



**Department of
Education**
Carmen Fariña, Chancellor

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

Quality Review Report

2014-2015

Brooklyn Science and Engineering Academy

Middle School K763

**5404 Tilden Avenue
Brooklyn
NY 11203**

Principal: Angela DeFilippis

**Date of review: March 25, 2015
Lead Reviewer: Beverly A. Wilkins**

The School Context

Brooklyn Science and Engineering Academy is a middle school with 79 students from grade 6 through grade 8. The school population comprises 98% Black, and 1% Hispanic students. The student body includes 1% English language learners and 5% special education students. Boys account for 63% of the students enrolled and girls account for 37%. The average attendance rate for the school year 2013-14 is not available due to new school status.

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 Framework for Teaching, 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	Proficient

Area of Celebration

Quality Indicator:

1.1 Curriculum

Rating:

Well Developed

Findings

The school delivers engaging curricula aligned to Common Core Learning Standards and strategically emphasizes instructional shifts resulting in coherence across the grade and subject areas. Academic tasks refined and modified stimulate higher-order skills so that all learners demonstrate their thinking.

Impact

Thoughtfully designed units of study, lessons, and academic tasks promote college and career readiness for all students, including English language learners and students with disabilities.

Supporting Evidence

- The principal and teachers have engaged in professional learning for curriculum design. Using the University of Pittsburgh's Institute for Learning (IFL) template coupled with approved curricula as the process for ensuring a coherent and consistent instructional program. The school's English language arts curriculum for example builds on skills and concepts aligned to the Common Core shift of coherence. For each content area specific Reading Standards for Literacy in Science and Technical Subjects embed opportunities for students to support arguments, synthesize new concepts, solve real world problems, close read, engage in discussions, and explain reasoning in writing.
- Teachers develop tasks and opportunities for students to demonstrate mastery of skills as they progress through increasingly complex content in all subjects. The integration of higher-order skills and rigorous habits began with the genesis of the school. The principal and teachers converted Common Core Standards across all middle school grades and subjects to identify embedded content and skills. Lesson plans include specific learning targets and learning target solutions across subjects that strategically spotlight what students will be able to do in "I can" statements aligned to Common Core Standards. Learning Target Solutions delineate how students will demonstrate mastery of skills. Examples of scaffolds reflected in reviewed lesson plans include vocabulary development, tiered questions for English language learners (ELLs), students with disabilities, and high achieving students; turn and talk strategy for oral rehearsal prior to discussions; and the use of technology to incorporate visual aids providing access for all learners.
- Modifications and revisions of curriculum and lessons to address the gaps in student learning include additional lessons for re-teaching, leveled articles to access key concepts, the use of graphic organizers, extensions of technology via web searches, and additional formative assessments such as conferring. Changes in unit maps across content areas reflected teachers' use of student work and data.
- A unique feature of the school is its Science Technology, Engineering, and Math instructional platform. Students participated in the Manahatta 2409 program, which is part of the Wildlife Conservation Society's Cities and Wildlife initiative that examines relationships between cities and wildlife. The Student Spaceflight Experiments Program (SSEP) afforded higher-order cognitive engagements with real life application. Students' designs explored the affects of microgravity on the germination of a variety of seeds.

Area of Focus

Quality Indicator:

1.2 Pedagogy

Rating:

Proficient

Findings

Pedagogy is aligned to the curricula, reflects a shared set of beliefs about how students learn best and is informed by the Danielson Framework for Teaching and the instructional shifts. Teachers consistently provide lessons that engage students in discussion and rigorous tasks.

Impact

Across classrooms, teachers use learning targets and scaffolds and ensure that discussions reflect the use of academic and content language. In some lessons, however, teacher questioning and engagement techniques were not deliberate, thus limiting full engagement and strategic entry points for all students.

