Quality Review Report

2019-2020

Bronx Center for Science and Mathematics
High school 09X260
1363 Fulton Avenue
Bronx
NY 10456

Principal: Edward Tom

Dates of Review:
November 6, 2019 - November 7, 2019

Lead Reviewer: Phyllis Siwiec
The Quality Review Report

The Quality Review is a two-day school visit by an experienced educator. During the review, the reviewer visits classrooms, talks with parents, students, teachers, and school leaders and uses a rubric to evaluate how well the school is organized to support student achievement.

The Quality Review Report provides a rating for all ten indicators of the Quality Review Rubric in three categories: Instructional Core, School Culture, and Systems for Improvement. One indicator is identified as the Area of Celebration to highlight an area in which the school does well to support student learning and achievement. One indicator is identified as the Area of Focus to highlight an area the school should work on to support student learning and achievement. The remaining indicators are identified as Additional Finding. This report presents written findings, impact, and site-specific supporting evidence for six indicators.

Information about the School

Bronx Center for Science and Mathematics serves students in grade 9 through grade 12. You will find information about this school, including enrollment, attendance, student demographics, and data regarding academic performance, at http://schools.nyc.gov/Accountability/tools/report/default.htm.

School Quality Ratings

<table>
<thead>
<tr>
<th>Instructional Core</th>
<th>Area</th>
<th>Rating</th>
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</thead>
<tbody>
<tr>
<td>To what extent does the school...</td>
<td></td>
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</tr>
<tr>
<td>1.1 Ensure engaging, rigorous, and coherent curricula in all subjects, accessible for a variety of learners and aligned to State standards and/or content standards</td>
<td>Additional Finding</td>
<td>Proficient</td>
</tr>
<tr>
<td>1.2 Develop teacher pedagogy from a coherent set of beliefs about how students learn best that is informed by State standards and the Danielson Framework for Teaching, aligned to the curricula, engaging, and meets the needs of all learners so that all students produce meaningful work products</td>
<td>Area of Celebration</td>
<td>Well Developed</td>
</tr>
<tr>
<td>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</td>
<td>Area of Focus</td>
<td>Proficient</td>
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</table>
### School Culture

<table>
<thead>
<tr>
<th><strong>To what extent does the school...</strong></th>
<th><strong>Area</strong></th>
<th><strong>Rating</strong></th>
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<tbody>
<tr>
<td>1.4 Maintain a culture of mutual trust and positive attitudes that supports the academic and personal growth of students and adults</td>
<td>Additional Finding</td>
<td>Proficient</td>
</tr>
<tr>
<td>3.4 Establish a culture for learning that communicates high expectations to staff, students, and families, and provide supports to achieve those expectations</td>
<td>Additional Finding</td>
<td>Proficient</td>
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</table>

### Systems for Improvement

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<thead>
<tr>
<th><strong>To what extent does the school...</strong></th>
<th><strong>Area</strong></th>
<th><strong>Rating</strong></th>
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</thead>
<tbody>
<tr>
<td>1.3 Make strategic organizational decisions to support the schools instructional goals and meet student learning needs, as evidenced by meaningful student work products</td>
<td>Additional Finding</td>
<td>Proficient</td>
</tr>
<tr>
<td>3.1 Establish a coherent vision of school improvement that is reflected in a short list of focused, data-based goals that are tracked for progress and are understood and supported by the entire school community</td>
<td>Additional Finding</td>
<td>Proficient</td>
</tr>
<tr>
<td>4.1 Observe teachers using the Danielson Framework for Teaching along with the analysis of learning outcomes to elevate schoolwide instructional practices and implement strategies that promote professional growth and reflection</td>
<td>Additional Finding</td>
<td>Proficient</td>
</tr>
<tr>
<td>4.2 Engage in structured professional collaborations on teams using an inquiry approach that promotes shared leadership and focuses on improved student learning</td>
<td>Additional Finding</td>
<td>Proficient</td>
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<tr>
<td>5.1 Evaluate the quality of school-level decisions, making adjustments as needed to increase the coherence of policies and practices across the school, with particular attention to State standards</td>
<td>Additional Finding</td>
<td>Proficient</td>
</tr>
</tbody>
</table>
Findings

Across the vast majority of classrooms, teaching practices align to the curricula and reflect an articulated, coherent belief that students learn best through exhibiting clear working knowledge of content and its effective application through collaborations and discussions.

