



The New York City Department of Education



Quality Review Report

**High School for Mathematics, Science and
Engineering at City College**

**High School 692
240 Convent Avenue
New York
NY 10031**

Principal: William Dugan

Dates of review: February 7 - 8, 2008

Lead Reviewer: Richard Woolf

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Part 1: The school context

Information about the school

The High School for Mathematics, Science and Engineering is a high school with 471 students from grade 9 through grade 12. The school population comprises 17% Black, 30% Hispanic, 23% White, and 26% Asian students. The student body includes no English language learners and no special education students. Boys account for 62% of the students enrolled and girls account for 38%. The average attendance rate for the school year 2006 - 2007 was 94.7%. The school is not in receipt of Title 1 funding.

The school is part of the City College, (CUNY) campus, having one building with sole use but sharing science laboratories and teaching rooms in the university's main building. Students and staff regularly travel between the two buildings.

Part 2: Overview

What the school does well

- This high achieving school is led well by a confident principal.
- The school is very effective in making good use of data to identify which students are in need of academic intervention.
- The school is exceptionally good at conveying the high expectations required of its students.
- The curriculum is broad, engaging, challenging and entirely fashioned to furthering the academic and social needs of the students.
- Through the careful differentiation of work, students are challenged to raise their academic levels.
- The professional development program meets the needs of individual staff in pursuing academic improvement.
- The staff work collaboratively and are constantly seeking ways of bettering their instruction.
- The school's support services are integral to ensuring each student reaches their potential.
- The school has built a strong partnership with parents who are very supportive of the school in meeting their children's educational needs.
- The students enjoy school and the opportunities afforded to them.

What the school needs to improve

- Ensure that individual goals are set to further challenge faculty and students, and that these goals and whole school goals are shared with everyone.
- Develop an action plan for each goal, which includes overall targets, benchmark data and timeframes to monitor progress.
- Ensure ethnic and gender data is not overlooked when tracking trends over time.

Part 3: Main Findings

Progress made since the last review

The school has made good progress in addressing the issues identified in the previous Quality Review report

Overall Evaluation

This school is well developed.

This is a high performing school with significant individual student progress. Passing rates in all Regents examinations continue to improve year on year. A large proportion of students pass their examinations at “mastery” level, with a score of 85 or better. In the main subject areas, all students “succeed” with scores in excess of 65. The principal does recognize the need to track the performance of ethnic groups and gender differences when analyzing and tracking data over time. The curriculum on offer for students is an exceptionally strong feature of the school. Courses are challenging, covering not only the major disciplines of math, science and engineering but also strong humanities, language and arts programs. The teachers are knowledgeable in their subject areas, bringing the best out in the students through engagement and good differentiated teaching. Preparing students for college is another positive area of the school’s work. Many students graduate to Ivy League universities and other top universities throughout the world. Students recognize the privileged position they hold in being a member of this school. However, they are quick to point out that it takes a great deal of their time in maintaining such a position, as the pressure to succeed is incredibly high. One student said, “Despite the pressure, would I swap it? No. It’s setting me up for life”. The school is forward thinking and wishes to achieve at the highest levels in everything it attempts for the students and staff. The principal is aware of this as he endeavors to share whole goals with the wider community and at the same time undertake careful monitoring procedures to demonstrate future success. Since the last Quality Review, the school’s progress in areas for improvement is good. Notably in the website, introduction of a full advisory program and extending dialogue with CUNY for the mutual benefit of both schools. The school’s inquiry team is in place and has a student target group, which is receiving additional support through academic intervention services.

How well the school meets New York City’s evaluation criteria

Quality Statement 1 – Gather Data: School leaders and faculty consistently gather data and use it to understand what each student knows and is able to do and to monitor the student’s progress over time.

This area of the school’s work is well developed.

The school uses data very well as a means of identifying individual student progress and the tracking of trends over time. In order to gain a seat at the school students have to pass a State-wide examination. Even though competition is fierce, the school re-tests all

students on entry to determine the exact courses they will undertake. The data provides baseline information, which the principal uses to demonstrate a cohort's potential. This is essential as the school has annually increased its overall performance and individual student progress and wishes to continue this very positive trend.