Supporting Evidence

- The school's articulated beliefs about how students learn best are reflected in their Brooklyn Science and Engineering Academy Instructional Priorities document. The booklet summarizes the strategies for discussions, highlights teacher moves to support the exchange of ideas during student discussions, outlines assessment practices to pinpoint focus areas and quantify progress, and delineates strategies for rigor that activate higher-order thinking skills such as open ended questions and chunking the text during close reading activities. Instructional Priorities link elements of the Danielson Framework for Teaching: Domains Two and Three- Engaging Students in Learning and Instruction.
- During classroom visits, multiple opportunities for students to engage in high-level discussions and analysis of text were observed. For example, in an English language arts classroom students discussed European Imperialism employing Socratic Seminar protocols. Students in the inner circle discussed the theme and cited evidence from texts to make self to text claims that supported their argument. Students on the outer circle used post-it notes to pose questions and track the argument of three classmates, which elicited high-level participation. The lesson focused students including, ELLs and students with disabilities, on a rigorous task and afforded opportunities for all students to demonstrate their thinking, This high level of thinking and participation was also observed during a science lesson in which students elaborated on their misconceptions about simple machines and how their thinking affects learning.
- Aligned to the instructional shifts, students are consistently asked to represent their thinking, provided multiple entry points to curricula as evidenced by instructional plans and student groupings. The needs of learners are addressed in a variety of ways such as the re-teaching of strategies, modified tasks, vocabulary supports, and graphic organizers. During a math lesson, students shared that they sit at the same table because they have the same "area of struggle" or to help one another. As such, all students were engaged in appropriately challenging tasks with adequate.
- In most lessons, teachers' uses of questioning and discussion techniques support all learners in high levels of thinking and participation. However, some lessons did not reflect intentional entry points due to the low number of open-ended question posed as evidenced during a health lesson or during science whereas the same students were called upon. Thus, opportunities to demonstrate higher-order thinking and participate in the learning process were curtailed for some students.

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 and track goals across subjects. Teachers' assessment practices yield effective adjustments consistently meeting the learning needs of all students.

Impact

Instructional decisions and curricular adjustments engender increases in student mastery. Ongoing checks for understanding inform students of their next learning steps.

Supporting Evidence

- Assessments embedded throughout the curricula are aligned to the Common Core Learning Standards. Multiple forms of assessments are used to gauge student learning and monitor progress toward standards. Formative assessments such as quizzes, informal conferences, exit tickets, homework and rubrics as well as summative data that include essays, projects, and presentations administered on an ongoing basis provide a clear picture of student mastery. In turn, analysis of benchmark data and learning outcomes result in teachers' use of a data analysis protocol to reflect upon trends and gaps in learning, identify a focus area, set teaching goals, and develop instructional plans. Students evaluate their performance measured against the standards then create rubrics with learning progressions written in student friendly language.
- Common rubrics are used to assess content and skills. Teachers use standards-based and task specific rubrics across subject areas to enabling coherence in their analysis of student work and progress within the unit of study or a particular lesson. All students' progress is tracked so that adjustments to curricula target learning needs. For example, student performance on the Measure of Student Learning (MOSL) baseline assessment in math indicated that students with an individualized educational plan and ELLs were present with challenges when solving expressions, equations, ratios, and proportional relationship questions. The Numeracy Teacher Team developed action plans and made necessary adjustments to curriculum and instruction. Overall, ELLs experienced 24.18% gain and students receiving Special Education Teacher Support Services (SETSS) increased performance by 16.67% on midterm assessments.
- Teachers' use of checks for understanding and student self-assessment practices include entrance and exit tickets, a parking lot, use of higher-order questioning, monitoring group conversations, observations, checklists, peer and self-editing forms, and accountable talk protocols. In particular, teachers provide students with very specific feedback that translates into learning goals called "Keeps and Tweaks". Students discussed next learning steps as they described having to learn the format for structuring essays and short responses in writing as well as teacher suggestions for improving their grades in math, science, and social studies. Students assess their performance and participation using a school-created Socratic Seminar Self-Assessment form for reflection and by setting goals for the next seminar in self-identified areas for improvement. Peer assessment practices reflect students' understanding of standards-based work presented as "Glows and Grows", in rubric-based language. Therefore, classmates ensure peers aware of next learning steps.