Impact

The shared beliefs among staff about how students learn best results in students taking ownership of their own learning. Student-led class discussions involve high levels of student thinking and participation.

Supporting Evidence

- Teaching practices reflect the beliefs that students should be supported by teachers to explain, present, and teach content to fellow classmates. Teachers and students understand that the teacher is not the only bearer of knowledge and expertise, but rather that knowledge and expertise can and should regularly come from other students. This was demonstrated in several classrooms, including in a conceptual chemistry class that presented chemistry through food and food science. After reading an article, students discussed the subject of monosodium glutamate as a food additive that occurs naturally in some foods and its association in Chinese food that exaggerates its negativity. In another class, students analyzed a poem using a structured protocol. Students managed the entire discussion among themselves in partnerships and taking notes so that each partner expressed what was said by the other. Students emphasized figurative language noting the words that were negative in the poem but used with a positive tone.

- Students produce meaningful work products across the vast majority of classrooms. In an Advanced Science Research class, students worked independently and in teams to present their latest work on research projects that were student-originated and produced. In a grade-ten Global History class, groups of three to five students worked together to create Document Graffiti in a series of steps connected to specific tasks. Using a different color for each member, students underlined words and phrases that described how a group of people experienced life during the Industrial Revolution. Students jotted notes in the margins to indicate if the underlined words or phrases were negative or positive, while the final step focused on questions or wonderings left after the annotation was completed. Students passed each article to their tablemates and went through the steps with each one. Students across classrooms use a variety of high-level protocols to produce meaningful work products.

- Student work products and discussions in most classrooms show high levels of student thinking, participation, and ownership. For example, student discussions in a number of settings include partnerships, small table groups, and stations that demonstrate dialogues, conversations and presentations. In one class, students shared Antebellum reformers, a primary source they researched and its inspiration. One student shared research about Frederick Douglass’s newsletter where he wrote that the US Constitution is pro-slavery. Classmates then had a conversation about where in the Constitution is evidence of pro-slavery language. Another student presented her perspective on Harriet Tubman after reading part of her diary and her relentless trips on the underground railroad, first to retrieve her husband and later, others. The student wrote a letter from Tubman’s perspective and in class stated that Tubman was fearless. In another class, a student who had struggled in physics, talked about her journey through the course involved learning to embrace mistakes as guidance to overcoming challenges. She now serves as a Teacher-Assistant in physics to help others as she was helped.
Area of Focus

<table>
<thead>
<tr>
<th>Quality Indicator:</th>
<th>2.2 Assessment</th>
<th>Rating:</th>
<th>Proficient</th>
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Findings

Across classrooms, teachers use and create assessments and rubrics that align with curricula and provide actionable feedback, especially in writing projects on online documents. Across classrooms, teachers’ assessment practices reflect checks for understanding and student self-assessments.

Impact

Across classrooms, feedback is not yet consistently meaningful in all grades and subjects. Across classrooms, most assessment practices lead to effective adjustments that meet the learning needs of most students; however, not all students are aware of their next learning steps.

Supporting Evidence

- Teachers reported that the criteria for feedback includes that it is clear, explicit, and delivered as soon as possible. After examining feedback samples found on a variety of student work, the range of feedback included no additional comments and a numerical score, circled sections of rubrics with written points, writing projects with teacher’s comments throughout the drafts, and a form of a checklist attached to an essay in Advance Placement (AP) US History assignment with points earned. In some cases, students were not clear about next steps until they conferred with the teacher. Students shared that in some courses instructors intentionally stated that rubrics would not be provided since the courses were modeled on college-level courses, which do not use rubrics. Students stated that they need to confer with teachers to ensure their understanding; however, not all students confer with each teacher, so feedback is loosely based on teacher availability and student understanding. Thus, not all feedback is meaningful.

