



**Department of
Education**
Carmen Fariña, Chancellor

Office of School Quality
Division of Teaching and Learning

Quality Review Report

2014-2015

**New Explorations into Science, Technology, and
Math High School**

Elementary-Middle-High School M539

**111 Columbia St
Manhattan
NY 10002**

Principal: Olga Livanis

**Date of review: February 5, 2015
Lead Reviewer: Mark Ossenheimer**

The School Context

New Explorations into Science, Technology, and Math High School is a k-12 school with 1730 students from kindergarten through grade 12. The school population comprises 9% Black, 11% Hispanic, 42% White, and 33% Asian students. The student body includes 0% English language learners and 1% special education students. Boys account for 48% of the students enrolled and girls account for 52%. The average attendance rate for the school year 2013-2014 was 97.0%.

School Quality Criteria

Instructional Core		
<i>To what extent does the school...</i>	Area of:	Rating:
1.1 Ensure engaging, rigorous, and coherent curricula in all subjects, accessible for a variety of learners and aligned to Common Core Learning Standards and/or content standards	Additional Findings	Well Developed
1.2 Develop teacher pedagogy from a coherent set of beliefs about how students learn best that is informed by the instructional shifts and Danielson Framework for Teaching, aligned to the curricula, engaging, and meets the needs of all learners so that all students produce meaningful work products	Additional Findings	Well Developed
2.2 Align assessments to curricula, use on-going assessment and grading practices, and analyze information on student learning outcomes to adjust instructional decisions at the team and classroom levels	Additional Findings	Well Developed
School Culture		
<i>To what extent does the school...</i>	Area of:	Rating:
3.4 Establish a culture for learning that communicates high expectations to staff, students, and families, and provide supports to achieve those expectations	Celebration	Well Developed
Systems for Improvement		
<i>To what extent does the school...</i>	Area of:	Rating:
4.2 Engage in structured professional collaborations on teams using an inquiry approach that promotes shared leadership and focuses on improved student learning	Focus	Proficient

Area of Celebration

Quality Indicator:	3.4 High Expectations	Rating:	Well Developed
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Findings

School leaders consistently communicate high expectations to the entire staff and provide training connected to the elements of the Danielson framework for Teaching. The school staff communicates a unified set of high expectations for all students and provides effective feedback regarding progress.

Impact

Expectations and supports result in mutual accountability among the staff and ensure that students are prepared for the next level.

Supporting Evidence

- Faculty handbook contains sections on instruction that explicitly describe teaching strategies and expectations connected to the Danielson Framework for Teaching (DFFT) and the school's instructional goals this year of Planning and Preparation (1e) and Questioning and Discussion (3b). Weekly emails from assistant principals to faculty embed further resources on the instructional focus in the form of links to articles, links to outside professional development, and a calendar of in-school learning opportunities.
- Teachers use Outlook calendar to post opportunities in their classes for other teachers and staff to observe specific aspects of the Danielson Framework. Teachers use a Peer Observation Tracker protocol for questioning and discussion techniques that is reflective and provides peer feedback to colleagues. Teachers in team meetings shared they regularly take advantage of the teacher posted opportunities to visit classes, as well as host visits. For example, one teacher stated she has hosted four visits first semester and visited two of her colleagues.
- Students are fully aware and express pride that the school implements an accelerated curriculum across the kindergarten through 12th grade program. A 5th grade student stated that what he appreciates most about the school was that he could "learn things at a faster pace and be ready for college," a high school student stated that the hard work required for Advanced Placement (AP) classes has made her "a stronger student and person." The accelerated curriculum results consistently in 99% of all 8th graders earning high school credit and 96% of all graduates meeting the City University of New York's (CUNY) standards for college readiness in math and English and persisting in college through their third semester.
- The school's college office hosts an annual college fair at the school for all students with over 50 colleges attending. There are regular college trips to visit campuses for high school students with two per month scheduled for Spring semester. In addition, the school partners with outside organizations to create extensions that include a regular science seminar series that invite scientists from such institutions as Columbia, Harvard and MIT to discuss their research and applications.

Area of Focus

Quality Indicator:	4.2 Teacher teams and leadership development	Rating:	Proficient
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Findings

Teachers are engaged in structured professional collaborations that promote the achievement of the school's instructional goals. Teacher teams analyze assessment data and student work for students they share.

Impact

While teacher led professional collaborations and work on teams typically results in strengthening the instructional capacity of teachers, the lack of consistency across teams in measuring student progress to the identified strategies limits observable impact regarding student achievement for focus students.

Supporting Evidence

- The school has formed a professional development committee comprised of grade team leaders from the elementary and middle school levels and department chairs from the high school level, as well as an assistant principal. The group meets monthly to review team progress, share resources such as protocols from the National School Reform Faculty, and to analyze teacher survey results to plan full faculty collaborations. As a result, teachers led instructional workshops on both Chancellor professional development days. Some examples were Socratic Seminar, and effectively integrating technology into lessons.
- An elementary grade team was observed conducting an item analysis of a recent English language arts formative assessment from iReady. The team was identifying common areas of skill gaps across the four classes and developing strategies to reteach or reinforce key concepts. Discussion with the team indicated that the two experienced classroom teachers stay two lessons ahead of the two first year teachers so that in daily team time the new teachers can revise plans or alter strategies. It also allows the new teachers to observe lessons before they implement them as a model and thereby build their capacity as new teachers.
- A middle school grade team was observed identifying a group of students struggling with reading comprehension across subjects as indicated in course scholarship reports and track previous individual interventions subject area teachers may have tried with each student. The team's next step is to coordinate interventions and track progress; however, since the work is just starting, there is not yet measurable impact on student achievement.

