



**Department of
Education**
Carmen Fariña, Chancellor

**Office of School Quality
Division of Teaching and Learning**

Quality Review Report

2015-2016

The Brooklyn School for Math and Research

High School K168

**400 Irving Avenue
Brooklyn
NY 11237**

Principal: Perry Rainey

**Date of review: February 5, 2016
Lead Reviewer: Michele Ashley**

The School Context

The Brooklyn School for Math and Research is a high school with 270 students from grade 9 through grade 12. In 2015-2016, the school population comprises 3% Asian, 51% Black, 40% Hispanic, and 4% White students. The student body includes 11% English Language Learners and 14% students with disabilities. Boys account for 63% of the students enrolled and girls account for 37%. The average attendance rate for the school year 2014-2015 was 87.5%.

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	Celebration	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 <i>Framework for Teaching</i> , aligned to the curricula, engaging, and meets the needs of all learners so that all students produce meaningful work products	Focus	Proficient
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	Additional Findings	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	Additional Findings	Well Developed

Area of Celebration

Quality Indicator:

1.1 Curriculum

Rating:

Well Developed

Findings

School leaders and faculty ensure that curricula are aligned to Common Core Learning Standards and content standards and strategically integrate the instructional shifts. The school embeds rigorous habits in a coherent way across grades and subjects.

Impact

A coherent curriculum promotes college and career readiness so that all students, including English Language Learners and students with disabilities demonstrate their thinking.

Supporting Evidence

- The school has adopted Common Core aligned curricula developed or supported by the New York City Department of Education in all content areas. The school follows the scope and sequence and curriculum maps for these curricula including the New York City High School ELA Scope and Sequence, New York State Common Core Mathematics Curriculum, New York City Science Scope and Sequence, New Visions US History curriculum map, New York State Regents Social Studies Framework 9-12 and Science Technology Engineering and Mathematics (STEM) Framework.
- The school designed the “Fool Proof Lesson Plan” template utilized schoolwide. The template includes Common Core Learning Standards, aim, learning strategies, resources, vocabulary, lesson launch (aligned to Danielson *Framework for Teaching* domain 3c), process (aligned to Danielson *Framework for Teaching* domain 3b), assessment and homework (aligned to Danielson *Framework for Teaching* domain 3b and 3d). The vast majority of lessons collected used the Fool Proof Lesson Plan template.
- The school’s instructional focus for this year is “teachers will design and pose questions that deepen student understanding. Teachers attended professional development on the use of Webb’s *Depth of Knowledge* to develop rigorous questions.” All lesson plans collected contained high level questions aligned to Webb’s Depth of Knowledge level 3 and 4. An English Language Arts (ELA) lesson on *The Alchemist* plans for the following questions, “Hypothesize who Santiago’s sheep may symbolize? Assess the validity of Melchizedek’s statement when he discusses the world’s greatest lie. Is it true?”
- The school selected priority standards from the Danielson *Framework for Teaching* domain. This year the school focus is on designing coherent instruction (domain 1e), using questioning and discussion (domain 3b), engaging students in learning (domain 3c) and using assessment in instruction (domain 3d). Teachers use these standards in lesson planning and to analyze and revise curriculum. The priority standards have been adapted to create a “B-SMaRT Priority Competencies” rubric, which includes critical attributes of each priority competency.
- Across grades and subjects the lesson plans collected include academic tasks that require all learners to demonstrate their thinking. A history lesson required students to present their history projects to the class and includes accommodations for ELLs and students with disabilities. Students can select from a variety a presentation methods including a PowerPoint presentations and video interview of a key figure.

Area of Focus

Quality Indicator:

1.2 Pedagogy

Rating:

Proficient

Findings

Across classrooms questioning and scaffolds consistently provide multiple entry points for English Language Learners and students with disabilities, practices have yet to provide high quality supports and extensions for the lowest and highest performing students.

Impact

Although student work products and discussions reflect high levels of thinking, the lack of high quality supports and extensions hinders students' ability to take ownership of their learning experience.