- Across classrooms, teacher assessment practices reflect the use of checks for understanding that include checking in with project work to monitor status of long-term projects, the use of five fingers displayed to check on completion of work, and students raising their hands to see who needs extra support. The most frequent teacher check for understanding is when they move and walk around the class checking in with table groups. In one math class, a teacher used solutions from each student to use as a check for understanding for each other’s work. This teacher then regrouped students to provide a more targeted revisit of the problem to offer guidance and additional support. In most observed classes, there was limited evidence of varied methods as in using whiteboards. Students did ask their peers or partners for assistance, but in most cases, teachers checked in with each table group or partnership and clarified questions as the primary method for checks for understandings. Students were not always aware of their next learning steps as a result of not all classes use rubrics. In addition, students shared that sometimes students will ask a peer instead of the instructor to clarify feedback as they are more comfortable approaching a peer.

- In many classes, students presented information up at the interactive white board either in teams or independently using PowerPoint presentations, teaching classmates topics related to the current content. Student-to-student questioning occurred during or after the presentation as a form of peer assessment. To improve whole-class learning, the rest of the class are active observers taking notes and/or filling out peer evaluations/feedback forms for the presenters. Missed opportunities occur when students rely on other students for next steps or teachers have not made sufficient feedback so that students can understand internalizing their advice.
Additional Finding

<table>
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<tr>
<th>Quality Indicator:</th>
<th>1.1 Curriculum</th>
<th>Rating:</th>
<th>Proficient</th>
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**Findings**

School leaders and faculty ensure that curricula align to State standards and make purposeful decisions to establish time for teachers to collaborate. Curricula and academic tasks consistently emphasize rigorous habits and higher-order skills.

**Impact**

Reviewed curricular documents are building coherence while promoting college and career readiness and accessibility for a variety of learners.

**Supporting Evidence**

- School leaders and faculty have aligned curricula to State standards and are building coherence by including key elements in their plans across departments and grades. The instructional foci areas for the entire school include coherence in lesson and unit plans, student engagement, and assessment. These areas are outlined across lesson plans as aims or learning objectives, essential questions, State standards, key texts, and assessments. Individual content areas may have distinctive elements added to plans to better describe the expectations and depth of understanding needed to meet learning objectives. In addition, all teachers develop curricula with students at the center and teachers as facilitators. Coherence across subjects and grades is based on writing across the content areas. The same writing rubric is used in grades nine and ten with grade nine focused on structure. In addition, social studies and English Language Arts (ELA) use a shared rubric. Humanities is taught in a 90-minute block of time as a double period with common themes. Last year, the focus for grade nine was identity. For grade ten, the focus was on Hamilton education that supported the Broadway play Hamilton and the creation of original materials that students produce. Students wrote their own versions of Hamilton-based plays and had the opportunity to perform in front of their classmates on the stage, thus encouraging students to ponder being connected to play writing or acting as possible future careers.

- Lesson plans include activities requiring higher-order thinking across grades and subjects, requiring all learners, including Multilingual Learners (MLLs) and students with disabilities, demonstrate their thinking in oral or written form. In a grade-nine English lesson plan, all students, including MLLs, analyze and share web-based resources found during research into an argumentative essay about leadership. Students focus on identifying the most important qualities and comparing a chosen leader with the described qualities. An Algebra II lesson plan indicates that students are to move from station to station, after working collaboratively to solve the first problem. All begin with just one problem which they must work together to solve and justify. Based upon self-perceived skills, students choose in each group which students will make up the half that will travel to the next station and which will stay to help collaborate with the next visiting group. The lesson is carefully crafted to be as supportive as possible so that all learners can collaborate, learning one problem at a time and either teaching another group or strengthening what they know by interacting with new teams and problems.

