

the
Lamp
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**Teaching math,
one student at a time**

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With significant backing from ExxonMobil, a new math instruction program provides a learning experience tailor-made for each student. It's another step toward meeting the nation's pressing need for greater proficiency in math and science.

► Although using computers as teaching tools isn't new, the ways in which students are learning from them are. ExxonMobil is a major supporter of a cutting-edge program called Reasoning Mind, and it's changing the way math is taught.

"Reasoning Mind is an exciting, innovative Web-based program designed to improve the way teachers teach and students learn," says Gerald McElvy, president of ExxonMobil Foundation. "It's a 21st century approach to math education."

The program is aimed at grades two through six. It's currently used by 5,000 students in 75 schools in five states – California, Florida, Louisiana, Missouri and Texas. Plans call for expanding to additional states and for making the program available to 100,000 students in 1,000 schools over the next four years.

Meeting individual needs

The Reasoning Mind software program presents a student with a problem representing a certain math concept. If the student solves it, he or she is presented with similar problems until mastery of the concept is attained. The student then moves on to a more challenging level.

When a student has difficulty, the program goes back to a review of the material and further testing.

The "Reasoning Mind Genie," a cartoon-like character, interacts

with the student in presenting the problem, checking the answer and providing encouragement. The Genie is, in effect, the student's private tutor, customized to individual needs and levels of proficiency.

"Reasoning Mind also transforms the role of the teacher," says McElvy. "The classroom does not have to move at a single pace. Teachers can work with students one-on-one. Children who need more help from the teacher can get it without holding back the rest of the class. Gifted students can work independently beyond their grade level."

Students can use the program outside regular school hours – during break time, at lunch, after school and at home.

In addition, parents can purchase an annual subscription to Reasoning Mind. This benefits both home-schooled children and regular-school students who want to polish their skills.

Teachers report that the program is so popular that students frequently ask for more homework.

Growth of an idea

Reasoning Mind was co-founded by Alex and Julia Khachatryan, who immigrated to the United States in 1989 from the former Soviet Union. They were inspired by personal experience to create the organization.

Alex Khachatryan, CEO of Reasoning Mind, holds a doctorate in physics and mathematics,

and his wife, vice president, is a petroleum engineer. They became interested in math education as a result of concerns about the quality of instruction received by their son.

"We wanted to provide our son with the highest level of education," he says, "but we were frustrated as we looked at the educational system through his eyes."

The program that eventually became Reasoning Mind was initially designed for gifted students. As it evolved, Khachatryan saw its utility for children at all levels of ability, and today the curriculum is world-class, comparable to math programs used in high-performing countries around the world.

"We want to challenge upper-level students while helping bring up those who are less proficient," he says. "We designed Reasoning Mind to stimulate and engage students with that goal in mind."

Khachatryan says ExxonMobil's assistance has been critical to the program's success.

"ExxonMobil's support is huge," he says. "They're the largest donor, but their participation goes beyond the financial since they serve on the board and leadership team of Reasoning Mind, and provide employee volunteers. They've also helped get the word out about the program, and they've made it possible for us to partner with other organizations and companies around the country."



Above: Helping the students with their math problems, checking their answers and giving support is the "Reasoning Mind Genie," a private animated tutor customized for a child's individual needs and skills.

Above right: Kory Patterson, a student at Bastian Elementary School in Houston, gets into a math problem using the Reasoning Mind tutorial.

Photo by David Hill



Measuring results

In Houston, Reasoning Mind has helped students make impressive gains in scores on the Texas Assessment of Knowledge and Skills, or TAKS, which is given to primary and secondary school students.

For example, on the math section of the 2009 TAKS, fifth-graders at the city's John Cornelius Elementary School performed at virtually the same level their peers in the Highland Park school district did in 2008. Highland Park is a top-rated school district near Dallas.

One hundred percent of the fifth-graders at Cornelius and in Highland Park passed the math section. Seventy-eight percent of Highland Park students earned

"commended" status, compared with 74 percent at Cornelius.

Cornelius and Highland Park serve very different student populations. Cornelius students are 98 percent minority and 86 percent "economically disadvantaged." Highland Park is composed of 3 percent minority students. None are economically disadvantaged.

Texas Governor Rick Perry lauded the accomplishments of the Cornelius students during a recent visit to the school, calling the Reasoning Mind program a "game changer" and "a great tool if we are to stay competitive in the world."

Support on many fronts

Reasoning Mind is just one of many programs supported by

ExxonMobil to improve math and science education. Some other examples:

► ExxonMobil has been a founding sponsor of the National Math and Science Initiative (NMSI) since 2007 and committed \$125 million to support its programs.

► With Dr. Bernard Harris, a former astronaut, ExxonMobil sponsors the Bernard Harris Summer Science Camps at college campuses. The program targets students in urban school districts. It consists of free, two-week residential camps focusing on math, science, technology and engineering.

► In partnership with professional golfer Phil Mickelson and his wife,

Amy, the company sponsors the Mickelson ExxonMobil Teachers Academies. The Academies help third- through fifth-grade teachers learn how to motivate students to pursue careers in math and science.

"No company has made anything like ExxonMobil's commitment to math and science education," says Dr. Larry Faulkner, president of the Houston Endowment, chairman of the National Math Panel and a member of ExxonMobil's board of directors. "I'm very proud of what's being done to address an issue so critical to this nation's future." **theLamp**

► To learn more
www.reasoningmind.org