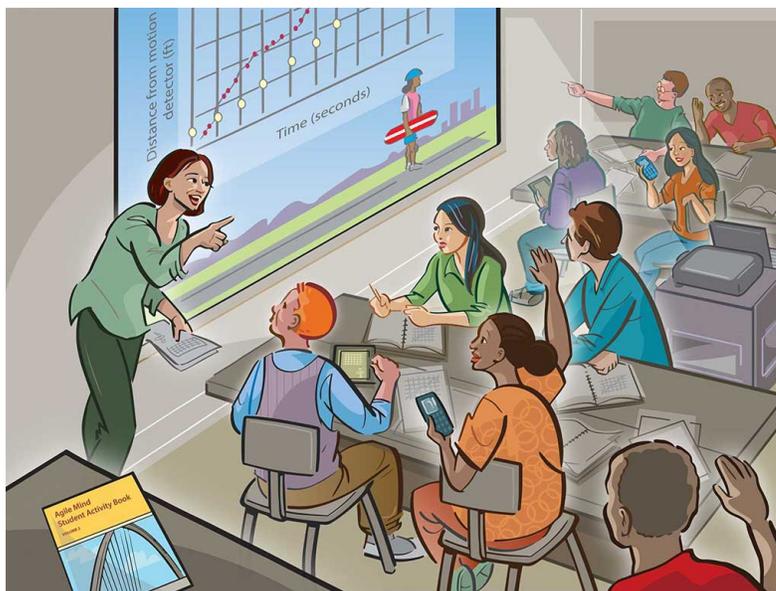
Our programs equip teachers to enact a curriculum in every class, for every student, every day; to enable students to take responsibility for their own learning; to intensify interactions between teachers and learners in critical competency subjects; and to use data to inform these processes.

We work to first make the most crucial big ideas transparent to teacher and learner and then sequence them in such a way that students are able to build their understanding by making connections among and across those ideas. Integrated into the syllabus are strategies and supports indicated by research to be most effective for student learning.

The programs appear in a “blended” format, meaning that some essential materials are provided online and others in print. This enables us to enrich the resources with interactive animations and extended explorations that deepen student understanding of central concepts and allow teachers to easily represent concepts that might otherwise be difficult to teach. This illustration depicts a typical Agile Mind classroom.

Program materials are shared by teacher and students during class, and are used by students outside of class to reinforce their learning.

Agile Mind printed materials—Student Activity Sheets—are designed to be used in tandem with online content to further develop students’ conceptual understanding, provide practice towards mastery, consolidate learning, and apply it to solving problems in real-world contexts.



### **Emphasis on problem solving and modeling**

Through problem solving and modeling approaches, our programs require students to engage with the mathematics and draw on their existing knowledge to build new understandings. Learners are supported through embedded questions and prompts to help them get started on new activities, maintain cognitive engagement, focus on key ideas and relationships, persist productively, and internalize and engage in the Standards for Mathematical Practice.

### **Supports for academic literacy**

Research on how language impacts learning in mathematics has expanded substantially in the past decade, and makes clear the importance of academic literacy to achieving the intent of grade-level standards. Our programs apply this research to help students build essential academic vocabulary, comprehend and analyze key elements of mathematics problems, explicitly connect different representations of mathematical situations, and reflect upon and communicate their understandings. They encompass rich, practical teaching strategies beneficial to language learners, to special populations of students, and to all students in the following ways:

- Terms are clearly defined within the context of what is being learned
- Language connections and visual representations strengthen vocabulary development
- Word origins and multiple meanings for terms are used to develop connections between familiar, everyday language and academic vocabulary
- A Glossary of key terms with visually rich examples is available in English and Spanish
- The Advice for Instruction provides targeted supports for teachers to promote academic language development and instructional strategies that are effective with English Language Learners (ELLs) as well as hesitant learners

### **Real-time data and reports on the progress of effort and learning**

Having timely data to represent and report student effort and progress is key. Reports surface “what now?” questions in real time for individuals and groups, and support use of data to inform differentiation strategies. The data make it easy for busy educators to know how students performed on each item and identify potential challenge areas that need further instruction. Vivid graphics pinpoint student progress on assignments and identify which are struggling and which are thriving. These data equip teachers and leaders to look at instructional efficacy and connect effort with outcomes. Additionally, teachers can use data to address differences in learning needs early.

### **Robust instructional supports for teachers**

The tools and resources that accompany each topic support teachers as professionals and equip them in their daily practice. Advice contains respectful guidance for planning and teaching each lesson:

- Strategies for facilitating exploration of key concepts that engage all learners
- Suggestions for promoting discourse, and for individual, small-group, and whole-class learning
- Guidance for scaffolding and deepening student learning, and for differentiating instruction for learners with diverse needs
- Embedded questions and advice in lessons to help teachers support struggling learners
- Instructional strategies proven effective with English Language Learners and hesitant learners
- Further questions to extend students’ conceptual understanding and push at higher Depth of Knowledge indicators
- Periodic advice to teachers that highlights strategies to build students’ proficiency with the Standards for Mathematical Practice

### **Blended supports for professional learning**

Our model of professional learning is designed to introduce and sustain high-yield strategies in the use of our programs to increase student engagement, achievement, and persistence in mathematics. Partner schools report significant gains in the number and diversity of students who are leaving high school ready for college and for the contemporary workplace.

During annual face-to-face professional development Institutes and ongoing in-person and virtual support, teachers, coaches, and instructional leaders learn to use and integrate Agile Mind resources into their practices, gain experience in collaborating on common lessons and assessments, and learn strategies for ensuring a successful, rigorous learning experience for all students. In addition to Institute attendance, most partner districts choose to have follow-up sessions during the academic year customized to meet specific needs of participating faculty and students.