Supporting Evidence

- The school's instructional philosophy states, "The school's philosophy of educating students is predicated on the belief that great learning begins with great expectations and that rigorous lessons guided by effective questioning that consistently assess learning, yield superior academic results over the long haul." Across classrooms visited teachers' engaged students in questioning. In a math classroom students posed questions to the teacher after viewing a video. The teacher responded by asking, "How many students understand?" The teacher then called on students who understood to explain aloud to students who did not.
- In an Integrated Co-teaching classroom students viewed a video and took notes before engaging in their independent and group tasks. A small group of English Language Learners and students with disabilities watched the video independently with laptops and earphones. The small group, identified as "the fluency group," watched the video at their own pace with the ability to pause and rewind for clarity and had to complete fewer questions. A student in the fluency group stated "I need to have the video closer so I can see it and understand."
- In a reading classroom students worked in two groups. Group one (lower Lexile levels) worked with the teacher to complete a sequence of events and synthesize the activity. The teacher read aloud, stopped to pose questions and supported students in completing oral close sentences using key vocabulary words. Group two (high Lexile levels) read independently and was instructed to complete a reading log. The log includes space for the date, book title, starting and ending page and notes. All students in group 1 remained engaged in the activity and tasks. All students in group 2 completed the date, title, and page numbers but only two of the five students took notes. The tasks in this class engaged the lower performing and students with disabilities at a high level; however, the activity for the higher performing group did not support participation or ownership of the task.
- Across classrooms visited students responded to high-level teacher questions, peer questions and engaged in student discussions. In an ELA classroom students discussed *The Alchemist* in six small groups. Each group had a student leader and students responded to question prompts. In response to the prompt "Hypothesize who Santiago's sheep may symbolize, a student responded, "The sheep only care for needs, food, and water. Like himself...he only cares for the girl." The teacher listened in and called on students to share out. Students took ownership of the discussion and shared their thinking, however, this level of ownership was not prevalent in the vast majority of classes.

Additional Findings

Quality Indicator:	2.2 Assessment	Rating:	Well Developed
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Findings

The school uses common assessments to create a clear picture of student progress. The vast majority of teachers consistently use ongoing checks for understanding to make effective adjustments to meet student's learning needs.

Impact

Progress tracking and effective adjustments ensure that all students, including English Language Learners and students with disabilities demonstrate increased mastery and are aware of their next learning steps.

Supporting Evidence

- The school administers a diagnostic in all content areas each September. Follow up assessments are administered in January and April of each year. The school tracks student progress by individual student, class and grade and records the data in school "Qualifier Reports." Qualifier Reports list student performance data for the September diagnostic, January and April assessments in respective columns. Passing rates for Regents examinations in living environment, ELA and integrated algebra have increased from 2012 - 2013 to 2014 - 2015, 9% in living environment, 13% in ELA and 21% in integrated algebra.
- The school administers end of unit assessments, midterm and final exams in all content areas. Mock Regents examinations use past Regents examinations to assess performance. Students come to school during the winter break to take the mock assessments under testing conditions with full accommodations for students with disabilities. The school also administers a follow up mock assessment in April during the school day. Teachers log the results from both assessments and analyze them in school Qualifier Reports. In 2015 students sat for Regents examinations in algebra, chemistry, ELA, geometry, global history, living environment, physics and US History.
- During the grade 10 and 11 English team meeting teachers analyzed performance results from a mock Regents assessment. Teachers reviewed the data by item and skill assessed. Teachers discussed identified trends and possible instructional adjustments. Identified trends include the performance of ELLs and students with disabilities, struggles with assessment vocabulary, frustration with questions that require "flipping back and forth from questions to text", incomplete answers and time management. Planned adjustments to instruction include "sentence starters that can be used on the tests," a review of text analysis responses and practice for the week of February 9, a follow up text analysis assessment on February 26, deconstructing multiple choice questions to understand the structure and purpose and a review of the most frequently used assessment vocabulary.
- After small group discussions an ELA teacher posed questions to check students understanding of the text. The teacher asked students to vote for whether or not the gypsy in the text is a "fraud." Students' votes were evenly split. The teacher asked students to defend their vote with text evidence. Students followed with a free flowing debate. A student stated, "She just repeats his story. She's a fraud. She wants one tenth of his treasure." A student responds, "She let him go for free so she must think there is a real treasure." A third student adds, "I think she hopes there is a treasure but does not know for sure." Students used their understanding of the text and text evidence to defend their answers.

Quality Indicator:	3.4 High Expectations	Rating:	Well Developed
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Findings

School leaders and staff systematically communicate high expectations for all students and successfully partner with families.

Impact

Effective guidance and a unified set of high expectations supports student progress and prepares students for the next level.

