Reasoning Mind Proposal to Cedar Hill ISD

Program Summary

Reasoning Mind is a transformative breakthrough – a scalable solution to the three most pressing problems in math education: curriculum quality, human capital, and student engagement.

- *Engaging Students.* In an RM classroom, each student sits at a computer and works online, studying one of the most rigorous international curricula available today. Even better, students think of RM as a game: they love the interactive content, the animated characters, the mathematical puzzles, and the opportunity to work at the level that challenges them best. Time on task in RM classrooms is consistently above 90%, compared to 50% in most traditional classrooms.

- *Transforming Teaching.* With RM, teachers are freed to do what they do best: work one-on-one with individual students. Each student gets more than five times the amount of personal instruction that he or she would get in a traditional classroom. Through RM's professional development program, teachers receive over 70 hours of training that deepens their understanding of math concepts and ability to teach them effectively. Trained support personnel provide monitoring and guidance to schools through regular visits to each class.

- *Maximizing Technology.* The program is driven by powerful artificial intelligence. As students solve problems and gain understanding, the level of problem difficulty increases correspondingly. Over time, the system creates a path of learning that focuses on each student's weak areas. Detailed real-time reports are generated for teachers, allowing them to diagnose each student's strengths and weaknesses.

RM has tripled its enrollment every year for the past three years. In 2010-11, 22,000 students were enrolled in 175 schools across five states, using RM's web-based curricula for grades 2-6. Overall, 75% of Reasoning Mind students are classified as economically disadvantaged, and 88% are minority.

In a survey given last year, RM teachers reported extremely high satisfaction with the program:

- 98% of RM teachers were satisfied with their overall experience
- 94% said RM training increased their ability to explain mathematical concepts
- 87% said it increased their effectiveness at teaching math
- 94% said RM increased students' reasoning skills
- 93% said RM increased students' enjoyment of mathematics.

RM is the only education movement with the scalability to affect more than a million students by the end of the decade – and it has demonstrated success in public, private, and charter schools alike. RM is also the *low-cost solution* for schools: just one trained teacher per school can reach the entire second- to fourth-grade population and demonstrate impressive results.

Voices from academia, business, education reform, and government see the value in RM's approach. Reasoning Mind has garnered a wide range of recent endorsements, from prominent mathematicians, to community leaders, to education policy experts.

Results from the schools currently using Reasoning Mind are conclusive – RM significantly increases student achievement for *all* students using the program, even special education students and students with limited English proficiency. As Reasoning Mind closes the achievement gap in school after school, interest has been sparked in districts across the state.

Curriculum

Reasoning Mind currently offers three mathematics curricula:

Basic I - an early elementary supplementary curriculum
Basic I develops important mathematical foundations and prepares students for RM's rigorous Basic II and Basic III pre-algebra curricula. In Basic I, students develop fundamental skills and begin studying the concepts (geometric, algebraic, and numerical) that will be covered in-depth in Basic II and Basic III.

Because Basic I requires students to have the necessary reading skills, it is recommended that students begin using the program in 3rd-4th grade. Stronger readers could be enrolled in the program as 2nd graders; such decisions would be worked out with individual campuses on a case-by-case basis. Students are required to use the system a minimum of 2 hours each week, for 45-60 minutes per session.

Basic II – a 5th grade core curriculum
The purpose of Basic II is to give students a deeper conceptual understanding of whole numbers, to begin their study of common fractions and decimals, and to develop an understanding of key geometric and algebraic notions.

The Basic II curriculum cannot be used as a supplement, or be implemented mid-year. It is a full year core curriculum. Students are required to use the system 90 minutes each day.

Basic III – a 6th grade core curriculum
The purpose of Basic III is to complete the study of the four basic operations with all nonnegative rational numbers, to study ratio and proportion in-depth, and to develop comfort with basic algebraic transformations.

Due to its rigorous nature, the Basic III curriculum is recommended only for those students who have completed the Basic II curriculum. Basic III is a full year core curriculum. Students are required to use the system 90 minutes each day.

Implementation process

A strong interest from school leadership and a firm commitment to the success of the project will be required to enroll a school in the program. Once a school has committed to using RM, an Enrollment Specialist will meet with school leadership to structure an implementation agreement based on the unique needs of each campus.