Additional Findings

Quality Indicator:

1.1 Curriculum

Rating:

Well Developed

Findings

Curricula are aligned to the Common Core Learning Standards and content standards strategically integrating the instructional shifts. Rigorous habits and skills are emphasized in curricula and academic tasks.

Impact

There is curricular coherence across grades and subject areas that promote college readiness. Students must demonstrate rigorous habits and thinking in academic tasks.

Supporting Evidence

- As a k-12 academic program there is curricula coherence across the grades that ensure students are able to take high school level Regent level courses beginning in 7th grade and Advanced Placement college ready courses beginning in 10th grade, with over 18 AP courses offered. For example, a review of middle school math curricula shows 7th grade standards embedded strategically into the 6th grade curriculum.
- In-depth thinking is promoted at the elementary level in three thematic units of study a year that result in student presentations of learning to the parents and community. In the middle school, the science curriculum is project-based with embedded literacy and inquiry skills that require students to develop testable questions, evaluate evidence, and synthesize information. The high school has added new bio and chemical engineering courses that emphasize real work applicability and ethical issues within science such as asking students to conduct experiments, research information, and synthesize results to determine the most cost-effective and socially responsible manner of cleaning oil spills.
- The school has strategically placed a literacy and theater course in the 6th and 9th grades that emphasizes both key Common Core literacy standards as well as key discussion and presentation skills. The emphasized skills such as close reading/annotation, Harvard note-taking and understanding vocabulary in context, discussion and questioning techniques are embedded across the other subjects.
- Students regularly publish work from English language arts and science classes. For example, the 8th grade English language arts course results in a student anthology of poetry, creative writing, and essays available at Barnes and Noble and GoodReads.com. A science research class in the upper school results in the *NEST+m Upper School Journal for Math and Science*.

Findings

Classroom instructional practices align to the school's curriculum and set of beliefs on preparing students to become independent learners. Across the vast majority of classrooms, student work products and discussions reflect high levels of participation and growing independence.

Impact

Teacher pedagogy, based in the school's core beliefs about how students learn best, results in meaningful student work products, complex student thinking, and ownership of their learning.

Supporting Evidence

- Students at the lower, middle and high school levels were engaged in intellectually challenging learning activities that taught independence through discussions, active participation, and peer assessment. For example, students in a third grade class were engaged in small groups creating helpful posters to be used as reference tools answering the question "How can I build on the ideas of others to help create collaborative discussions?" In a social studies class, students used rubrics to review their writing and crafted focus questions for a peer reviewer to provide feedback. Students in a high school engineering class collaborated in groups to develop a hypothesis, carry out multiple trials, and determine the most effective way to clean up oil spills that included scientific, economic, and social factors.
- Students in an 8th grade English language arts class worked in groups using Webb's Depth of Knowledge Wheel to construct questions at all four levels of rigor connected to *The Lord of the Flies* and engaged in a group discussion of those questions recording their findings.
- In a math class, students interpreted and reviewed derivatives in a scientific word problem. Students compared individual work within a group. The teacher probed for students to answer questions and provide evidence to show particles slowing down, speeding up, or moving from left to right. Students answered and also predicted where the particle would land on the x-axis. Students debated the motion, acceleration, and distance traveled.
- Classes in the arts incorporated literacy and social emotion development skills into activities. For example, in a dance class students made connections between a double knotted human chain activity and the twist and turns Odysseus faced to strategically accomplish his goal in *The Odyssey*. In a 9th grade theater class, students in a share circle discussed a presentation on teenage bullying and suicide they had seen the period prior. As new high school students, these students set goals for themselves to help create a high school that was socially and emotionally safe.

Findings

Teachers create or use assessments and rubrics aligned to the school's curricula and provide a clear picture of mastery. The school uses common assessments that provide clear data on student progress towards school goals.

Impact

Teachers and students receive meaningful and actionable feedback from assessments and rubrics regarding student achievement. Common assessments inform curricular and instructional decisions that positively affect student achievement.

Supporting Evidence

- Posted student work and work in student folders across the lower, middle, and upper school all contained rubrics across all core subject areas with feedback that included next steps. In the student meetings, students discussed the use of rubrics in all subjects that provided them with clarity on mastery level work. Students in two lower school classes were observed using rubrics. A second grade class was using writing rubrics to complete a writing assignment on jobs in various rural communities and students in a fifth grade class used a rubric to ask for specific peer feedback on a social studies project on the Aztecs and Inca civilizations.
- All core subject, Regents, and Advanced Placement courses have benchmark assessments with formative assessments throughout the semester and year that provide key information to teachers regarding student progress towards course and exam pass rates. Teachers use the data to determine interventions and supports for students that include instructional decisions in terms of re-teaching concepts, or recommending a student for peer tutoring support where upper school students tutor middle and lower school students.
- All Regents exams except for Algebra 2/Trigonometry have consistent pass rates over 90%. In order to raise this course pass rate from 86% to above 90%, the department examined benchmark and formative assessments to realign them providing a clearer picture of student progress to teachers with the subject teachers deciding to also add a daily exit ticket assessment to provide further data.
- Lower school grade teams collectively analyze student benchmark and formative assessment data in order to determine flexible grouping in math, science, and social studies. Teachers use Fountas and Pinell reading assessments to determine reading levels and appropriate reading groups for literature circles.