

Milwaukee Math and Science Academy Executive Summary

“Our children are falling behind; they are simply not ‘world-class learners’ when it comes to mathematics and science,” said Senator John Glenn, Chairman of the National Commission on Mathematics and Science Teaching for the 21st Century in its report to the Nation. The Third International Mathematics and Science Study (TIMSS) of students from 41 nations and our own National Assessment of Educational Progress found that the children of the United States are world leaders in mathematics and science at the fourth grade level, but are almost last upon high school graduation.

Mission:

Milwaukee Math and Science Academy, is a K-12, college-preparatory school that focuses on mathematics, science, and technology. The mission of Milwaukee Math and Science Academy is to prepare its students for college by creating an effective learning environment of higher standards and expectations with a rigorous college prep curriculum that focuses on mathematics, science, and technology. MMSA will be located in the City of Milwaukee and will serve underprivileged urban children who are, as a result of low expectations, not aptitude.

Milwaukee Math and Science Academy is based on a proven and successful existing school design by Concept Schools, Inc. Concept Schools first began in Ohio in 1999 and has expanded to 19 charter schools spread across Ohio, Indiana, Michigan, and Illinois. In such a short time, Concept Schools have built a great reputation for creating effective learning environments through their standardized test scores, graduation and college acceptance rates, attendance and retention rates, and parent/student satisfaction.

Until recent years, Concept Schools design was based on grades 6-12. However, we found that we could better meet the needs of our student population if we expanded to a K-12 model. Such expansion was born out of the need to get to students early enough, beginning in Kindergarten, and equip them with the necessary skills, both academic and social, to excel in a rigorous college preparatory curriculum in middle and high school. Elementary schools within the Concept Schools network have proven this to be true as they attain high level of success. The pillars of Concept Schools Design are:

- Rigorous College Preparatory Curriculum with Math, Science, and Technology Emphasis
- Personalized Education
- Higher Standards and Expectations
- Knowledgeable and Skilled Staff
- Data-driven Instruction Through Ongoing Assessment of Learning
- Increased Student Engagement
- Increased Parent-School Relations
- Community Partnership

Concept School Design uses a standard-based, college-preparatory curriculum that focuses on mathematics and English through 8th grade and then focuses on math, science, and technology through the high school. The curriculum has already been aligned to Wisconsin state standards. High school graduation requirements are higher than a traditional public school in Milwaukee and they include community service hours as well as a senior thesis.

In terms of pedagogy, our goal is not to subscribe to one teaching method but have many successful teaching methods to maximize classroom learning. We believe in allowing teachers to teach in an environment that supports their successful practices and strategies, so that each teacher can customize their teaching materials according to their particular group of students needs. Our teachers will use a combination of the following instructional techniques:

- *Direct teaching*, a systematic way of planning, communicating, and delivering a mastery of information in the classroom.
- *Problem based learning*, an educational approach that organizes curriculum and instruction around carefully crafted problematic situations adapted from real-world issues.
- *Project based learning*, a model for classroom activity that shifts away from the classroom practices of short, isolated, teacher-centered lessons and instead emphasizes learning activities that are long-term, interdisciplinary, student-centered, and integrated with real world issues and practices.
- *Collaborative learning* occurs when two or more students work together to solve problems and complete tasks.

Use of these techniques provides an engaging, dynamic learning environment for students to explore the questions they have about the world and ways they can contribute to the world. We are utilizing a variety of instructional approaches to teach advanced concepts and thinking skills in mathematics and science.

Through our small class sizes, we personalize relationships between teachers and students. Our mentorship program further supports students and allows strong relationships to develop. Our clearly defined high expectations for academic achievement and conduct make no excuses based on the background of students. We expect our students to achieve proficiency or better on the WKCE by their third year at the school. We provide students more time in the classroom to acquire the academic knowledge and skills that will prepare them for the nation's best colleges and the world beyond.

Higher standards and expectations are reflected through promotion, school-wide discipline policies and graduation requirements. Students' participation in after-school activities, extracurricular activities, school-wide events, and showcases are not only expected but are mandatory in some cases. Such high expectations and standards are clearly communicated to our students, parents, and the larger community on an ongoing basis.