Prospective teachers will enroll in RM's Teacher Qualification Course before using the program in the classroom. This course is a multi-day course that is delivered via a combination of online and face-to-face training. Failure on the qualification exam at the end of the course will disqualify a teacher from teaching an RM class, so sending additional teacher to training is recommended.

As soon as a school has signed an implementation agreement to use the program, RM also assesses its technological capabilities. Technology capacity may vary significantly from one school to another, but all schools must demonstrate their ability to provide a computer lab with a one-to-one computer-to-student ratio. RM will also work with district technology personnel to verify that the school has sufficient bandwidth to deliver RM web-based instruction. Once completed, staff from Reasoning Mind will certify the lab for use with the Reasoning Mind system.

Schools using the Basic I curriculum in 2nd, 3rd and 4th grade must commit to using RM for a minimum of 120 minutes each week. An ideal model would be three 45 minute sessions each week. While the set-up of the program varies slightly from school to school, an RM computer lab dedicated solely to the use of the program should be sufficient to support all Basic I students at a

school. It is recommended that a single Reasoning Mind instructor be trained to serve all 2nd, 3rd and 4th grade Basic I students on a campus in order to reduce support and training costs.

Schools using the Basic II or III curricula must commit to using the program for 90 minutes each day. More than one Reasoning Mind computer lab may be needed, depending on the total number of students enrolled in the program at each campus.

Once the program is implemented, a Program Coordinator from Reasoning Mind will visit the classroom to observe and meet with the teacher at least quarterly. In this meeting, classroom progress metrics are discussed and both the teacher and Program Coordinator have an opportunity to exchange ideas and work toward providing the best learning environment for the students. To guide this discussion, the teacher and Program Coordinator fill out together a report that covers key student metrics and implementation standards.

District and school administrators may also attend training on the Reasoning Mind program to ensure they are fluent in generating reports to allow monitoring of teacher and student progress. Reasoning Mind Program Coordinators meet with school administration twice a year to update them on progress in all RM classes, teacher concerns, and any existing technology needs. Campus and district administrators, as well as curriculum specialists have instant access to the RM system to view data and monitor program implementation.

If a district is interested in doing a trial the Basic I program in the summer of 2011, the trial program must be set up to allow students to have adequate time on the system. All teachers participating in the spring pilot must be trained by June 6th, 2010, with the program beginning shortly afterwards.

Professional Development

Prospective teachers will enroll in RM's Teacher Qualification Course before using the program in the classroom. This course is a multi-day course that is delivered via a combination of online and face-to-face training.

During the Qualification Course, teachers learn how to navigate the Reasoning Mind system and teacher interface, receive training in data analysis, are provided with an overview of the curriculum, and learn best practices and proven instructional strategies from veteran RM instructors.

Reasoning Mind Professional Development also includes several courses (totaling up to 70-hours) taken during the first year of RM teaching. These courses are designed to deepen teachers' knowledge of math content and strengthen their understanding of the RM methodology.

Curriculum Study Sessions. During the course, teachers study mathematics theory and go through the RM curriculum to ensure a thorough understanding of the material their students will see. Teachers will take four exams given across the year covering curriculum and instructional methods. Though the primary purpose of the assessments is to clarify any theory misunderstandings, taking and passing the assessments is crucial component of all implementation. Each assessment evaluates content knowledge, pedagogical understanding, and problem solving.

Best Practice Workshops. Attending teacher forums is also an important component of becoming certified to be an RM teacher. This allows teachers to share best practices and take an active part in contributing to knowledge in their field.

Feedback from teachers in 2008-09 indicates that RM professional development programs are both valued and effective. 99% of teachers in the 2009-10 school year were either satisfied or extremely satisfied with the overall professional development offered to them by RM.

Program Costs

Schools pay a tuition fee for each student enrolled in the program. Schools must also cover the cost of training and supporting new teachers in their first year. Costs to support returning teachers are lower, as they have already completed these trainings.

New Basic I Teacher Training and Support	$2,500/new teacher
Returning Basic I Teacher Training and Support	$1,500/returning teacher
New Basic II/III Teacher Training and Support	$6,000/new teacher
Returning Basic II/III Teacher Training and Support	$3,000/returning teacher
Basic I Student Tuition Fees	$35/student
Basic II Student Tuition Fees	$70/student

The cost of using the program depends on the number of students enrolled and the number of teachers trained at each school.