The data shows staff those students who are capable of achieving mastery in Regents examinations and those more likely to succeed. During their time at the school, the overwhelming majority of students reach mastery. Over the last two years performance levels have risen. Much of this is attributable to staff using data positively to challenge the students to reach and surpass their potential. The principal acknowledges the requirement to track over time, both ethnic and gender groups to determine that neither underperforms. The school has a very effective data tracking system in place to identify those students who may not be progressing in certain classes. This information prompts the involvement of academic intervention services. The two programs are "Saturday Success Skills" and "Credit Recovery" both of which prove very effective in getting the students back on track.

This is a competitive school and the principal is constantly challenging himself and the faculty to improve. He rigorously compares the school with the other New York specialized high schools in terms of overall performance and individual subject progress.

Quality Statement 2 – Plan and Set Goals: School leaders and faculty consistently use data to understand each student's next learning steps and to set suitably high goals for accelerating each student's learning.

This area of the school's work is well developed.

The school carries out goal setting through a collaborative process, which involves parents in their role as members of the senior leadership team. The overarching goal is to improve student performance by the achievement of mastery for every class and examination undertaken by the students. However, the principal appreciates this process can become more refined by setting measurable individual and personalized student goals which align to their particular strengths. The school does have other goals that are less quantifiable but serve to enhance the students as all round learners. An example of this is the incorporation of subject specific reading texts into all classes. The school does not yet share its goals and aspirations across the entire faculty for everyone to subscribe to them.

Identification of those students who do not pass relevant classes signals an intervention program. This sets the students very specific goals and determines their progress into future classes and ultimately graduation. Those students who show exceptional ability, of which this is the majority, have the opportunity to gain college credits. Delivery of these courses is in conjunction with the CUNY, who share the campus with the school.

Parents and students are motivated to achieve. The school builds upon this by the setting of exceptionally clear expectations for success. Parents receive regular information about their children's progress. Apart from the formal parent-teacher conferences interim progress cards, sent out on a tri-weekly basis, allow parents to monitor the performance of their children.

Quality Statement 3 – Align Instructional Strategy to Goals: The school aligns its academic work, strategic decisions and resources, and effectively engages students around its plans and goals for accelerating student learning.

This area of the school's work is well developed.

The school offers an exceptionally broad and engaging curriculum for the benefit of its students. From the day of entry, students face academic challenges, which engage them totally. It is an expectation that students will take courses far in excess of State requirements to graduate. This level of challenge is the norm and students respond positively. In math and engineering, students undertake five years of equivalent work in the four years they attend the school. In all the major subjects, the level of instruction is on a par with the teaching at most universities. Despite being a small school, the number of electives available to students is exceptional. It is a deliberate policy of the school to offer all students an exceptional educational experience. Supplementing this is a very exciting after-school program providing a range of recreational activities. The school produces an excellent and enjoyable newspaper of the highest quality.

Many faculty members are themselves exceptional learners and they pass this love of learning onto their students. Teachers provide very good instruction by the effective use of differentiation to aid student learning. The staff makes excellent use of technology. In this area, the school is well equipped to service the needs of its students by using industry standard software. Being a small school the principal is cognizant of the need to be an effective financial manager. However, this does not deter him from making decisions to hire or promote staff to ensure students receive the best possible education. This is a harmonious school. Staff and students value each other and respect the contribution each makes in enhancing their own learning. Attendance rates are high and the students are only absent for very good reasons; they enjoy their time at school.

Quality Statement 4 - Align Capacity Building to Goals: The development of leadership, teachers and other staff capacity is aligned to the school's collaboratively established goals for accelerating the learning of each student.

This area of the school's work is well developed.

The principal and assistant principals undertake both formal and informal observations of staff. Staff are appreciative of the feedback they receive and its immediacy. From this data and staff surveys, the school determines its professional development program. This approach allows staff to tailor their professional development to specific need, therefore making it far more beneficial and appropriate for improving their instruction. This results in a positive impact on student learning. Additional professional development of a high quality comes from collaboration with CUNY.