- In order to support all learners, extra time was designed to provide those students who need more instruction to succeed with a rigorous curricula. Period zero occurs before school time for extra instruction and guidance and is mandatory for all students with disabilities. Additional time is also provided to all AP classes with double periods every other day. An example of impact is shown in the AP Calculus exam where students improved with a total score for the class of 20 points for the mock exam while scoring 40 for the actual Advanced Placement exam.
Findings
School leaders consistently convey high expectations to the entire staff through their staff handbook, feedback from walkthroughs, and professional learning aligned to the Danielson Framework for Teaching. The school provides ongoing information to families regarding student progress toward college and career readiness.

Impact
School leaders provide training and facilitate a system of accountability for expectations. Families understand student progress towards meeting standards.

Supporting Evidence
- High expectations are consistently communicated to the entire staff by school leadership through teacher’s individual goal setting, teacher observation feedback, and the principal’s beginning of the year presentation about goals. In addition, school leaders share expectations of high standards with staff including behavioral and academic elements through their staff handbook. Expectations to prepare students for citizenship are grounded in the values of respect, integrity, honor, excellence, commitment, perseverance and service. When teachers receive their staff handbook, they review through professional development (PD) sessions a wide variety of expectations ranging from day to day professional conduct, student safety, grading and academic policies as well as a pledge that they sign as an agreement to holding themselves accountable to standards of practice in interacting with parents and students so that students will be successful and supported in work they produce. The accountability system to monitor how well expectations are being held is based on walkthroughs, informal feedback, and monitoring minutes of teacher team meetings by school leaders.

- School leaders and staff communicate expectations to students and their families through regular communications via phone and email as well as a comprehensive handbook. The handbook includes expectations as to students’ daily attendance, academic and personal behaviors, as well as grading policies. Students and guardians also have pledges to sign as mutually supportive of expectations. Information as to school-based parent meetings as well as information sessions and celebrations of student successes hosted by the school’s partnering organizations is shared via phone calls and emails. Additionally, teachers use an online grading system to keep families constantly informed of their children’s academic progress. Parents also spoke about accessing a school-based reporting system that permits parents to know how well students are progressing with grade reports and attendance. Six parent-teacher conferences per year are face-to-face and are regarded by parents to be opportunities to solidify progress of students and how parents can help.

- According to parents, in order to help them better understand student progress towards student expectations for college and career, a College Office has been established that offers trips to various campuses, both locally and in other states that teachers also will discuss with students. One parent reported, and all present agreed, that teachers help parents understand what their children are doing in school and how to help them succeed through workshops that include topics such as the Mastery-based grading system, opportunities for student internships, and the college application process. As a result, parents understand student progress towards expectations.
**Additional Finding**

<table>
<thead>
<tr>
<th>Quality Indicator:</th>
<th>4.1 Teacher Support and Supervision</th>
<th>Rating:</th>
<th>Proficient</th>
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### Findings

School leaders support the development of teachers with effective feedback and next steps from frequent cycles of classroom observations and analysis of student work. Using the Danielson *Framework for Teaching*, school leaders provide teachers with feedback that accurately captures strengths, challenges, and next steps.

### Impact

School leaders use feedback that articulates clear expectations for teacher practice, supports teacher development, and elevates schoolwide instructional practices that promote professional growth and reflection.

### Supporting Evidence

- Effective feedback is provided to teachers through frequent cycles of formal and informal teacher observations, emails, and in-person discussions that communicate strengths, challenges, and next steps. As an example, a teacher was informally observed and given many positive statements in a Teacher Observation Report. Recommendations included making sure that all students were on task. A few students were not as engaged in the lesson and needed more motivation to be part of the discussion and not passive observers. The following observation took place one week later and the written response included that most of the students were engaged and on-task with the lesson. The evaluator then moved to another area needing improvement as there was sufficient evidence of meeting the first area of recommendation. Since school leaders have such high expectations for students, teachers feel that their understanding is to increase their own skill levels and opportunities for collaboration in order to meet these expectations. “Conversations with feedback allow me to grow as a professional," one teacher shared.