Assuming there are 75 students in a grade level on a given campus, with one Reasoning Mind instructor for all students in that grade level, the cost of implementing RM at a new school would be $5,125 per grade level for Basic I, and $11,250 for Basic II in the first year. Beginning Year 2, these costs will drop to $4,125 and $8,250 respectively.

Cost Breakdown

RM Professional Development

Reasoning Mind provides professional development at cost via Program Coordinator support staff. The cost of supporting a Basic I teacher is $2,500.

For $2,500 per instructor, schools receive:

Logistical Support

- Lab certification
- RM account management
- Student re-enrollment

Training

- An introductory multi-day Qualification Course (hybrid of online and face-to-face instruction)
- Bi-weekly RM workshops on best practices
- Content assessment and online content course tracking
- Monthly RM content workshops

One-on-One Support

- On-campus support visits to teachers, 4 times a year
- Semester evaluations
- Teacher user manuals and training binders
- Semi-annual presentations to principals on project growth
- Phone and email support 24/7

Data Tracking Support

- Real-time data summaries
- Teacher data analysis and data tracking
- End of year analysis and comprehensive project summary

Student Accounts

Students can use the RM system 24 hours a day, 7 days a week, and are able to access the program anywhere with high-speed internet. A Basic I account costs $35/student and Basic II and III accounts cost $70 per student

For $35 or $70 per student, schools receive:

Curriculum Delivery System:

- Student accounts with 24/7 access to the RM system
- Ongoing maintenance of server; server system updates and enhancements
- Response to requests from schools for curriculum and software enhancements

Materials:

- Posters for classroom presentations and competitions
- Virtual prizes and an online incentive system
- Offline mini-lessons and handouts
- Supplementary paper-and-paper assessment instruments (quizzes, benchmark tests, etc.)

The sophistication of RM's technology and the extensiveness of the support and training means that the **combined cost of the program and training is approximately $350 per child**. Knowing that this pricing is out of reach for most districts, Reasoning Mind finds donors who subsidize this cost, so that **schools receive the program at less than a third of the total price**.

Cost Proposal

2011-2012 Program Costs			
Item	**Quantity**	**Cost per Unit**	**Total Cost**
RM Basic I Accounts	1000 students	$35 per student	$35,000
RM Basic II/III Accounts	0 students	$70 per student	0
Teacher Professional Development and Support	9 teachers	$2,500 per teacher	$22,500
		TOTAL PROGRAM COST	**$57,500**
2011-2012 RM Partnership Grant for 2nd grade and/or additional teacher			$7,000*
		TOTAL PROGRAM COST TO DISTRICT	**$50,500**

**Schools receiving a Partnership Grant must honor their RM commitments, which include time online, teacher certification, and re-enrollment projections. If a school drops significantly below their projected enrollment numbers, or does not use the program with fidelity, it may lose its grant funding.*

2012-2013 Program Costs			
Item	**Quantity**	**Cost per Unit**	**Total Cost**
RM Basic I Accounts	1000 students	$35 per student	$35,000
RM Basic II/III Accounts	200 students	$70 per student	$14,000
Basic I Teacher Professional Development and Support	9 teachers	$1,500 per teacher	$13,500
Basic II Teacher Professional Development and Support	2 teachers	$6,000 per teacher	$12,000
		TOTAL PROGRAM COST TO DISTRICT	**$74,500**

Technology Needs and Associated Costs:

Campuses using the program must provide broadband access to the Internet and year-round high-quality technical support from district technology specialists to ensure the computer facility's effective and continuous operation. The lab must have adequate student workspace that allows room for students to use pencil and paper in addition to the computer keyboard and mouse. Each computer lab must always contain enough operational computers to provide a one-to-one student-to-computer ratio for each RM class.

Usually, an elementary school has one computer lab designated for all students at all grade levels. A computer lab specifically designated for the RM program is the best design for Basic I implementation at grades 2, 3 and 4 with the total of about 150 students. An additional dedicated computer lab will be required if the school also implements the Basic II curriculum. This set-up is strongly recommended, and may be necessary, depending on the number of students enrolled in the program. Computer requirements are very modest – a netbook is quite capable of delivering the program. RM can work with the district to minimize the cost of required technology. From prior experience, it is safe to budget for $400/computer.