About Agile Mind

Our mission is to transform the teaching and learning of middle and high school math and science. We help education systems equip all students for success in higher education and the careers beyond.

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.

The work of Agile Mind is designed to equip educators to engage all students in deep learning of your 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.

Comprehensive, Fully Aligned Curriculum

Focus and Coherence

Agile Mind’s mathematics programs attend to the full intent of the New Mexico State Standards. The curriculum is comprehensive and coherent, making meaningful connections among concepts in a single course and throughout the high school series.
Rigor and Balance

A deep and 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 the lessons, homework, practice, and assessments, students work on rich tasks that ensure their learning reflects the rigor of the standards. Lessons are designed to support the development of conceptual understanding, and the use of multiple representations and real-world contexts support differentiation for diverse learners. Students work on rich problem-solving tasks designed to develop their ability to utilize mathematical concepts and skills in engaging applications. And finally, strategic, deliberate practice and review—supported through offline printed materials and online practice—enable students to attain the fluencies and skills required.

Support for the Mathematical Practices

Agile Mind Mathematics Courses are designed to provide you with the resources you need to engage all your students, foster confidence and motivation, and increase achievement—every day. Our programs include a variety of resources that promote student engagement in the mathematical practice standards:

- Interactive animations, simulations, extended explorations, and next-generation assessments deepen student understanding of central concepts.
- Student Activity Sheets offer opportunities for students to work independently and in groups and to show their thinking on paper.
- Advice for Instruction provides detailed lesson guidance, including page-by-page advice for facilitating content explorations and probing, scaffolding, and extension questions to promote appropriate or useful mathematical practices—all designed to elevate teacher-student interactions beyond simple “question and answer” routines.

The practice standards represent the natural ways in which students come to understand and do mathematics. While, depending on the content to be understood or on the problem to be solved, any practice might be encouraged by teachers and applied by students, some practices may prove more useful than others in a given lesson, a problem, or a topic.

Our programs have been top rated by Ed Reports for exemplary coverage of the standards and for including powerful resources to support teachers and students.
Engaging Content and Classroom Experiences

Agile Mind’s rigorous and supportive curriculum promotes student engagement, collaboration, and perseverance. Our materials foster deep mathematical understanding through rich problem-solving activities, real-world connections, powerful visualizations and animations, and frequent opportunities for student discourse and collaboration.

Blended Learning Approach

Agile Mind is presented in a blended format, meaning some essential materials are provided online and others in print. Teachers and students have access to the same curriculum content available online for presentation in class and to access outside of class, either at home, or in a library or community center -- anywhere users have Internet access. A blended format enables us to enrich our programs 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.

Agile Mind programs leverage technology in powerful ways. But regardless of how technology is used, the teacher facilitates the classroom experience. The curriculum can be shared with an entire class by being projected. In this model, all that is needed is a computer, access to the Internet, and a projection device.

In one-to-one settings or with shared devices, students work online at the direction of their teacher. In any model, students work in pairs or small table groups and use print activity sheets and manipulatives as they engage in challenging tasks, collaborate with peers, demonstrate their thinking, and reflect on their learning.

Course Design

The course syllabus is organized as a series of topics. Each topic provides resources for a number of lessons -- typically taught over 1-2 weeks -- developed around key learning goals and objectives related to the standards. The instructional components of a topic work to first make the most crucial big ideas transparent to learners and then to sequence them in such a way that students are able to build their understanding by making connections among and across those ideas. Integrated throughout are research-based strategies and supports deemed most effective for student learning.
Rich Problem-Solving Tasks and Real-World Scenarios

The underlying design of the Agile Mind programs is to engage students in solving worthy problems to motivate learning and develop their mathematical understanding. The program then provides a variety of activities -- in familiar and new contexts -- that allow students to apply and reinforce what they have learned.

The mathematics is first introduced with animations, simulations, and real-world scenarios. Approaching ideas conceptually, in the context of the real world, connects new ideas to students’ own experiences and prior knowledge, helping them better engage with and understand the meaning of the new learning. Engaging students through real-world scenarios helps motivate a wide range of learners and can be a critical strategy for supporting English Language Learners.

Animations, Interactive Simulations, and Visualizations

The programs include hundreds of online animations and interactive simulations embedded in the instructional components that support dynamic lessons every day to promote engagement, discourse and discovery. They are designed to help teach standards-based concepts proven difficult to learn without visualization and to provide memorable mental models. They help students learn concepts more efficiently and more deeply.

Frequent Opportunities to Read, Write, and Talk About the Math

During daily lessons and homework, students are provided consistent, ongoing opportunities to participate in active classroom discussion and to speak and write about the subject matter in meaningful ways that encourage reasoning, justifying, generalizing, and deepening content knowledge. Students develop understanding and represent it in multiple forms: in tables, graphs, words, and equations.