This is a collaborative staff committed to learning, whose members uses each other to develop skills and understanding in relation to instruction. The staff mee

regularly in grade and subject teams. The appointment of grade level advisors and lead teachers is proving positive in the organization and facilitation both staff and student work. New teachers feel very welcome and receive a great deal of support both personally and professionally.

A key strength of the school is the work undertaken by the support services team. This includes the dean and two counselors. Each brings a level of expertise to the school, enabling teachers to feel supported as they pursue their goal in delivering high academic achievement. Along with members of staff, the counselors play an active role in the development of the school's advisory program. Both involve themselves in preparing students for college and this is significant when addressing student concerns over the application process. The school systems of dealing with student indiscretions are most effective. Students welcome the opportunities to demonstrate their growing maturity. Examples of this are the voice they have through the student government and the use of the university facilities and campus as if it is their own.

Liaising with suitable outside organizations to best meet student need is a strong feature of the curriculum. Internship programs for the older students at Mount Sinai hospital and similar places prove most challenging for the students. Such is the caliber of student, many receive offers of vacation work to undertake research projects.

Quality Statement 5 - Monitor and Revise: The school has structures for evaluating each student's progress throughout the year and for flexibly adapting plans and practices to meet its goals for accelerating learning.

This area of the school's work is proficient.

Monitoring and revision of goals and targets is an aspect which the school does not yet undertake with the same rigor as other aspects of its work. The school is reflective and analyzes data to show how students achieve in each marking period and remediation takes place for those who make insufficient progress in two or more classes. Currently a number of students fall into this category and they receive additional support and guidance.

At the end of a scholarship period, individual teachers have to justify to their departmental heads the reasons why some students make limited progress in comparison to other staff teaching the same course whose students make very good progress. The principal does recognize the importance of developing action plans specific to each subject and grade level. The school does not yet have in place a process for the establishment of more challenging targets incorporating clear benchmarks and timeframes to demonstrate progress in the school's achievement. Staff training has taken place on the ARIS system. The school sees this as being an important tool in assisting them to undertake the closer monitoring of students.

The school has a number of projects underway at any one time during the year. As a result, the principal is constantly evaluating their impact these have on raising student achievement. New programs such as "diversity and tolerance" need time to become embedded before a meaningful evaluation takes place. The principal is very mindful of how he sees the school developing over the next three years as he strives for it to become the top school in New York. The principal sees that sharing his vision across the entire faculty is an essential part of achieving its realization.

Part 4: School Quality Criteria Summary

SCHOOL NAME: High School for Mathematics, Science and Engineering @ CUNY	Δ	▷	✓	+	◇
Quality Score				X	

Quality Statement 1 – Gather Data: School leaders and faculty consistently gather and generate data and use it to understand what each student knows and is able to do and to monitor the students progress over time.

To what extent do school leaders and faculty provide . . .	Δ	▷	✓	+	◇
1.1 an objective, constantly updated understanding of the performance and progress of each student, classroom, grade level?				X	
1.2 an objective, constantly updated understanding of the performance and progress of special education students?				*	
1.3 an objective, constantly updated understanding of the performance and progress of English language learners?				*	
1.4 an objective, constantly updated understanding of the performance and progress of ethnic groups, gender groups and all other categories of interest to the school?			X		
1.5 a measurement of performance and progress based on the school's own past performance, and among students, classrooms, grades and subject areas?				X	
1.6 a measurement of performance and progress based on comparisons with similar schools?				X	
1.7 training, management systems and structures that support teachers in the use of school data to inform planning and instruction and to track the progress of students?				X	
Overall score for Quality Statement 1				X	

Quality Statement 2 – Plan and Set Goals: School leaders and faculty consistently use data to understand each student's next learning steps and to set suitably high goals for accelerating each students learning.