A comprehensive selection process of our staff members allow us to find teachers who are committed to urban education and willing to go beyond their call of duty in order to meet the needs of our students. Our staff selection process requires demo lessons, classroom visits, online screening tests, a comprehensive interview, review of transcripts, referrals, and reference checks. Since finding high quality math and science teachers has been a challenge for urban schools, Concept Schools also recruits some of the best and brightest math and science teachers from overseas and recommends them to the schools within the network,.

The MMSA engages our students with many opportunities beyond academics. The staff sponsors after-school clubs, math Olympiad teams, science project teams, debate teams, after-school tutoring, and weekend classes for students who need extra help. MMSA also organizes local, national and even international trips for students, parents, and staff members. Our students will be able to participate in summer cultural exchange programs created by Concept Schools. Through this program students are able to go to another culture and live with a host family for three weeks being comprehensively exposed to another culture. Impact of such programs on urban students is invaluable, taken into consideration the fact that most of them have not left their city/state, let alone their country. Parents and teachers are expected to participate in helping students learn through extracurricular activities, science fair projects, Olympiad competitions, national trips, overseas summer programs, Saturday SAT and ACT educational camps, and all other school related activities. Through community partnerships, our students will participate in apprenticeships and internships, providing them with applied opportunities to pursue research and gain technical experience. Our community partners will also sponsor informational lectures by recognized professionals in the fields of math and science.

Through exposing our students to a rich diversity of American and international perspectives, Milwaukee Math and Science Academy promotes respect for diversity and creates a context within which teachers' and students' experiences can be understood, appreciated, and connected to the curriculum. Such high caliber staff is supported with professional development opportunities, teamwork, and the adequate tools needed to maximize their teaching capacity. Our organizational structure treats teachers as professionals and includes them in the decision-making process within the school. They are given the autonomy to implement their own teaching methods and strategies with the expectation that their students will show a certain level of progress throughout the year, measured by our interim assessment.

The Milwaukee Math and Science Academy will open in the fall of 2011 in Milwaukee, Wisconsin. We will initially open with Kindergarten through 7th grades and add one grade level each year through 2016. By the 2016-2017 school year, Milwaukee Math and Science Academy will complete its growth, serving total of 720 students in Kindergarten through grade 12. Such strategic growth plan will serve two purposes: one, it will allow us to start off with Kindergarten due to the reason explained above and; two, it will allow us to serve middle school grades, which is where there is the greatest need for a college prep math and science program in urban communities. Our first year operating budget is

about \$3 million and is expected to increase each year as we raise our student enrollment. Through the purchasing power and preferred vendor program of our management company, Concept Schools, we are able to keep operational costs low. Furthermore, we will be able to attract and retain high quality teachers by providing starting salaries that are compatible with the local public school district, MPS.

Our design team, including the founding board of directors of Milwaukee Math and Science Academy and Concept Schools' management team have an impressive track record indicative of our collective ability to start, grow, and manage a high performing school. However, the founding board of directors of Milwaukee Math and Science Academy will develop into a governing board of directors that has wealth of experience spanning education, business and community development, and government hence, providing us with the ability to create a dynamic community school that builds on strong public-private partnerships.

Given the success of the Concept Schools model throughout Ohio, Indiana, Michigan, and Chicago, we have every reason to believe that we can accomplish the mission and objectives of Milwaukee Math and Science Academy. Concept's design is in its tenth year of maintaining a well-rounded and college-prep culture with high college acceptance rate, test scores and attendance rates as well as ever-increasing wait lists. Since the principal and key positions of the proposed school will come from one of the Concept network schools, the MMSA will be well-positioned to carry out the successful principles of this model and adapt it to the context of the educational community in Milwaukee, Wisconsin - providing opportunities for colleges and universities, community organizations, museums, businesses and professionals from all fields of expertise to be engaged in the school. The MMSA will be a strong asset to the community, the City of Milwaukee, and the broader world in which we live.