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Teachers who use our programs describe a higher degree of engagement as they use the visualizations of key concepts, real-world contexts for problem solving, and lesson-specific guidance for fostering student discourse and collaboration.
Distributed Practice to Promote Understanding, Skill, and Fluency

Our Approach

The approach to practice of The Charles A. Dana Center and Agile Mind mathematics programs is based upon long-standing research that supports the use of distributed practice in mathematics, meaning that students practice and apply new skills and concepts in chunks and engage in this practice over a longer period of time.

Our curriculum includes several means to promote practice and application of concepts and principles, as well as the ongoing practice of procedural skills to build automaticity and fluency. Continual practice and review are incorporated within the program’s daily lessons, homework, and embedded assessments — both online and through paper-and-pencil.

Embedded, Distributed Practice in Daily Lesson Resources

Students engage in the practice and application of new skills through the daily lesson resources:

- Animations that provide practice and application opportunities
- Interactive puzzles
- Discussion prompts
- Questioning strategies suggested in the teacher materials that prompt students to think critically, and to verbalize or write about their arguments and justification of thinking
- Reinforce/Review questions in the Student Activity Sheets that provide distributed practice opportunities throughout the daily lessons, as well as additional paper-and-pencil opportunities for nightly homework
Online Practice Components

In addition to the practice embedded in the daily lessons, *Guided practice* and *More practice* components offer formal, online opportunities for student to practice and apply new learning in familiar and new contexts.

The online practice items contain next-generation items designed to engage students and capture more authentic evidence on the progress of learning. When appropriate, hints are available to help students organize their thinking, and students get multiple tries to assess and demonstrate their learning.

In addition to the practice and assessment resources available within the topics, there is a repository with over 6000 items covering standards for grades 6 through Algebra II that provides teachers with a flexible tool for creating practice and assessment opportunities.

*The Agile Mind curriculum offers thousands of practice opportunities for students to apply and master new learning, while continuously reviewing skills.*
Assessment and Real-Time Reporting

Assessment

Each topic includes an end-of-topic assessment component called *Automatically scored*. This assessment simulates higher-stakes testing and can be used by teachers to create topic quizzes. The items are automatically graded so students and teachers receive real-time data on the progress of learning.

*Automatically scored assessment item*

Performance Tasks

Agile Mind’s *Constructed response* tasks and Mathematics Assessment Resource Service (MARS) tasks provide students with opportunities to demonstrate their ability to apply what they have learned in new contexts. Rubrics are available.

*Constructed Response task*

*MARS Task*
Real-time Data and Reporting on Student Progress

Automatic grading of tasks - Automatic grading of tasks and associated real-time reports help students and teachers focus on progress. The real-time data surface “what now?” questions both for individuals and groups and support use of data to inform differentiation strategies, and support students’ taking ownership of their learning.

Effort – Information on the time students spend on task allows you to better understand whether you have a teaching problem or a motivation/engagement problem.

Intuitive graphics – help you quickly and conveniently pinpoint student progress on assignments and identify which are struggling and which are thriving, connecting effort with outcomes.
Supports for Differentiation

Research demonstrates that increasing rigor and providing scaffolding for students positively impact student achievement. Agile Mind programs are designed to help teachers provide rigorous, yet accessible instructional experiences for every student, with the primary strategies being rich problem-solving tasks with multiple entry points, productive group work, and the use of framing and reframing questions.

- From the syllabus, to the topic, to the learning object level—Agile Mind programs are designed to scaffold student learning towards mastery of content.
- All of our resources are structured so that teachers can provide multiple pathways for learners. This is evident in design of text, visualizations, problems, and assessments.
- Design attributes of animations, visualizations, simulation tools, real-world contextualization, conceptual development and multiple representations are engineered to engage students in substantive learning—and to ensure opportunities for re-engagement.
- Our Advice for Instruction—which is designed as part of our blended model of professional development—equips educators with explicit strategies for differentiated instruction, in appropriate scaffolding of learning to provide access for all learners, in how to manage productive group work, in framing and reframing questions to guide instruction, and in deepening students’ thinking around and understanding of concepts.
- Key to the ability to differentiate responsibly are accurate, timely data on student behaviors. It is unrealistic to ask teachers to manage a demanding instructional load, grade multiple papers, and then to diagnose and address challenges and opportunities for every student in every classroom every day. For this reason, we make data about student behavior—including performance on assigned tasks and assessment items—available to teachers in real time. In our experience, having access to data enhances teacher effectiveness in differentiation and authentic personalization.

By presenting key concepts and new learning with images, graphic organizers, animations, and multiple representations of mathematical relationships, our course programs enable teachers to provide students with multiple entry points.
In the table below, Agile Mind components that are designed for differentiation are identified for Curricular Content, Practice and Assessment, and Teacher Supports.