- School leaders reported that they review observation data regularly to track trends across the school and have a range of supports for teacher development. Teachers who are in need of growth in a certain domain or component are offered many tools for development including intervisitation with colleagues or a more informal arrangement called Open Classroom where teachers themselves arrange visitations between themselves to target concerns or information gathering. Department leaders are asked to address trends at their team level meetings as they have all created goals and are monitoring progress by regularly looking at student work. Frequent check-ins that include lesson plan reviews, walk-throughs, observations, coaching meetings, scheduled release time with feedback, all work in tandem with the Danielson *Framework for Teaching* to strengthen instructional capacity, as shared by school leaders and teachers. Walkthroughs are particularly effective in monitoring teacher practice, informing future PD sessions, and providing teachers with feedback on how well as a group and as individuals they are improving in targeted practices.

- Feedback to teachers from school leaders and coaches is evident in emails, summary notes after verbal debriefs, and in formal and informal observation reports. Feedback captures strengths, challenges, and next steps. For example, a school leader who noticed that several students were quiet at the beginning of class, wrote to a teacher to ensure that all students have an entry point into the lesson and are sharing out what they know with each other as a way to involve more students at the start of the lesson. Further, the feedback also suggested to encourage students to get out of their seats, walk around and ask other students outside their pair/share partners in order to engage in more peer assessment and conversations. This feedback related to increasing student engagement in the class helped move this teacher from effective to highly effective in engaging students in learning using the Danielson *Framework for Teaching*. 

09X260: November 6, 2019
### Additional Finding

**Quality Indicator:** 4.2 Teacher Teams and Leadership Development  
**Rating:** Proficient

### Findings

Across grades and departments, the majority of teachers are engaged in structured, inquiry-based professional collaborations through department teams that meet weekly. Distributed leadership structures are in place that foster teacher leadership development.

### Impact

Teacher collaborations promote the achievement of school goals, the implementation of State standards, and strengthen the instructional capacity of teachers. Structures for teacher leadership support teachers’ having a voice in key decisions that affect student learning across the school.

### Supporting Evidence

- One schoolwide goal is teacher development through effective PD. The focus areas include assessment and student engagement along with improved teacher reflection as well as adopting a data-driven approach to identifying instructional strengths and opportunities for growth among the staff. Data points that direct this work include graduation rates, college readiness rates, student perception surveys, and school quality guide snapshots. Further, instructional foci are assessments and student engagement as a result of Advance teacher classroom observations and student perception surveys. The faculty members that have been identified to be in greatest need of support by both the administration and departmental instructional leaders are assigned a mentor along with assistant principals who conduct frequent classroom visitation and observations and provide feedback and support. The PD calendar has time allotted on Mondays to address department team concerns and special projects while grade-level homeroom faculty discuss issues and concerns, and Regents testing and mock results are presented, all on a rotating schedule. The impact of training teachers in mastery learning and using their new Mastery grading guides has led to improved student performance, and opportunities for increasing motivation in students as they now work towards a mastery level performance instead of just a grade, as shared by students and teachers.

- Department teams meet twice out of every five days and discuss alignment across courses to ensure that essential skills are being addressed and building upon each other. Intervisitation triads made up of three cross-content teachers meet as support and professional development structures. Using a looking-at-student-work protocol, an observed math department team meeting demonstrated the team’s focused review of student work assessment samples in order to determine next instructional steps for struggling students. Next steps included a discussion about direct instruction as a strategy for those who need a less complicated, more explicit presentation in order to more fully understand both concepts and application. Looking at student work protocols provide guidance and proposed future teacher movements that lead to improved student mastery as expressed in post-unit assessments as well as in teacher and school leader conversations.

- Distributed leadership structures are in place, so teachers have built leadership capacity with several options. Department team leaders have a voice in key decisions that affect student learning by hosting weekly meetings. Baseline data are brought to these meetings to inform the customization of instruction and supports for all students. Department lead teachers are responsible for ensuring alignment within their department through all grade levels within their respective content area. Content and State standards are also included in the alignment process. In addition, teachers stated that their members of the School Leadership Team share the responsibility of developing schoolwide goals, making sure that all stakeholders are informed, and monitoring and reporting progress on these goals throughout the year.