Quality Indicator:	3.4 High Expectations	Rating:	Well Developed
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Findings

The principal and faculty systematically emphasize high expectations for professionalism and academic excellence to the entire community via ongoing communication and effective feedback and supports. Support provided through professional training and feedback to students and parents about progress toward expectations places students on a path to college and careers.

Impact

Structures that support high expectations assure a culture of mutual accountability among faculty and students. As a result, a culture of unified expectations fosters student ownership over their educational experience and preparation for the next level.

Supporting Evidence

- Students benefit and persevere from strong partnerships with the principal and the teachers who consider academic success and achievement of learners their central mission. All teachers wrote proposals for a "crew activity". Teachers offer enrichment activities to small groups of students creating a social and emotional support system to help build and foster academic achievement through a talent or interest. While reinforcing the school's PREP values: Prepare, Respect, Engage, Persist, which keeps students accountable to high expectation for learning, teachers and students share dedicated time engaged in robotics, newspaper, debate, chess and as reading leaders mentoring elementary school students. Thus, students are supported in developing a mindset essential to college and career readiness.
- Teachers engage in professional learning focused on instructional practices with expectations aligned to the Danielson Framework for Teaching. The principal communicates these expectations for pedagogical growth and capacity building by providing timely and targeted feedback to all teachers using the Advance System. By examining attributes of highly effective teachers and their practices, the bar is raised on effective performance among faculty. Ongoing dialogue and feedback result in empowerment of teachers toward the expectation of leading their learning. During professional learning sessions, individual meetings, observations, and intra- and inter-visitations, teachers receive a strategy or resource, such as "phone a friend", a system created by the principal to support mutual accountability for professional growth. In addition, the school's professional reading list includes *Conscious Classroom Management* to reinforce expectations for high quality teaching. Specifically, a teacher stated the principal sets standards, put structures in place to support uniformity, and consistently supports them in achieving high expectations.
- The school's keeps parents informed ensuring students have the appropriate at-home support. Parents are aware of what their children must be able to do by the end of sixth grade to be on track for the next level. Through IREADY and Pupil Path workshops that help parents understand data systems that track progress, they have constant access to student information. A student and family handbook and parent newsletters outlines policies and procedures that anchor expectations. Moreover, the school provides parents with tools such as access to Khan Academy to advance their understanding of content and skills, provide APPs for text messaging, and invite them to numerous activities. Parents believe the school is preparing their children for college and career paths. A STEM focus, science-based partnerships, project-based learning, and college tours support this belief.

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

All teachers participate in inquiry work giving rise to voice in key decisions that affect student learning across the school. Teacher teams review and analyze data and student work consistently.

Impact

Teacher teams deepen their focus in using data and student work resulting in improved teacher practice and progress towards goals for groups of students.

Supporting Evidence

- The school's focus on building a collaborative professional community through job-embedded capacity building engenders structures such as common planning time and teacher teams that focus on patterns and trends in student work. This work results in reflective practice and next steps in teaching. The implementation of Common Core Learning Standards across content areas is the impetus for collaborative work that produces methods and instructional strategies to improve student work and advance achievement toward meeting instructional goals. Based on analyses, teachers incorporate into their practice practical tools and designs that promote a variety of ways to improve the delivery of instruction. For instance, scaffolds include sentence starters, color-coding revisions to facilitate self-correction, differentiated texts, and the use of graphic organizers.
- All staff has a voice in key decision-making concerning curriculum, instruction, school climate, professional learning, school policies on personnel, discipline, and program design. Teachers collaborate consistently to utilize information about student performance, progress, attendance, behavior, and social supports. These distributive structures nurture teacher leadership.
- Teacher leadership is encouraged and supported across the school. The school in its first year is small, which results in all teachers becoming team leaders. All teachers conduct professional learning sessions, open their doors to inter-visitations, are ambassadors for their content and visit other schools to adopt and tweak practices.