<table>
<thead>
<tr>
<th>Curricular Content</th>
<th>Practice and Assessment</th>
<th>Teacher Supports (Advice for Instruction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rich problem-solving tasks to develop conceptual</td>
<td>Embedded puzzles and questioning strategies to check for understanding</td>
<td></td>
</tr>
<tr>
<td>understanding</td>
<td>Student Activity Sheets and <em>Constructed response</em> performance tasks with opportunities to apply learning in new contexts and produce a variety of work</td>
<td></td>
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<tr>
<td>Real world contexts to support engagement and deeper</td>
<td>Online items to provide opportunities to practice and apply skills, assess learning, and master understanding</td>
<td></td>
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<tr>
<td>learning</td>
<td>Real time data on student learning</td>
<td></td>
</tr>
<tr>
<td>Graphics, animated visualizations, and interactive</td>
<td></td>
<td>Advice for differentiation and scaffolding during a lesson</td>
</tr>
<tr>
<td>simulations</td>
<td></td>
<td>Support for classroom discourse and small group, peer-to-peer discussions</td>
</tr>
<tr>
<td>Multiple representations of mathematical relationships</td>
<td></td>
<td>Framing and reframing questioning strategies to guide instruction</td>
</tr>
</tbody>
</table>

**Supports for English Language Learners**

English Language Learners (ELLs) are a significant and growing percentage of our nation’s learners, and the challenge of supporting these students to achieve at high levels is faced in every classroom. This reality, combined with the expectation of a high-quality education that equips many more learners for vibrant economic futures, requires rich, practical tools and teaching strategies that support ELLs—and all students—in developing academic literacy and achieving deeper understanding.

**National and state reviews indicate superior support for ELLs**

Agile Mind is proud to offer comprehensive ELL resources for middle and high school mathematics. State- and national-level reviews have praised our programs for providing superior support for ELLs and other special populations (*EdReports* indicator 3u; IMET indicator 7c). Just as important, our school and district partners report our ELL resources to be exemplary, from the overall program design to the embedded tools.

**INDICATOR 3U**

Materials provide support, accommodations, and modifications for English Language Learners and other special populations that will support their regular and active participation in learning mathematics (e.g., modifying vocabulary words within word problems).

edreports.org
Programs support language learning in the context of mathematics

Agile Mind programs support ELLs and other special populations of students in many ways to foster their acquisition of academic vocabulary, conceptual understanding of the mathematics, and development of mathematical skills and proficiencies:

- Multiple representations of relationships help students develop deeper understanding
- Real-world scenarios connect ideas to students’ own experiences
- Interactive visualizations and animations and imagery represent key ideas
- 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
- Embedded questions drive student inquiry, help students make connections, and support development of conceptual mastery

Approaching ideas conceptually, in the context of the real world, connects new ideas to students’ own experiences and prior knowledge, helping them better understand the meaning of the new learning.

Explicit resources and embedded advice provide guidance for teachers

- The Advice for Instruction provides teachers with research-based supports and instructional strategies that are effective with ELLs
- Guidance for teachers helps promote student discourse and active classroom participation
- Online professional learning resources detail how program design elements support ELL students, and explain strategies for teaching ELLs
- A Glossary of key terms with visual examples is available in English and Spanish
- Student Activity Books are available in Spanish
Agile Mind is engineered to work seamlessly with language translation tools. Educators who choose to use online translation tools such as Google Translate® with our programs report they are convenient and highly effective, in part because our system is optimized to work well with them.

A function that can be written as a polynomial divided by a polynomial is called a rational function.

The image shows the graph of the parent rational function, \( y = \frac{1}{x} \).

Una función que puede escribirse como un polinomio dividido por otro polinomio se llama función racional.

La imagen muestra el gráfico de la función racional precursora, \( y = \frac{1}{x} \).
Supports for Teachers

Online and Printed Supports

Our programs are designed with robust supports for educators, to ensure the teachers in the classroom have the tools and resources they need to be effective. Each Agile Mind course is designed to equip teachers to present new content in ways that are accessible to all students, to continuously review and repair misconceptions, and to develop mastery with grade-level standards. Available to educators 24x7 is a comprehensive system for professional learning and support:

- **Advice for Instruction** makes guidance available for planning a topic and for teaching each lesson in a topic. This guidance includes:
  - 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 to be effective with English Language Learners as well as other special populations of learners
  - Further questions to extend students’ conceptual understanding and push at higher Depth of Knowledge indicators
  - Strategic advice to teachers that highlights opportunities to build students’ proficiency with the eight mathematical practice standards

- **Scope and Sequence.** A powerful entry point for the Agile Mind services is aligning resources to your district timeline for instruction. The Agile Mind topics closely reflect this comprehensive scope & sequence. A Scope and Sequence – with topic descriptions, pacing information, and alignment to the standards can be found in Professional Support.