Supporting Evidence

- The school consistently communicates with families via face to face meetings, phone calls, robocalls, email, text messages, the school website and Parent Teacher Association (PTA) meetings. Student grades, attendance and progress reports are available on Skedula and the Skedula phone application. Parents note that if there is a problem that requires their immediate attention the school does an “exceptional job” at staying in contact. One parent shared, “I can press my phone at any moment and see how she is doing.” Parents volunteer for school events and chaperone trips. Currently parents are hosting a fundraiser to support field day.
- School leaders and staff communicate grade level expectations for parents during grade level parent orientations. Orientation sessions at the beginning of each year provide specific information, expectations and dates associated with being a freshman, sophomore, junior or senior parent. Entering grade 9 students also participate in a “Summer Bridge” program to prepare them for high school expectations. School leaders led a presentation on the Common Core Learning Standards during a scheduled PTA meeting and responded to parent questions. The school also hosts student led conferences in which students lead discussions on their own performance with parents and teachers during the regularly scheduled parent teacher conferences.
- Parents and students attend family workshops on the college application process. Staff conduct information sessions on the financial aid process and help families with the financial aid application. The school offers SAT preparation classes to all 11th grade students and registers all seniors in a senior seminar course that focuses on the college application process. During this seminar students go through the application process for CUNY, SUNY and private universities.
- Grade 9 and 10 students participate in the Achievement via Individual Determination (AVID) program. This program introduces students to early grade college level skills. Students learn organizational and note taking skills which students practice across content areas. Students in the AVID program take Cornell notes and learn the Socratic seminar. High performing juniors and seniors are also AVID tutors and provide tutoring for freshman and sophomores. Skills and strategies learned in the AVID courses continue in the upper grades. Evidence of Socratic seminar and note taking was observed across classrooms visited.
- The school recruits selected Black and Hispanic male students for the Urban Ambassadors program which provides SAT preparation, tutoring, college counseling and college tours across the United States. The school also selects students to participate in the Long Island University (LIU) Liberty Partnerships college readiness program, which provides SAT preparation, tutoring, mentoring, discussions groups and educational field trips.

Quality Indicator:	4.2 Teacher teams and leadership development	Rating:	Well Developed
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Findings

The vast majority of teachers are engaged in inquiry based professional collaboration and teacher teams systematically analyze key elements of classroom practice, assessment data and student work.

Impact

Professional collaboration and shared analysis results in strengthened teacher capacity and mastery of goals for groups of students.

Supporting Evidence

- All teachers participate in professional learning communities, grade level and content teams. Each department has developed benchmark goals for the students they serve and identified shared areas of practice for improvement. Each department has identified targeted students for which they track data, identify academic strengths and needs and develop specific strategies for improvement. Strategies for one targeted student include “Student will continue to practice problems that involve extracting data from graphs and tables.”
- Coaches and supervisors observe team meetings. Meetings follow protocols for data analysis and strategic planning. Strategies developed during team meetings are implemented across the department. Teams utilize school wide tools to support their work including a data analysis worksheet, focal student protocol and focal student-tracking sheet. The focal student protocol includes student learning targets, baseline assessments, areas of weakness, areas of strength, strategies to implement, upcoming lessons, planned assessments and the criteria for student success.
- The school leader attributes the consistent improvement in Regents examination performance to the development of a professional learning community. According to school leaders teamwork is now a part of the school culture. Regents’ performance has shown consistent improvement since 2012 across content areas. Algebra Regents pass rate was 60% in 2012 - 2013, 81% in 2013 - 2014 and 91% in 2014 - 2015.
- During the English team meeting teachers analyzed student data from a mock ELA Regents examination. Teachers analyzed particular questions that caused students the most difficulty and proposed possible misconceptions or gaps in comprehension. One teacher noted that a particular question referred students to lines 8 and 9 in the text but students needed to “go a few lines before and a few lines after to find the answer to the question.” The team decided to support students by practicing recursive reading and reminding them to read before and after lines to understand the text and identify the correct answer.
- During teacher team meetings teachers identified ways the work on the content teams has improved their practice and demonstrated growth for students. One teacher noted that a colleague shared a text analysis strategy that she uses with her students and the strategy and acronym has become a staple across departments to help students analyze text. A math teacher noted that his colleague shared the “physics 5” problem solving strategy and it has helped him support students with problem solving. He noted that performance results of his targeted students have improved, particularly in their calculations using the new strategy.