To what extent do school leaders and faculty . . .	Δ	▷	✓	+	◇
2.1 engage in collaborative processes to set rigorous, objectively measurable goals for improvement, and to develop plans and timeframes for reaching those goals?			X		
2.2 focus on each student, classroom, grade level, academic subject and group of students whose performance or progress has been identified by the school as a particular focus area?				X	
2.3 identify and improve the performance and progress of those students in greatest need of improvement?				X	
2.4 share whole school goals with all members of the school community to rigorously improve the performance and progress of students?			X		
2.5 convey consistently high expectations to students and their parents/caregivers?				X	
2.6 regularly provide students and their parents/caregivers with information about the goals set for each student, and about each student's progress and performance, and how they can improve?				X	
2.7 invite and enable parents/caregivers to provide useful information to teachers and the school about the learning needs and capacities of their children?				X	
Overall score for Quality Statement 2				X	

Quality Statement 3 – Align Instructional Strategy to Goals: The school aligns its academic work, strategic decisions and resources, and effectively engages students around its plans and goals for accelerating student learning.

To what extent does the school . . .	Δ	▷	✓	+	◇
3.1 select core curricular approaches that facilitate and provide meaningful interim data about progress towards goals and focus on raising the achievement of students?					X
3.2 provide a broad and engaging curriculum, including the arts, to enhance learning both within and outside the school day?					X
3.3 hold teachers accountable for the progress and learning of the students in their charge, for making instruction interesting and compelling, and for creating a positive safe and inclusive learning environment?				X	
3.4 ensure that teachers use school, class and student data to plan for and provide differentiated instruction that meets the specific needs of all the students in their charge?				X	
3.5 make budgeting, staffing and scheduling decisions strategically, based on data, to meet the school's academic goals for all students?				X	
3.6 ensure that there is an environment of mutual trust and respect between all staff and students to support personal and academic development?				X	
3.7 ensure that there are effective and consistently applied procedures to encourage and monitor student attendance and tardiness?				X	
Overall score for Quality Statement 3				X	

Quality Statement 4 – Align Capacity Building to Goals: The development of leadership, teachers and other staff capacity is aligned to the school’s collaboratively established goals for accelerating the learning of each student.					
To what extent does the school . . .	Δ	➤	✓	+	◇
4.1 use frequent observations of classroom teaching by the principal and other available information to develop a differentiated strategy for improving the quality of each teacher’s instruction?				X	
4.2 make professional development decisions strategically, based on data, to help meet the improvement goals of students and teachers?				X	
4.3 provide frequent opportunities for teachers to observe each other’s classroom instruction and to meet together in teams to plan, share effective practices, and evaluate one another’s instruction in an open and reflective professional environment?				X	
4.4 develop effective procedures for the induction and support of teachers who are new to the profession or the school?				X	
4.5 align youth development, guidance/advising and other student support services around stated academic and personal development goals?				X	
4.6 consistently implement clear procedures that enable the school to run smoothly and encourage effective student learning, and effectively address discipline related incidents?				X	
4.7 create effective partnerships with outside entities that support the academic and personal growth of the students?				X	
Overall score for Quality Statement 4					X

Quality Statement 5 – Monitor and Revise: The school has structures for evaluating each student’s progress throughout the year and for flexibly adapting plans and practices to meet its goals for accelerating learning.					
To what extent do . . .	Δ	➤	✓	+	◇
5.1 the school’s plans for improving student outcomes include interim goals that are objectively measurable and have suitable time frames for measuring success and making adjustments?			X		
5.2 the school’s plans for improving teacher outcomes include interim goals that are objectively measurable and have suitable time frames for measuring success and making adjustments?			X		
5.3 teachers and faculty use periodic assessments and other diagnostic tools to measure the effectiveness of plans and interventions for individual and groups of students in key areas?				X	
5.4 teachers and faculty use the information generated by periodic assessments and other progress measures and comparisons to revise plans immediately in order to reach stated goals?				X	
5.5 school leaders track the outcomes of periodic assessments and other diagnostic measures and use the results to makes strategic decisions to modify practices to improve student outcomes?			X		
5.6 school leaders and staff use each plan’s interim and final outcomes to drive the next stage of goal setting and improvement planning?			X		
5.7 the principal and school community have a clear vision for the future development of the school and implement procedures and systems to effect change?				X	
Overall score for Quality Statement 5					X

* These areas do not score due to the absence of the population at the school.

◇	Outstanding
+	Well Developed
✓	Proficient
➤	Underdeveloped with Proficient Features
Δ	Underdeveloped