- **Alignment to standards.** To best plan the use of the standards-based curriculum and instruction, you will find correlations from Agile Mind topics to the state and national standards. These alignments can be found in Course Materials.

- **Videos and essays.** In using the Agile Mind curriculum and instructional resources to their best advantage, teachers are supported with How-To videos, live and recorded webinars, monthly virtual sessions, and online advice for teaching targeted concepts and skills
**Face-to-Face Professional Development and Virtual Support**

**A blended professional support approach to ensure effective program implementation**

Our model of professional development introduces and sustains high-yield strategies in the use of our programs and tools to increase student engagement and achievement in mathematics. Through this model, our partner schools have reported experiencing significant gains in the number and diversity of students who are leaving high school ready for college and the workplace.

To achieve those objectives with partner schools and districts while accommodating the challenges they face—such as the costs of preparation time for teachers and out-of-class time for professional development—we design and deliver a mix of services that leverage both in-person support and next-generation technology.

**Agile Mind Summer Institutes (2-3 days)**

Each year, teachers, coaches and instructional leaders—from those who are just getting started with Agile Mind to our most experienced users—participate in face-to-face professional development Institutes. They learn to use and integrate Agile Mind planning and instructional tools and assessment materials into their practices, gain experience in collaborating and using common lessons and assessments, and strengthen strategies for ensuring a successful, rigorous learning experience for all students without sacrificing coverage of the syllabus.

Differentiated sessions are organized around participation in specific course programs. To support the implementation of these programs, Institutes provide:

- Comprehensive walkthroughs of our programs to develop participants’ understanding of the instructional tools, assessment tools, and supporting resources
- Specific guidance on how to use the online tools and engagement strategies to ensure that teachers have the confidence and understanding to build strong implementations
- Research on outcomes of effective practices and on setting reasonable expectations for success
- Half-day leadership sessions to equip district and campus leaders with high-yield practices for implementation of the program and integration of Agile Mind programs into their curriculum

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Advisor Services
In addition to Institute attendance, customized Advisor sessions during the academic year support teachers and leaders in successful implementation and are designed to meet their most pressing needs.

- Advisors conduct pre-session analyses and collaborate with staff to customize sessions
- Either by telephone, webinar, or on site (in districts having sufficient teacher participants), Advisors share the experiences of educators in other settings and work with teachers to develop their confidence and their success using Agile Mind programs
- After each session, Advisors provide to identified district or school leaders a written summary of session activities and outcomes and recommended next steps to strengthen the implementation
- Advisors themselves available by phone and email for ongoing just-in-time support

Virtual Advisor Services
Virtual Advisor Services can be utilized flexibly to meet the needs of teachers and leaders. An Agile Mind Virtual Advisor Service is approximately 2 hours of “face” time with teachers and leaders that may happen continuously but could also happen iteratively over two or three live sessions. If teachers have additional questions around content or pedagogy, they are always welcome to e-mail Coach@agilemind.com for support.

Iterative Video Coaching
Agile Mind Advisors pair with teachers and identify focus for coaching cycles. The Advisor and the teacher plan for implementation of a component of a lesson. The teacher videos a 5-10 minute clip of instruction. Using conferencing tools, the teacher and Advisor unpack the instruction, refocus on coaching outcomes, and plan for the next component. Agile Mind recommends four or more coaching cycles with each teacher.

Planning-focused live webinars
The focus of these webinars are in planning for a common upcoming lesson with a focus on specific attributes of lesson facilitation such as formative assessment, developing conceptual understanding, student-led solutions, or a focus of the district/teacher’s choosing.

Using student data to drive instruction live webinar
The focus of these webinars is using student data to inform differentiation of upcoming instruction. Teachers scan and submit student artifacts in advance of webinar (when analyzing in conjunction with online performance data, too). Advisor utilizes artifacts to drive instructional decisions in upcoming common lessons.

Customized webinars
Based on the assessed or expressed needs of individual and groups of teachers interactive webinars are focused on a range of topics that include developing teachers’ content knowledge, review, preparation and planning for upcoming units or topics, trajectory studies, instructional strategies, mathematical practice standards, formative assessment and differentiation. These may be customized to meet specific needs identified by teachers and district leaders.
Print Materials

**Student Activity Books.** Activity sheets support each lesson, with opportunities for students to record their work, capture notes, and engage in practice tasks during lessons and with additional practice and application for nightly homework.

**Advice for Instruction.** In addition to the online version of the Advice for Instruction that is available to teachers inside the Agile Mind Learning Management System, teachers are provided with a printed, spiral-bound hard copy of all the topic planning and teaching guidance that is provided online and described above.